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New routes of Hyalomma to Austria: an unwanted souvenir

OH SURVector: One Health surveillance and Vector monitoring for cross-border pathogens

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The project „OH SURVector“

OH SURVector is an EU-project consisting of a five-country consortium with the Czech Republic, Slovakia, Hungary, Greece and Austria. Within this project ticks and mosquitoes are monitored in the respective countries and investigated for the distribution and presence of pathogens. As far as for the Austrian part and the ticks, a nationwide tick-monitoring programme involving citizen scientists was established in 2024. The goal is to check which tick species occur where, when, and to investigate them for the presence of pathogens.

Hyalomma marginatum in Europe and Austria

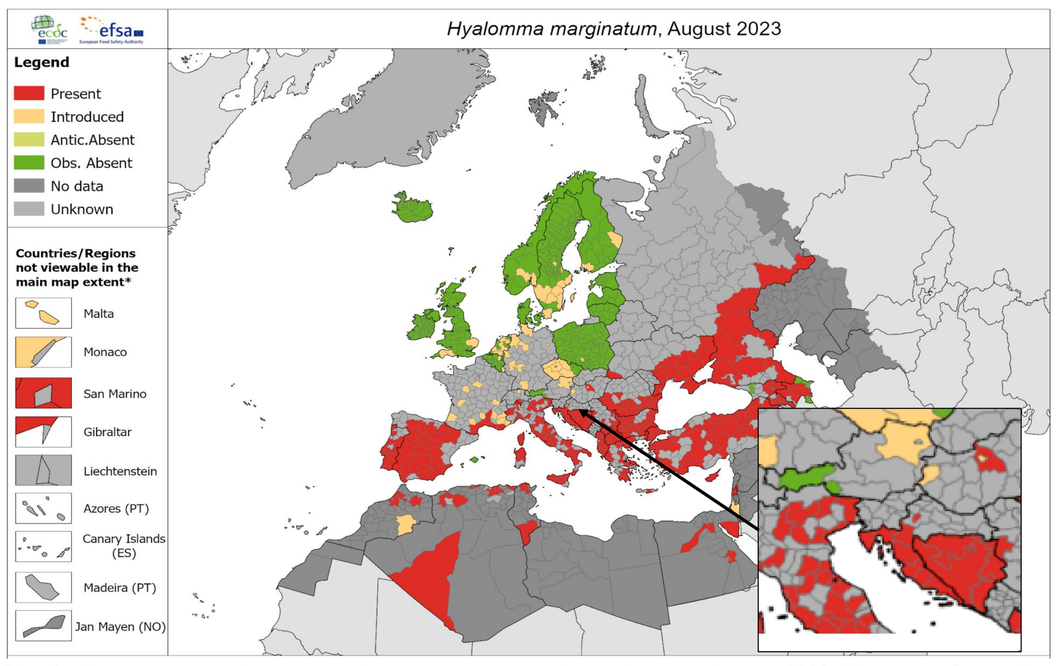


Fig. 1. *Hyalomma marginatum* and its current known distribution per August 2023 (European Centre for Disease Prevention and Control and European Food Safety Authority. Tick maps [internet]. Stockholm: ECDC; 2023. Available from: https://ecdc.europa.eu/en/disease-vectors/surveillance-and-disease-data/tick-maps)

H. marginatum is an invasive tick species capable of transmitting pathogens that cause severe diseases such as **Crimean-Congo hemorrhagic fever** or rickettsiosis.
In Europe *H. marginatum* is present in the southern and eastern parts. Several sporadic records have also been reported for imported animals, humans, and migratory birds in other countries, but these do not represent established populations. (ECDC, 2023, see Fig. 1)

In Austria, *H. marginatum* occurs sporadically, and migratory birds are believed to bring *H. marginatum* from distant regions. So far, Austria did not have a comprehensive surveillance for *H. marginatum*.

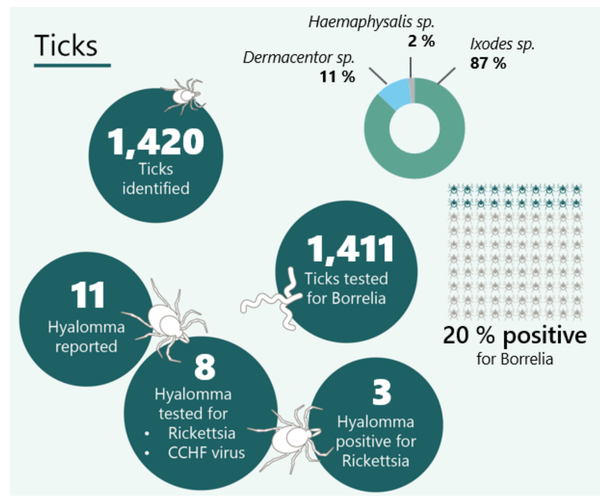
Method

In January 2024, AGES and its partners established a nationwide tick-monitoring program. Through a **citizen science approach**, we encourage participants to report and send in any ticks. In case of *H. marginatum* the initial identification of the ticks is most often based on pictures sent electronically. Upon confirmation and receiving the ticks, we analyze them for the presence of Crimean-Congo haemorrhagic fever virus (CCHFV) as well as *Rickettsia spp.*, and collect for each case relevant information, such as detailed travel itineraries.

Results

In 2024 a total of 1,420 ticks were sent to AGES and identified morphologically. Among them were **8 *H. marginatum* ticks** which were analyzed for pathogens. Three more Hyalomma ticks were reported by email and confirmed by photo only.

None of the tested ticks was positive for CCHFV but 3 contained *R. eschlimannii*.



Interestingly, **we could show** that not only migratory birds are responsible for introducing these ticks, but the **majority was imported by tourists** who visited Croatia (see Fig. 2 and Markowicz et al., 2024).

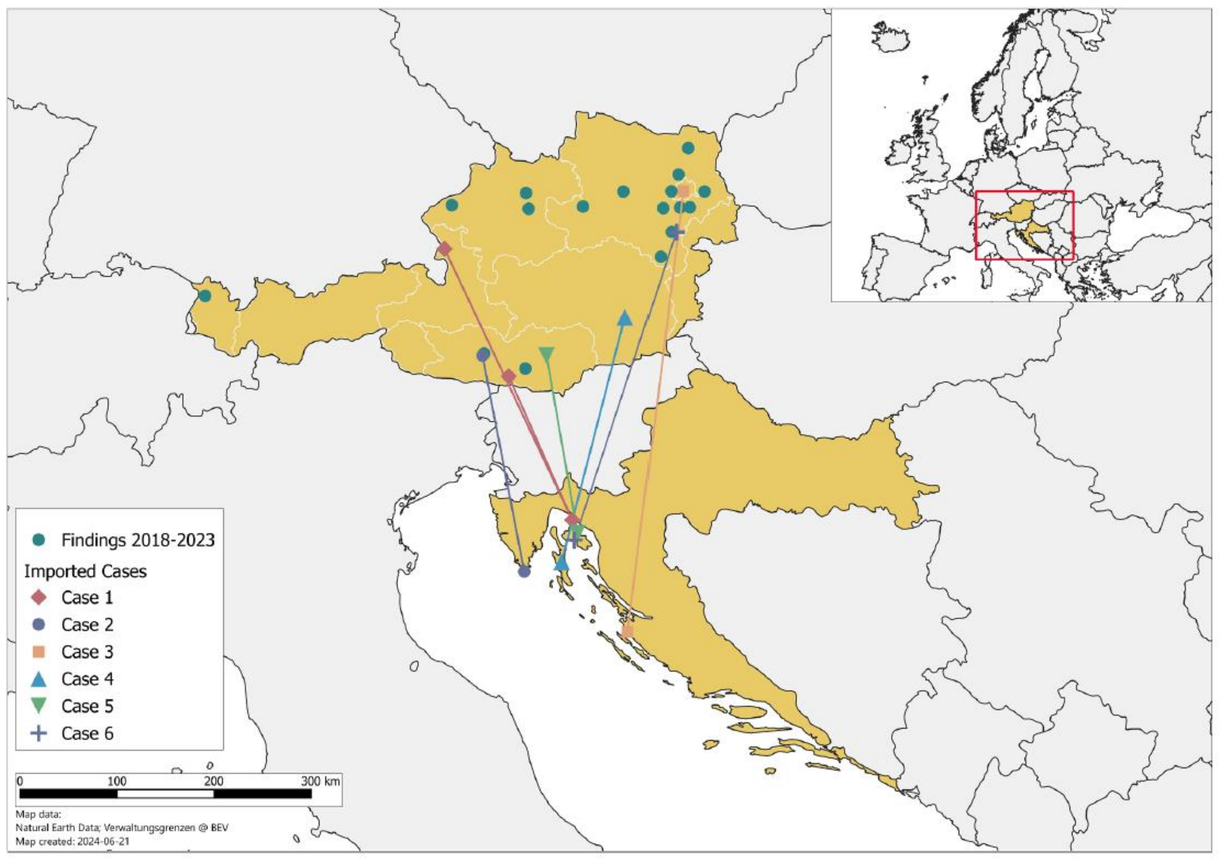


Fig. 2. Hyalomma ticks imported from Croatia to Austria. Case numbers correspond to the numbers of travelers described in Markowicz et al. (2024). From case 1 two ticks could be analyzed and from case 2-6 one tick per case. Blue dots indicate findings of Hyalomma ticks in previous years (2018-2023) of which the route of importation was not known. (Map taken by agreement from Markowicz et al., 2024)

Conclusion

H. marginatum
A blind passenger in cars of tourists

Acknowledgements

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References

Markowicz, M., Schötta, A.-M., Hufnagl, P., Nigsch, A., Indra, A., & Duscher, G. G. (2024). Hyalomma marginatum—A silent stowaway after vacation at the Adriatic Sea. *Ticks and Tick-Borne Diseases*, *15*(6), 102400. https://doi.org/10.1016/j.ttbdis.2024.102400

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