

Verification of an interactive map assessing the potential spread of *Galba truncatula* and the free-living stages of *Fasciola hepatica* in Switzerland

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Objectives

The intermediate host of *Fasciola hepatica* is *Galba truncatula* in Switzerland. The snail and the free-living stages of the parasite require a moderate climate and moisture for survival, reproduction, and transmission. In Switzerland, these conditions are present in many regions, resulting in a mean prevalence of bovine fasciolosis from 8.4 to 21.4% (Rapsch et al., 2006). Based on temperature and rainfall data, soil conditions including ground water and forest cover in Switzerland, an interactive map was created in order to demonstrate the relative risk of transmission by modelling the environmental conditions that promote the survival and reproduction of the larval stages of the parasite and the parasite's intermediate host (Rapsch et al., 2008). As the map is based on a theoretical model, the aim of this study was, to verify the map by means of a field survey.

Materials and methods

40 randomly chosen fields (50 meters x 50 meters) from the north-east of Switzerland were searched for potential habitats. If potential habitats were found, they were searched for snails for 30 minutes. Furthermore, other *Galba truncatula* findings from all over Switzerland were taken into account.

The results of the field survey (no wetlands, wetlands without snails, wetlands with snails of a known population density) and the data of other findings were then compared to the interactive map.

Preliminary results of the field survey

Of risk class 0 (no risk), 78.6 % of the fields were classified wrongly by the model: Only in 21.4 % of the fields from risk class 0 no wetlands were found. In contrast, in 95.4 % of the fields from risk groups 1 to 5 (very low to very high risk) wetlands with or without snails were found.

Conclusions

Based on the preliminary results, it is concluded, that the interactive risk map is accurate for risk classes 1 to 5 but not for risk class 0, thus underestimating the true spread of *Galba truncatula* in Switzerland.

Literature

Rapsch, C., G. Schweizer, F. Grimm, L. Kohler, P. Deplazes, U. Braun, C. Bauer and P. R. Torgerson (2006): Estimating the true prevalence of *Fasciola hepatica* in cattle slaughtered in Switzerland in the absence of an absolute diagnostic test. *Int. J. Parasitol.* **36**, 1153-1158.

Rapsch, C., T. Dahinden, D. Heinzmann, P. R. Torgerson, U. Braun, P. Deplazes, L. Hurni, H. Bär and G. Knubben-Schweizer (2008): An interactive map to assess the potential spread of *Lymnaea truncatula* and the free-living stages of *Fasciola hepatica*. *Vet. Parasitol.* **154**, 242-249.