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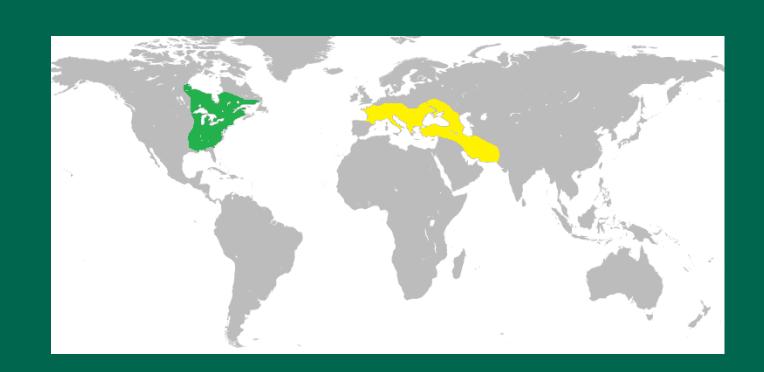
INVASIVE ALIEN SPECIES UNDER CONDITIONS OF GLOBAL CRISIS

Corytucha arcuata (Say, 1832) (Heteroptera, Tingidae) in alpine habitats from the Romanian Carpathians

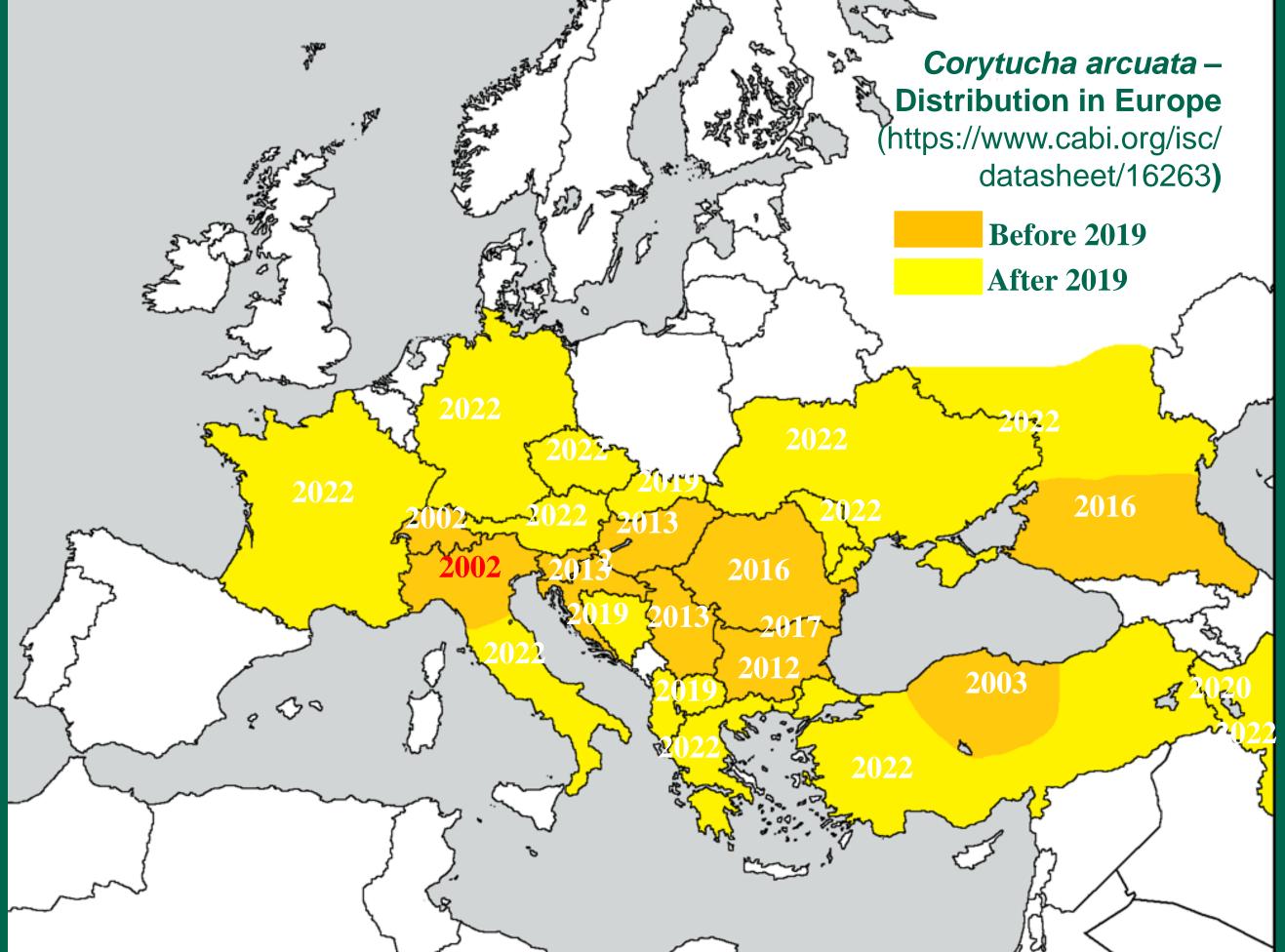
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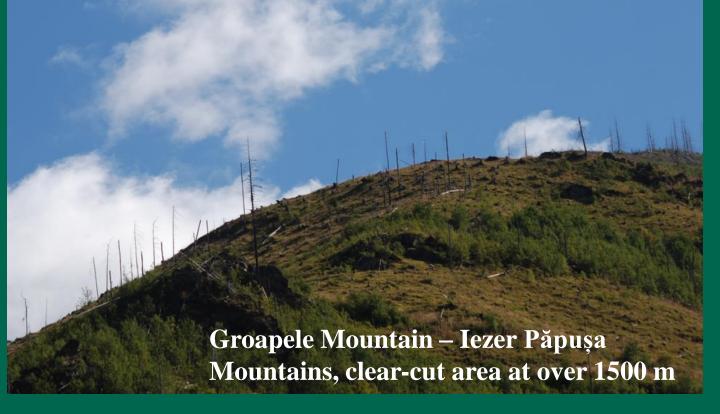
Corytucha arcuata (Say, 1832) Corytucha arcuata areal – green – native range, yellow – (orig) invasive areal



Mountain and alpine habitats where Corytucha arcuata was observed

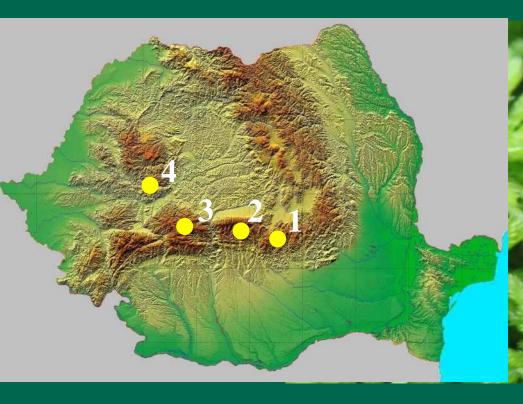


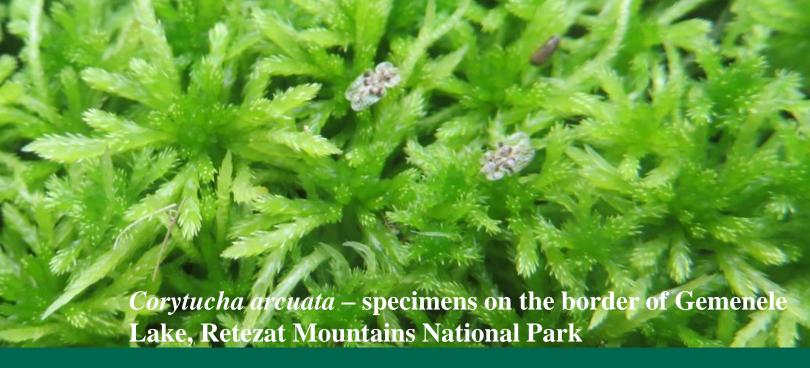












Corytucha arcuata — Presence in mountain areas in Romania 1 – Bucegi Mountains Natural Park, 2 – Făgăraș Mountains, 3 – Retezat Mountains National Park, 4 – Metaliferi Mountains

The species of the genus *Corytucha* (Heteroptera, Tingidae) – *Corytucha arcuata* and *Corytucha ciliata* are invasive aliens for Europe, both species expanding their range very rapidly in the last 10 years. The first species - *C. arcuata* - is found on oak species (*Quercus* sp.), and the second - *C. ciliata* - mainly on plane trees (*Platanus* sp.). Both species are native to North America, and after being introduced to Western Europe (Italy) they spread to most of Europe.

After the introduction, the evolution of the species in Europe experienced two periods - one of slow expansion and another of rapid expansion. The first stage can be considered as stretching between the year of introduction and the interval 2016-2018 (precise dating is not possible due to the lack of data). The second stage started after 2018, when *C. arcuata* is spreading in most of Europe, with a rate rarely found in the case of invasive species.

In Romania, both species experienced a rapid expansion, especially after 2015. Corytucha arcuata was reported for the first time in 2016, and in an extremely short time it spread over the entire surface of Romania. In 2020, it was present everywhere, in important populations. Its presence in areas with oak forests is not surprising, but, the species proved capable of surviving in alpine meadow and pasture habitats, even at over 2000 m altitude. Since 2019, we encountered this species for the first time in the area of the Bucegi Mountains, then in Făgăraș Mountains, both in valleys and in pastures at altitudes of over 1800 m. In the same habitats, we also found it in 2021 in the Făgăraș and lezer – Păpușa Mountains and in the Apuseni Mountains, in isolated specimens, and in 2022 we encountered it in the insect associations in the area of the glacial lakes and the peaks of the Retezat Mountains. The presence of this species into alpine habitats can be attributed to a spread with the help of the wind, but the large number of specimens identified in such areas raises another problem, namely that of adaptation to other host plants. In the Făgăraș, lezer Păpușa and in the Apuseni Mountains, the species was identified in areas where oaks are absent. In the Retezat Mountains, it is also present in alpine meadows, being identified on moss species. Taking into account the differences in altitude compared to the areas where the oak usually grows, C.arcuata proved its ability to adapt to different conditions, and the study of populations in mountain areas represents more than a scientific curiosity.

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