

***Leptophyes punctatissima* (Orthoptera: Tettigoniidae) – Observation of an established population in South Tyrol and report of additional findings**

Abstract

With the present faunistic note we report the first observation of an established population of *Leptophyes punctatissima* (Bosc, 1792) in South Tyrol from Neustift/Novacella, far off from urban areas. The species was recorded over two seasons at the same site with several individuals. Additionally, one new record by the authors is reported for the urban area of Bruneck/Brunico and two findings from citizen science platforms are reported and discussed.

Keywords: Orthoptera, Insects, presence

Introduction

Leptophyes punctatissima (Bosc, 1792) is a Tettigoniidae species associated with ecotonal environments. Adults can be found on bushes at the edge of woodlands, roadside hedges, or within grasslands. They feed on plants and lay eggs in the bark (GOMBOC 2008). *L. punctatissima* is typically found among the leaves of its host plants, where its cryptic coloration can make it difficult to spot (GOMBOC l.c.). The species has a large area of distribution in the southern and western part of Eurasia, stretching from the Iberian Peninsula to Central Asia (Fig. 2 left). Its distribution within the Alps is very scattered. For South Tyrol so far only one occurrence was reported by Hellrigl that found the species on rose bushes (September 1990) in his garden in Brixen/Bressanone (HELLRIGL 2006). Due to the lack of evidence for established populations in South Tyrol the species was considered as “not established” in the Red List of South Tyrol (HILPOLD et al. 2017). In the literature, it is reported that the species is often translocated with garden material and is therefore often found in urban areas, especially in gardens (WITTMANN 2016; ZUNA-KRATKY et al. 2017).

The species can be distinguished from other congeners by the shape of the cerci in males and the ovipositor in females (Fig. 1), as well as by its overall small size (IORIO et al. 2019). More specifically, this species lacks the continuous light stripe along the sides of the pronotum and abdomen. The male cerci are slender and slightly flattened at the apex, distinguishing it from *Leptophyes albovittata*, which is also present in the region. Additionally, the pronotum is bordered with brown along the anterior and posterior margins, male cerci are gradually tapering towards the tip and the female ovipositor is twice as long as the pronotum, unlike *Leptophyes laticauda* where the brown border is absent, the male cerci are stout and angularly bent with a blunt black tip and the female ovipositor is longer (SARDET et al. 2015; IORIO et al. 2019).

Addresses of the authors:

¹ Institute for Alpine Environment, Eurac Research, Viale Druso/Drususallee 1, 39100 Bolzano/Bozen, Italy

² Department of Biosciences, University of Milan, Via Celoria, 26, 20133 Milan, Italy

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Fig. 1: *Leptophyes punctatissima*: female (top left), female ovipositor (top right), male (bottom left), and male cerci (bottom right). Pictures from individuals at the site where the population was observed near Neustift/ Novacella (Photos by Audrey Marsy).

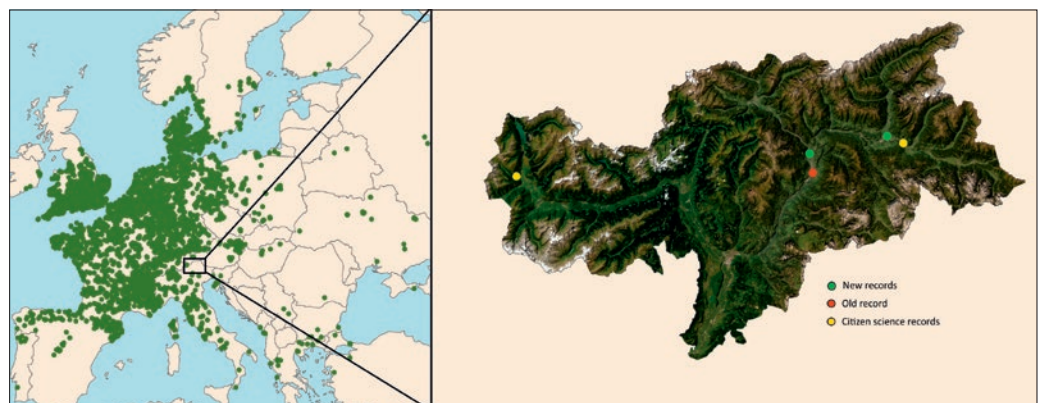


Fig. 2: Left: Distribution of *Leptophyes punctatissima* in Europe and near Asia from GBIF (2024). Right: Map of *L. punctatissima* in South Tyrol, in green the new records reported here, in red the published record of HELLRIGL (2006), and in yellow the citizen science records from iNaturalist.org (<https://www.inaturalist.org/observations/129512176>) and Observation.org (<https://observation.org/observation/124100080/>).

Materials and Methods

The specimens were found during surveys of the Biodiversity Monitoring South Tyrol (BMS) project (HILPOLD et al. 2023), led by Eurac Research in Bolzano/Bozen. The first record in Neustift/Novacella was situated outside the sampling areas. Here a transect of approximately 100 m was investigated following the suitable vegetation band and using an entomological umbrella and a sweep net to capture specimens. The second record was located in Bruneck/Brunico, an urban site of the BMS project. The method used to find the species here was a 50 m transect sampled by walking slowly back and forth and collecting all observed and singing grasshoppers within an imaginary cube of 2.5 m in all directions (HILPOLD et al. l.c.). The sampling was performed for 30 minutes, initially along a 50 m transect then extended to 1,000 m² (for more details see HILPOLD et al. l.c.)

For completeness, we also controlled citizen science platforms for online records (iNATURALIST.ORG 2024; OBSERVATION.ORG 2024).

Results and Discussion

On August 31, 2023, a small population was observed by A. Hilpold and E. Repetto near Neustift/Novacella Abbey at an elevation of 620 m (geographical coordinates WGS84: 46.754502 N, 11.643002 E). Four specimens, two males and two females, were found using a beat net on the vegetation present at the roadside next to the Isarco/Eisack river, particularly on *Rubus* sp. Two specimens were retained for subsequent confirmation of identification. In the following summer (05.08.2024, E. Repetto), the population was investigated again in August, and five adult specimens were recorded. Additionally, a male individual was collected during a survey of grasshoppers on a hedge in Brunico/Bruneck at 836 m a.s.l. (08.08.2024, E. Repetto & A. Hilpold, coord.: 46.79902 N; 11.94242 E; Fig. 2 right). All collected individuals will be integrated into the collections of the Museum of Nature South Tyrol.

Controlling citizen science platforms, we discovered two more records of *Leptophyes punctatissima*. One is situated next to Percha/Perca, observed in September 2016 and reported by “Maiann Suhner” (<https://observation.org/observation/124100080/>). The record is not supported by a photo, but we consider it credible due to the profile of the observer. Interestingly, the location is close to the second site of occurrence here newly reported in Brunico/Bruneck. The second citizen science record was observed next to Schlinig/Slingia on August 5, 2022 by Sascha Richter (<https://www.inaturalist.org/observations/129512176>) (Fig. 2 right) and can be verified by a picture of a female.

Considering the discovery of multiple specimens in two consecutive years at the same site, far off from any garden, it is plausible that a sedentary population is occurring in a near-natural habitat for the first time in South Tyrol. This could indicate a potential natural spread and establishment of the species.

The records of a single specimen in Brunico/Bruneck, along the two other possible online records suggest a local wider distribution. These single records can have originated from anthropogenic introductions and are no prove of established populations, but they indicate a wider occurrence, and we anticipate the probability of new observations in the coming years. This would be in line with the recent spread of the species towards east, reported for Austria and Slovenia (GOMBOC 2008; WITTMANN 2016; ZUNA-KRATKY et al. 2017; ESSL & ZUNA-KRATKY 2021) and might be attributed in part to climate warming, as reported for *Pezotettix giornae*, presumably another recent local arrival (HILPOLD & GUARIENTO 2022). Due to the lack of any historical observations before 1990 and the preference for urban and ruderal habitats, we consider the status of the species as “potentially established allochthonous”. As our data is still very limited, it does not allow to determine population sizes nor population trends. We, therefore, refrain from classifying it in a Red List category and provisionally classify it as “Data Deficient”.

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Riassunto

Con la presente nota faunistica comunichiamo l'osservazione di una popolazione svernanate di *Leptophyes punctatissima* in Alto Adige, dalla zona di Novacella a Bressanone, lontana dalle zone urbane. La specie è stata riscontrata per due stagioni con diversi individui. In aggiunta, un individuo è stato anche trovato a Brunico e due osservazioni sono riportate su piattaforme di citizen science espandendo l'areale potenziale di presenza nella provincia.

Zusammenfassung

Mit dieser faunistischen Note wird das erste Mal die Präsenz einer Population von *Leptophyes punctatissima* in Südtirol aus Neustift kommuniziert, fernab von besiedeltem Gebiet. Die Art wurde über zwei Sommer mit mehreren Individuen gefunden. Zusätzlich konnte ein weiteres Tier aus Bruneck gefunden werden und zwei Beobachtungen auf Citizen Science Plattformen, welche die mögliche Verbreitung dieser Art in Südtirol weiter ausdehnen.

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