



## CAUCASOTACHEA VINDOBONENSIS - AN INCREASINGLY PRESENT SNAIL IN MIXED GARDENS

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**Abstract:** In mixed gardens in Western Romania, the Austrian snail (*Caucasotachea vindobonensis*) is increasingly present. It is less known as a pest, rather it has a neutral role. However, little information is not precise regarding its preference for food, that is, with decomposing plant debris. That is why we proposed to see what the current situation is and clarify some aspects of abundance especially in mixed gardens, where it was frequently observed and also try to make a feeding association with certain living plants. Thus, in the period 2020-2023 we analyzed the abundance of snails in 3 mixed gardens (vegetables, ornamental shrubs and lawn) under frequent irrigation systems, medium irrigation and non-irrigated. As a result, we observed and its abundant presence in spring and autumn when had a more active feeding period. Among the plant species, lettuce was preferred as a feeding in spring and Japanese quince as a hiding place on hot summer days. Among the 3 irrigation systems, most snails were present in the garden with medium irrigation. As a conclusion, although the species does not seem to be a real danger for the agro-horticultural sector, increased attention must be paid in future, a large population may lead to adaptability to a new feeding style.

### • Introduction

The snail *Caucasotachea vindobonensis* (Mollusca: Gastropoda: Stylommatophora: Helicidae) (formerly also known as *Cepaea vindobonensis*) (NEIBER ET AL., 2026) is widespread in Central and Eastern Europe, but in recent decades it has experienced an expansion of its range. It is currently common in Central and Eastern Europe (Romania, Ukraine, Bulgaria, Hungary, Serbia, Slovakia, Austria and the Czech Republic) (IUCN, 2020). Recently, the species has been introduced into the USA and Canada (HAUSDORF ET AL., 2021). The species can have a great diversity depending on the regions (SYCHEV ET AL., 2024; SNEGYN ET AL., 2024). In Romania, *Cepaea* snail is known to have a significant presence in the southern and eastern regions of the country.

### Material and method

As a result of observations of the evolution of the total number of Austrian snails recorded for different crops, over four years, depending on the irrigation system used, it was observed that in the period 2020-2023 it was progressive with a slight increase from year to year. Thus in 2020, 107 individuals were recorded in all gardens, on all plants analyzed and throughout the entire period, that is, from April to October. Then in 2021 their number increased to 174, in 2022 to 220 and in 2023 to 306.

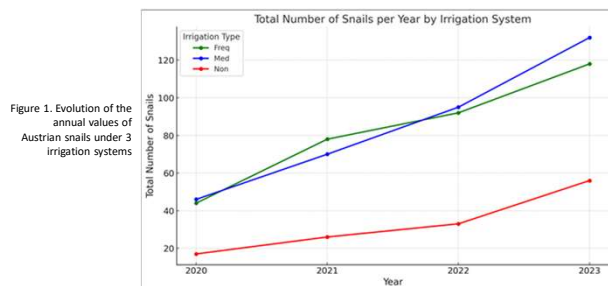


Figure 1. Evolution of the annual values of Austrian snails under 3 irrigation systems

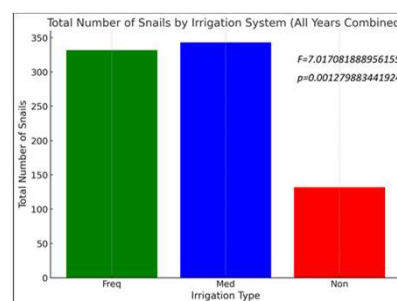


Figure 2. Comparison between the 3 irrigation systems of the recorded values without taking into account the years

The result of the ANOVA test for comparing the number of snails between the three irrigation systems (without taking into account the year or the plant) is  $p=0.0013$ . The p-value is lower than the standard significance threshold (0.05), which means that there are statistically significant differences between the number of snails recorded in at least one of the three irrigation types (non-irrigated, medium irrigation and frequent irrigation)



The graph in Figure 4 shows the total distribution of snails recorded on various plant species (Figure 3), regardless of the year of observation or the type of irrigation. It provides a clear perspective on the plants that attract or favor the presence of snails the most. Plant species such as lettuce and spinach show the highest snail counts, indicating increased vulnerability or a favorable environment for snail development.

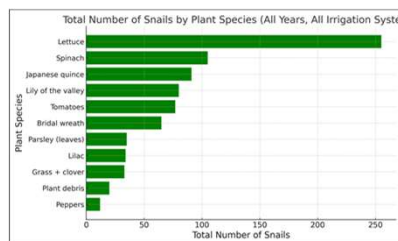


Figure 4. Interactions between garden pests and their natural enemies.

## Results and discussions

Medium irrigation was associated with the highest number of snails, the differences compared to the abundance recorded in gardens with frequent irrigation are very small. The lack of irrigation generated lower, but still visible values (Figure 2).

The situation by year is slightly different, that is, in 2020 and 2022 the differences in abundance between the sites analyzed under frequent and medium irrigation were very small, but very far from what was in the non-irrigated ones (Figure 1). In 2021 and 2023 the differences in abundance were clearly spaced but also very far from the values recorded in the non-irrigated ones.

It is clear that moderately and frequently irrigated gardens attracted and created survival conditions for the Asturian snail, which found a favorable environment.

It can be said that non-irrigated gardens attracted and maintained the fewest snails throughout the vegetation period, probably due to the dryness of the soil and the lack of dense vegetation.

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