



## First record of a population of the exotic cricket *Homoeogryllus tessellatus* (Serville, 1838) in the Netherlands

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### Abstract

The unintended import of an exotic cricket and the subsequent establishment of a breeding population in a large plant nursery is reported. No free-living population has been found. The ongoing distribution, caused by the selling of contaminated tropical plants and its consequences are discussed.

**Keywords:** Infestation, plant nursery, spread

### Zusammenfassung

**Erstnachweis einer Population der exotischen Grille *Homoeogryllus tessellatus* (Serville, 1838) in den Niederlanden.** Der unbeabsichtigte Import einer exotischen Grille und die spätere Gründung von einer sich fortpflanzende Population in einer großen Gärtnerei wird gemeldet. Es wurde keine freilebende Bevölkerung gefunden. Die laufende Verbreitung durch den Verkauf kontaminierter tropische Pflanzen und deren Folgen werden diskutiert.

**Schlüsselwörter:** Ausbreitung, Befall, Gärtnerei

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Several specimens of an unidentified cricket species were obtained from a poison arrow frog terrarium keeper in Delft. The terrarium keeper got the crickets with bromeliad plants from a local nursery with a known cricket infestation. The bromeliad seller apparently struggles with a large population of these crickets, but wants to stay anonymous. With this short communication it is intended to inform about the occurrence of the exotic cricket species with a thriving population within a - for the time being - contained area new for the Netherlands.

Two initially acquired frozen females were dry pinned. A male arriving alive was temporarily kept to observe its behavior and for a bioacoustical study. Five additional dead specimens in poor condition, four females and a male, coming from

glue boards at the plant nursery were received, too. All specimens were incorporated in the author's private collection (Fig. 1). The male's genitalia were dissected and photographed (Fig. 2). The right tegmen of the male was prepared, so the file tooth number could be studied under a light microscope. Identification of the genus was done according to Desutter (1985) and Desutter-Grandcolas (2015). The genitalia were compared with line drawings and pictures published by Desutter (1985) and Gorochov (1988, 2018). The characteristics are similar to those known from *Homoeogryllus tessellatus*, which has been confirmed by Laure Desutter (pers. comm.). Emitted song frequencies are in a narrow frequency band with the center frequency around 5 kHz. The results of the bioacoustical research will be revealed in a separate publication. On the basis of male genitalia, combined with the habitus, wing file teeth number and the song the species unambiguously can be assigned to *Homoeogryllus tessellatus*. The species epithet *tessellatus*, with one "l", has been in use by for instance Desutter (1985) and Gorochov (1988) according to the original description of *Phalangopsis tessellata* by Serville (1838). In some publications the epithet is written inconsequently with one and two "l's", e.g. by Leroy (1964) and Baker et al. (2015). The Orthoptera Species File Online uses *tessellatus* (Cigliano et al. 2021) and refers to a justified emendation (incorrect original spelling).

Information was received about crickets popping up in tropical frog terraria on several occasions after acquiring tropical plants. The situation at the source of these animals at a bromeliad nursery is only known by an intermediary person, as all contact attempts to the owner were denied. Apparently, a lot of crickets live at the nursery. The owner complains about feeding damage to the plants and noise disturbance by singing males. In an attempt to eliminate the population, active management by the use of glue boards has been initiated. The infestation at the nursery probably has been going on for several years. A search on a Dutch tropical frog breeders Facebook group resulted in a report of crickets observed at home as early as 2018.



**Fig. 1:** Dorsal view of the habitus of a male (left) and female of *Homoeogryllus tessellatus* both sexes.



**Fig. 2:** Male genitalia *Homoeogryllus tessellatus* (dorsally, ventrally, laterally) from the right and ventro-posteriorly.

*Homoeogryllus tessellatus* has not been reported before from the Netherlands. Single individuals of this bell cricket already have been found on two occasions in Europe, i.e. Belgium and Poland (Żurawlew, 2009, Żurawlew et al. 2020), but there are no previous indications of reproduction in Europe, beside keeping them as pet animals. Just prior to publication a record of *Homoeogryllus spec* was found on the Dutch platform Waarneming.nl from a greenhouse complex in Klazienaveen. However, identification is not possible on the basis of a picture of a female and a nymph.

The species' distribution is the southern part of West-Africa, e.g. Ivory Coast, Guinea, and Sierra Leone (Desutter 1985). Long term survival outdoors of this tropical species in temperate Europe can be ruled out. However, settlement and spread in continuously warm environments with available food is likely, e.g. greenhouses, zoos, garden centers, bakeries, tropical swimming pools, retirement houses and factories.

Some bell cricket species have been circulating among insect pet keepers, at least until 2016. The unidentified crickets bred in captivity (e.g. in Germany) under the provisional name *Homoeogryllus* sp. 'Kuba' morphologically very much resemble *H. tessellatus*. No specimens were available to check this, as the captive population apparently has become extinct some years ago. This former captive population is not likely to be the source of the infestation in the Netherlands. The pet animals acted like generalist feeders and are not critical in food preference (pers. inf. former breeder). This information leads to the conclusion that they potentially could become a problem for a large range of plants, vegetables and fruits. However, no information could be found about detrimental effects on crops in its native range. As the trapped animals in the terrarium gladly ate cucumber, an economic impact cannot be ruled out for cucumber growers and other greenhouse farmers, which are present near the presumed nursery's location. Especially for organic cucumber farmers this could become a major problem as they cannot use chemical pesticides.

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