

LIVIA JUNCI (SCHRANK, 1789) (HEMIPTERA, PSYLLIDAE): A NEW SPECIES OF IRAQI ENTOMOFAUNA

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Abstract – First data on the occurrence and distribution of *Livia junci* in Iraqi Kurdistan are given. *Juncus cfr. fontanesii* J. Gay ex Laharpe specimens were collected on June 8, 1958 near the village of Dinartah (Dinarta), Nineveh (Ninawá) Province, NE of Mosul, 650 m a.s.l. (specimens at the RBG Kew Herbarium, E. Chapman 26131). We observed galls on *Juncus* plants, which formed in response to *Livia* feeding. Psyllids typically feed on dicotyledonous plants; however, *Livia* genus developed on monocots.

Key words: *Livia junci*; gall; witches brooms; Hemiptera; Psyllidae; *Juncus fontanesii*; Juncaceae

INTRODUCTION

Juncus fontanesii J. Gay ex Laharpe (Juncaceae) is a species occurring in southern Europe, northern Africa and western Asia, extending to Pakistan. This taxon is variable, with a series of local forms (Kirschner et al., 2002). Within the species, five subspecies are recognized: *fontanesii*, *pyramidalatus* (Laharpe) Snogerup, *kotschyi* (Boiss.) Snogerup, *brachyanthus* Trab. and *minusculus* O. Bolòs & Vigo (Bolòs and Vigo, 2001; Kirschner et al., 2002). Two subspecies of *Juncus fontanesii*: *pyramidalatus* and *kotschyi* occur in Iraq (Kirschner et al., 2002).

Livia junci (Schrank, 1789) is a jumping plant lice, a small plant-feeding psyllid belonging to the subfamily Liviinae (Hemiptera). These phytophagous sap-sucking insects develop on monocotyledonous

plants; the larvae feed on species of the genus *Juncus* (Juncaceae) on which they induce characteristic galls called witches brooms (Hodkinson and Bird, 2000). It is possible to predict the occurrence of the associated psyllid species based on the distribution data of their host plants.

Livia junci (early *Livia juncorum*) was described in 1798 by Latreille, who called it *Psylla juncorum*. In 1802, this author established a new genus *Livia* with the typical species – *Livia juncorum*; later this name was synonymized with *Livia junci* (Schrank, 1789).

Another species, *Livia jesoenensis* Matsumura, 1908, occurs in the Far East including the Russian Far East (Amur Oblast) (Hodkinson and Bird, 2000). Their host plant is *Juncus prismatocarpus* var. *leschenaultii* (Uye, 1936). Additionally, this taxon was

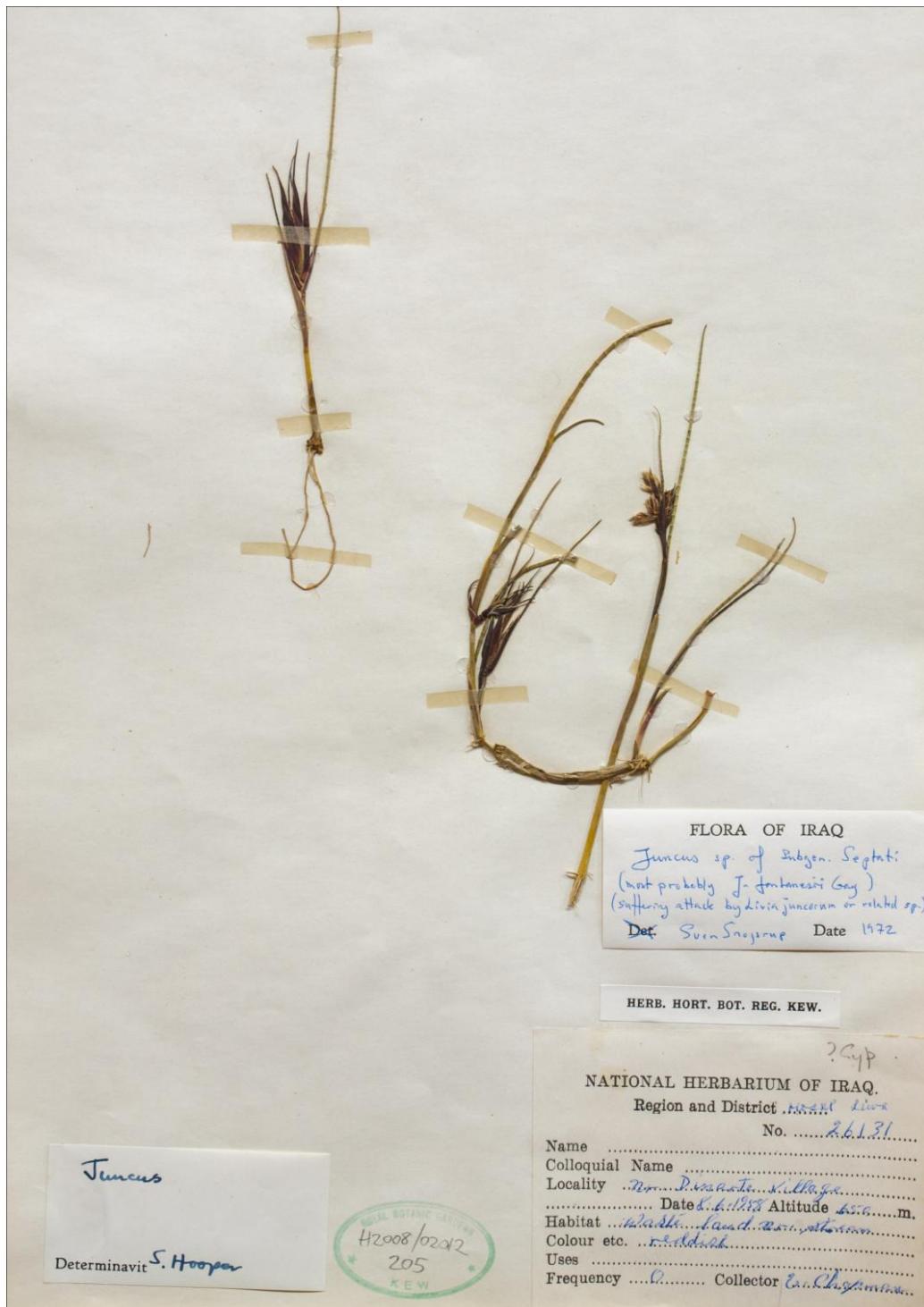


Fig. 1. Herbarium sheet E. Chapman 26131 from the RBG Kew Herbarium with the specimens of *Juncus* cfr. *fontanesii* that includes "witches brooms" resulting from the feeding of *Livia junci*.

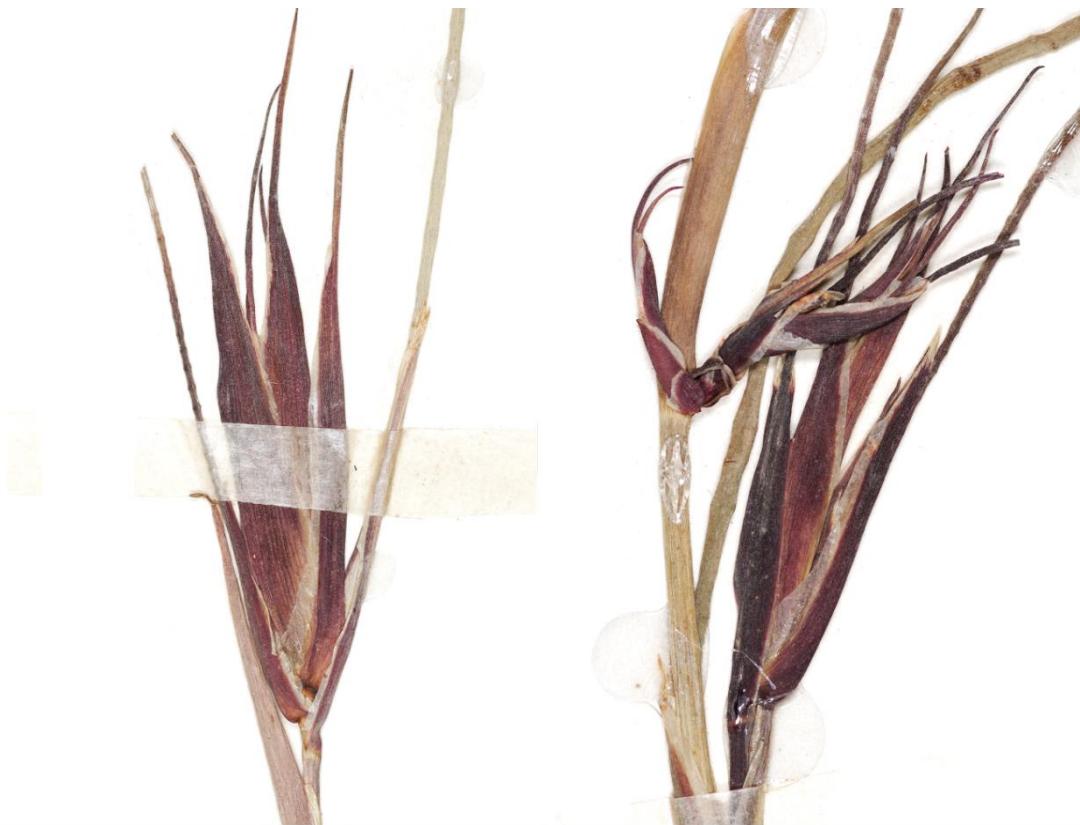


Fig. 2. "Witches brooms" (magnification) on the *Juncus* cfr. *fontanesii* specimens from the RBG Kew Herbarium sheet (E. Chapman 26131).

reported from Kuril Islands (Hodkinson and Bird, 2000), China (Guandong Province), Japan and North Korea (Hodkinson and Bird, 2000).

A different psyllid – *Livia khaziensis* Heslop-Harrison, 1949, was recorded from Northern India (Hodkinson and Bird, 2000), Hong Kong (Hill, 1982) and Vietnam (Klimaszewski, 1964); it feeds on *Juncus prismatocarpus* var. *leschenaultii*, which also serves as a host for *L. jesoensis* (Uye, 1936).

The nearest localities of infected and transformed shoots, so called "witches brooms", are known from Iran and were listed early by Loginova (1962, 1972) and Mathur (1975) but without a detailed site description or even indication that they really had seen the material. It was recorded from localities in Iraqi Kurdistan by Heslop-Harrison (1949) and assumed by him to occur in Iran. Burckhardt and Lauterer

(1993) in their monograph of jumping plant lice of Iran analyzed the specimens coming from two localities: W Kakan, Kuh-e-Dena [Kohkiluyeh va Boyer-ahmad prov.], 2 500 m a.s.l. (collected in 1967), and N Iran, Rezvandeh (= Rezvanshahr) [Gilan prov.] (collected in 1977). The first is located about 920 km SE in a straight line from the locality described here, but the latter is the nearest, and located about 470 km ENE. Additionally, this species was reported from Turkey, in the vicinity of Ankara (Burckhardt and Önuçar, 1993), about 1 030 km NW in a straight line from the locality described here.

In our previous work (Jarzembowski et al., 2013), we presented information on the occurrence of the final stadium larvae of *Livia junci* on the herbarium sheet of *Juncus fontanesii* from Portugal. Knowledge of the distribution of psyllids and of their host plants in the world is still incomplete and in general poorly

investigated. This paper presents data on the first record of the occurrence of *Livia junci* on *Juncus* cfr. *fontanesii* from North Iraq.

MATERIALS AND METHODS

During our research into the life cycles of the host plants (representatives of the Juncaceae family) and the insects attacking them, in the gathered herbarium material we found *J. cfr. fontanesii* specimens with transformed shoots, so-called "witches brooms". The plants were collected on June 8, 1958 (leg. *E. Chapman*, No. 26131), in North Iraqi Kurdistan (Nineveh (Ninawá) Province, Mosul: near village Dinartah (Dinarta), 650 m a.s.l., wasteland near a stream (specimens at the RBG Kew Herbarium, *E. Chapman* 26131, Figs. 1-2). The nomenclature of Juncaceae family is congruent with Kirschner's work (2002), whereas the nomenclature of *Livia* genus was adopted after Ossiannilsson (1992).

RESULTS AND DISCUSSION

Within the studied herbarium sheet (*E. Chapman* 26131, from the RBG Kew Herbarium, Figs. 1-2), there were three plants on which "witches brooms" of various size were formed (Figs. 1-2).

Preliminary analysis of the material confirmed the presence of *Livia* larvae. Further analysis was not possible due to the state of the material.

Sven Snogerup, the author of the determination label in 1972, described the herbarium sheet as "*Juncus* sp. of sub gen. Septati, most probably *J. fontanesii* Gay, suffering attack by *Livia juncorum* or related sp." However, taking into account that three *Livia* species feed on *Juncus* sp., which further confirmed literature information given by Hodkinson and Bird (2000) that the parasite *Livia junci* is the one and only representative of the genus *Livia* that feeds on *Juncus* species in this part of the world (the Palaearctic Region), it becomes evident that it cannot be a related species but that it is *Livia junci*.

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