

FIRST RECORD OF THE NEARCTIC LEAFHOPPER *JIKRADIA OLITORIA* (SAY, 1830) (HEMIPTERA: CICADELLIDAE) FROM SPAIN AND UPDATE ON ITS DISTRIBUTION IN EUROPE

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ABSTRACT

The Nearctic leafhopper *Jikradia olitoria* (Say, 1831), introduced into Europe and recorded so far from Italy, Corsica and Austria, was found for the first time in Spain. Furthermore, its occurrence in France and Switzerland is documented both by findings and by tracking via internet photo sharing websites. Its European distribution is updated. Morphology, habitat, and potential phytosanitary issues are explained and discussed.

Keywords. Alien species; Auchenorrhyncha; Coelidiinae; Nearctic.

RESUMEN

Primera cita del cicadélido neártico *Jikradia olitoria* (Say, 1831) (Hemiptera: Cicadellidae) en España y actualización de su distribución en Europa

El cicadélido neártico *Jikradia olitoria* (Say, 1831), introducido en Europa y registrado hasta ahora solo en Italia, Córcega y Austria, se encontró por primera vez en España. Se documenta además su ocurrencia en Francia gracias a muestreos y a través de rastreos vía repositorios de fotos de aficionados a la naturaleza. Se actualiza su distribución en Europa. Se explican y se discuten su morfología, hábitat y posibles problemas fitosanitarios.

Palabras clave. Especies exóticas; Auchenorrhyncha; Coelidiinae; Neártico.

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Introduction

The leafhopper genus *Jikradia* Nielson, 1979 belongs to the tribe Teruliini in the subfamily Coelidiinae. To date, it includes 22 species (Dmitriev *et al.*, 2022), distributed in northern and central America. One of them, *J. olitoria* (Say, 1831), distributed in the eastern half of the United States and southeastern Canada, was accidentally introduced into Europe, where it was found for the first time by one of the authors (F.P.) in northern Italy in 2010 (Nielson *et al.*, 2014). Later, it was also found in Corsica (Albre & Gibernau, 2019) and in Austria (Kunz *et al.*, 2025). This polyphagous species has been mentioned in two studies as a potential phytoplasma vector on plants of agricultural interest; however, there is no definitive evidence that it acts as an effective vector under field conditions, and its actual phytopathological relevance remains uncertain, especially since no damage has been reported in Europe to date. In the present paper, we document for the first time the occurrence

of *J. olitoria* in Spain (Valencian Community, prov. Alicante) and confirm its presence also in mainland France and Switzerland, by tracking internet photo sharing websites of “citizen science”.

Material and methods

In July 2023 one of the authors (A.C.) collected a single male specimen by aspiration with a suction device (Stihl BG 86) in a citrus orchard cover crop in Pego (Alicante, Spain). It was initially identified by external morphology, subsequently confirmed through the study of the male genital characters, using as references Nielson (1979: 93, figs 335–341), and Nielson *et al.* (2014: 1379, Figs 21–25). For the study of genital characters, the genital capsule was dissected out and macerated in 10% KOH solution at approximately 55°C for about 30 minutes, then the cleared material was washed in distilled water and transferred to glycerol for observation and further dissection. Finally, the genital pieces were mounted on a slide in dimethyl hydantoin formaldehyde (DMHF) medium. The photos of the specimens were taken with a DeltaPix digital camera mounted on an Optech-GZ 808 stereomicroscope, and those of the genital structures were taken with a DeltaPix digital camera mounted on an Olympus CX33 microscope. Image processing and plate composition were made with MAGIX Xara Photo & Graphic Designer ver. 19.0.1.65946 software. The specimen examined in the study is deposited in the collection of Alice Casiraghi (Valencia, Spain).

Results and discussion

EXAMINED MATERIAL

Iberian Peninsula. Spain. Comunidad Valenciana, prov. Alicante, Pego (38°50'18.4" N, 0°05'09.7" W), spontaneous cover crop in the middle of a mandarin orchard, 25/VII/2023, one ♂. A. Casiraghi leg.

TAXONOMY

Suborder Auchenorrhyncha Duméril, 1805
 Infraorder Cicadomorpha Evans, 1946
 Superfamily Membracoidea Rafinesque, 1815
 Family Cicadellidae Latreille, 1825
 Subfamily Coelidiinae Dohrn, 1859
 Tribe Teruliini Nielson, 1979
 Genus *Jikradia* Nielson, 1979

Jikradia olitoria (Say, 1831)
 Figs 1–5

= *Jassus alitorius* Say, 1831
 = *Jassus clitorius* Say, 1831
 = *Jassus oblitorius* Say, 1831
 = *Coelidia olitaria* Say, 1831
 = *Jassus olitarius* Say, 1831
 = *Jassus subbifasciatus* Say, 1831
 = *Jassus subfaciatus* Say, 1831
 = *Jassus subfasciatus* Say, 1831
 = *Coelidia subrifasciata* Say, 1831
 = *Jassus borealis* Spångberg, 1878
 = *Jassus fascipennis* Spångberg, 1878
 = *Jassus fuscipennis* Spångberg, 1878
 = *Jassus bifasciatus* Uhler, 1884
 = *Coelidia semifasciata* Uhler, 1884

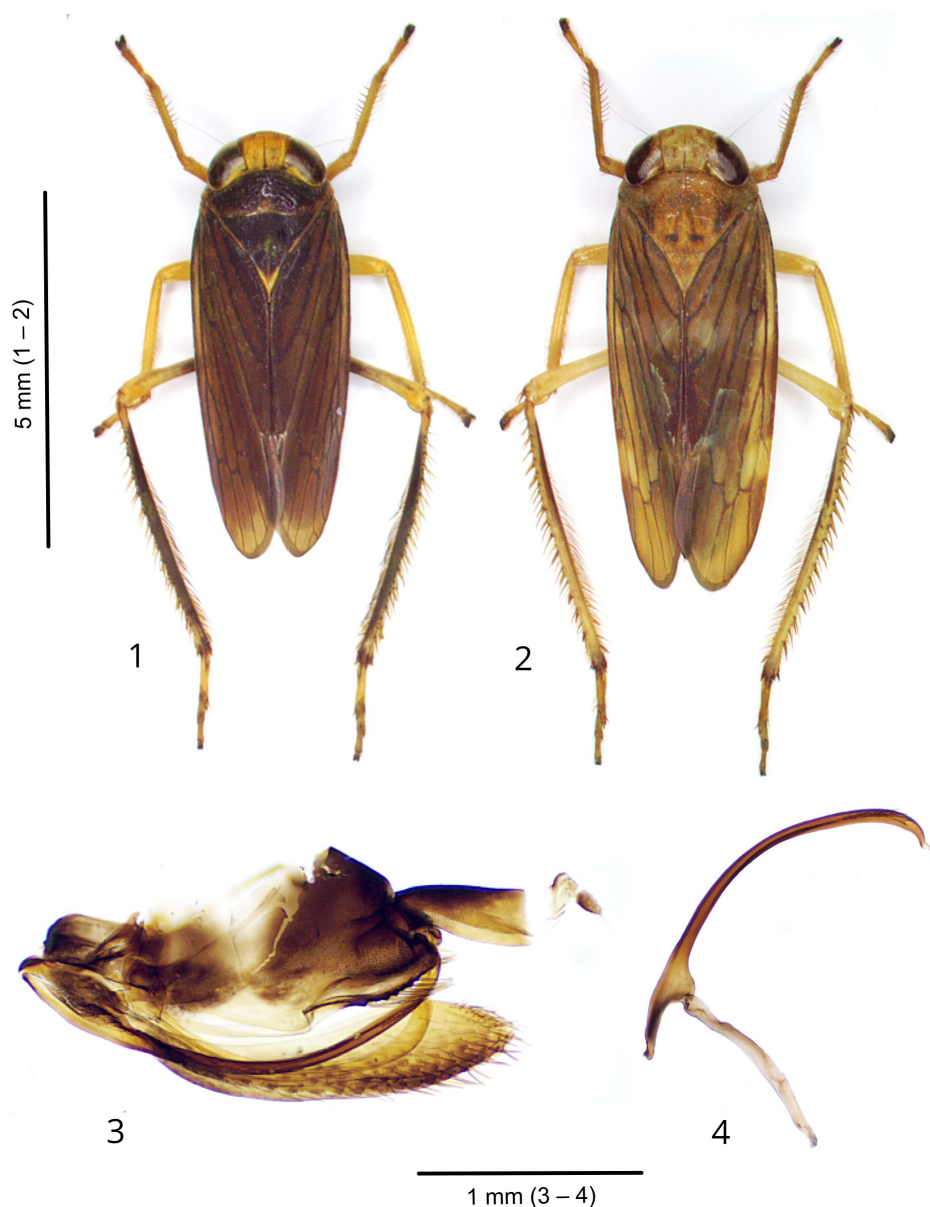
MORPHOLOGICAL AND BIOLOGICAL NOTES

Due to its appearance, *J. olitoria* cannot be confused with any other leafhopper species currently occurring in Europe, particularly due to its large size (length: male 5.84–6.23 mm, female 6.93–8.00 mm) and big eyes (Figs 1–2). The general color is ochraceous, with evident sexual dimorphism, darker and uniform in males (Fig. 1), lighter, with two broad transverse ivory bands on forewings in females (Fig. 2). Head large, with anterior margin broadly rounded, slightly narrower than pronotum; eyes very large, semiglobular, occupying over 2/3 of the entire dorsal area of head; forewings elongate, with apex broadly rounded and distinct veins. Male

pygofer in lateral aspect without caudodorsal or caudoventral processes (Fig. 3); aedeagus asymmetrical, long, narrow, tubelike, broadly curved in lateral aspect, with sharply pointed apex, numerous short setae-like spines subapically on lateral margin, and gonopore subapical (Fig. 4). Up to now, *J. olitoria* is the only taxon belonging to the subfamily Coelidiinae present in Europe. It is a polyphagous species, mainly with arboreal habits, collected in North America on *Crataegus*, *Malus*, *Prunus*, *Quercus*, *Sassafras*, *Salix*, *Vitis*, *Zea*, and various shrubs (Lowry, 1933; DeLong, 1948; Chandler & Hamilton, 2017). In northern Italy it has so far been collected by sweep net on *Populus tremula* L. and *Salix alba* L., and by light trap (Nielson *et al.*, 2014). According to observations made by one of the authors (F.P.) in northern Italy, the males have notable phototropism, almost absent in females.

HABITAT OF THE COLLECTION SITE

The habitat where the male specimen was collected consists of spontaneous cover crops in a young mandarin orchard, where wild Poaceae dominate. During summer, when severe droughts hit the area, only



Figs 1–4. *Jikradia olitoria*. **1.** Habitus male (specimen from Marezzo, Italy). **2.** Habitus female (specimen from Marezzo, Italy). **3.** Male genital capsule, lateral view (specimen from Pego, Spain). **4.** Aedeagus, lateral view (specimen from Pego, Spain).

Figs 1–4. *Jikradia olitoria*. **1.** Habitus del macho (especimen de Marezzo, Italia). **2.** Habitus de la hembra (especimen de Marezzo, Italia). **3.** Cápsula genital del macho, vista lateral (especimen de Pego, España). **4.** Edeago, vista lateral (especimen de Pego, España).

native plants with high resistance to desiccation and high temperatures survive, like *Oloptum miliaceum* (L.) Röser & Hamasha, *Sorghum halepense* (L.) Pers (Poaceae), *Amaranthus retroflexus* L. (Amaranthaceae) and *Erigeron bonariensis* L. (Asteraceae). The surrounding landscape is characterized by citrus (mainly oranges and mandarins) and avocado groves, house gardens and abandoned fields colonized by spontaneous weeds. Within a 4,5-kilometre radius from the studied site, Pego-Oliva Marsh Natural Park is located. The natural reserve is mainly composed of irrigation canals, reed beds and seasonally rice paddies. Potential host plant genera of *J. olitoria*, namely *Populus alba* L., *Salix* spp., and other trees and shrubs are present in the park, as decorative trees planted along the tourist trails.

DISTRIBUTION IN EUROPE

Jikradia olitoria is a Nearctic species native to the eastern half of the United States and southeastern Canada. Up to now, it is the only taxon belonging to the subfamily Coelidiinae present in Europe, recorded from northern Italy (Lombardy region) (Nielson *et al.*, 2014), Corsica (Albre & Gibernau, 2019), and Austria (Kunz *et al.*, 2025). Furthermore, Dr. Gilles Carcassès (com. pers., 2024) found some specimens in France (Les Arques, Lot Department, Occitaine, 23.VIII.2017). Moreover, the internet photo sharing websites iNaturalist (<https://www.inaturalist.org>), Observation.org (<https://observation.org>), and Le Monde des Insectes (<https://www.insecte.org>) show numerous photos that can undoubtedly be referred to this unmistakable species, from France (Nouvelle Aquitaine and Occitanie regions), Switzerland (Canton Ticino), and other regions of northern and central Italy besides Lombardy (retrieved on 16.VI.2025). Therefore, combining all available data, the European distribution

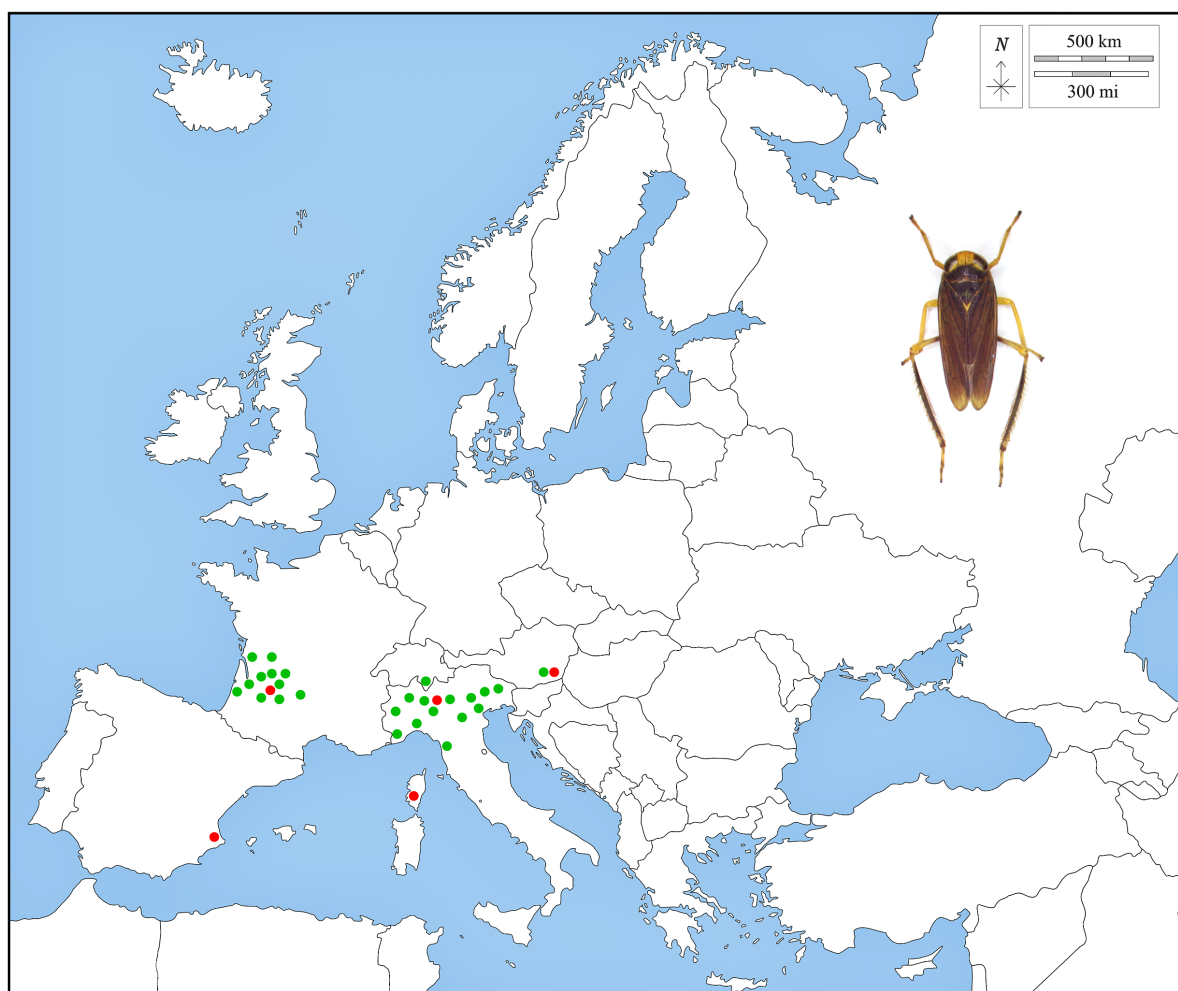


Fig. 5. Current European distribution of *Jikradia olitoria*. Red circles: data from peer-reviewed scientific articles; green circles: data from citizen science websites.

Fig. 5. Distribución europea actualizada de *Jikradia olitoria*. Circulos rojos: datos de artículos científicos revisados por pares; circulos verdes: datos de sitios web de ciencia ciudadana.

known so far can be summarized as follows: Italy (Piedmont, Liguria, Tuscany, Lombardy, Veneto, Friuli Venezia Giulia), Austria, Switzerland (Canton Ticino), France (Nouvelle Aquitaine, Occitanie, Corsica), Spain (Alicante) (Fig. 5).

POTENTIAL PHYTOSANITARY ISSUES

Jikradia olitoria has been reported as a potential vector of various plant pathogens, including graft-transmissible strawberry pallidosis (Frazier, 1975) and the phytoplasmatic North American Grapevine Yellows (NAGY) (Lenzi *et al.*, 2019). However, the ability to transmit the harmful vine phytoplasma has only been demonstrated under artificial feeding assays; to date, no *J. olitoria* individuals testing positive for the flavescence dorée pathogen have been detected in field surveys, and thus its actual role as a vector in natural agricultural remains uncertain.

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Declaration of competing interest

The authors of this article declare that they have no financial, professional or personal conflicts of interest that could have inappropriately influenced this work.

Authorship contribution statement

Alice Casiraghi: Conceptualization, Data curation, Investigation, Methodology, Project administration, Writing – original draft – review & editing.

Francesco Poggi: Data curation, Investigation, Methodology, Writing – original draft – review & editing.

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