



NEOBIOTA
From Ecology to
Conservation

4th European Conference on
Biological Invasions

Vienna (Austria)
27. - 29. September 2006



umweltbundesamt

Natural and anthropogenic barriers protect autochthonous populations of the stone crayfish (*Austropotamobius torrentium*, Crustacea: Decapoda: Astacidae) near Vienna



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Two creeks in the Wienerwald forest west of Vienna were investigated for stone crayfish occurrence.

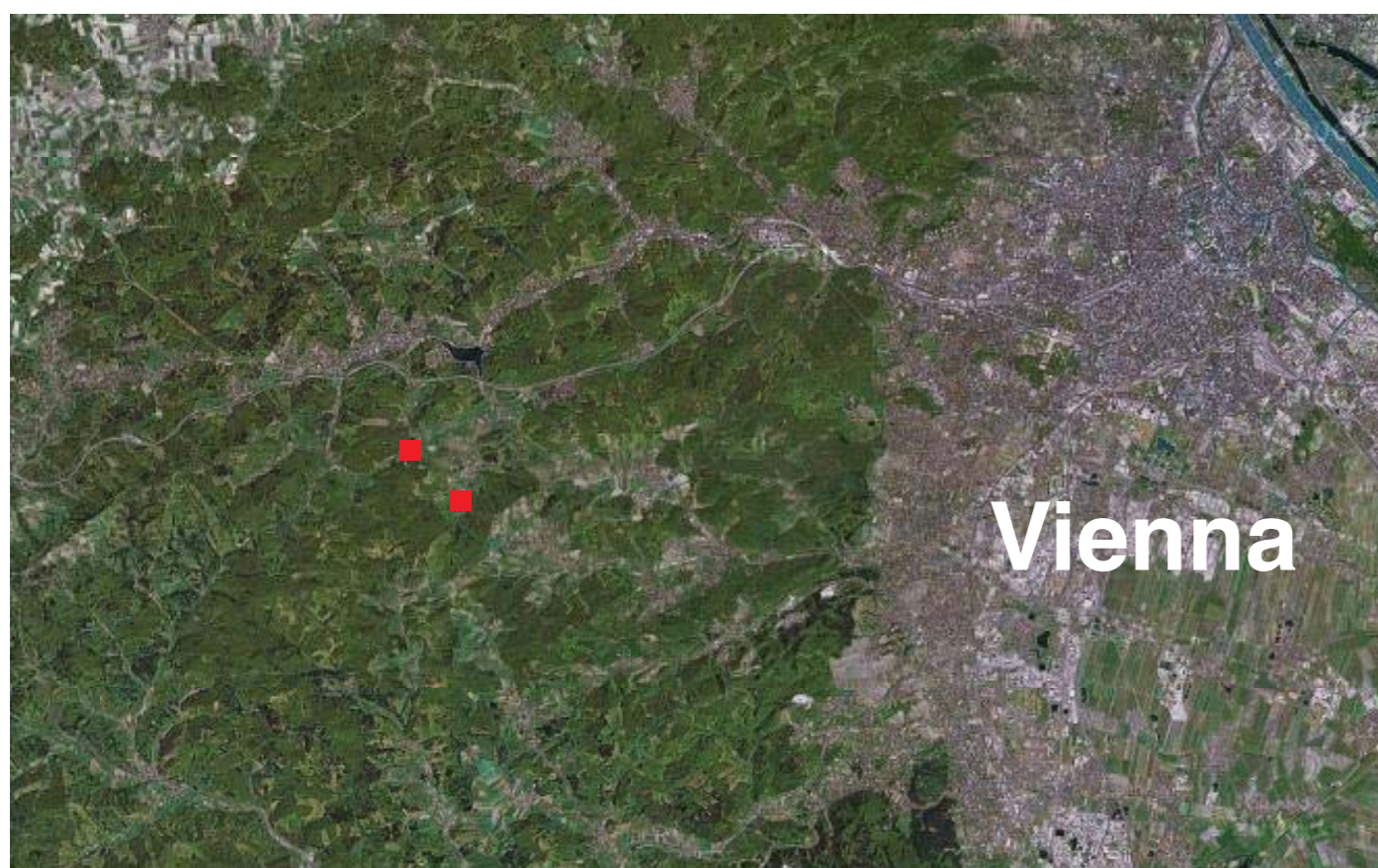


Fig. 1: location of "Münichbach" and "Kleinhöniggraben" creeks. Both lead into the "Wien" river, where signal crayfish populations are known.

Both creeks are very similar in morphology and biology, and both lead into a river where the allochthonous signal crayfish, *Pacifastacus leniusculus* (Fig.2), carrier of the crayfish plague (*Aphanomyces astaci*), occurs. Usually, any contact to signal crayfish populations would kill native crayfish species ^{(1) (2)}.



Fig.2: The signal crayfish (*Pacifastacus leniusculus*) is one of the most dangerous invasive alien species in Europe and always carrying the crayfish plague, *Aphanomyces astaci* (Oomycetes) ⁽²⁾. Autochthonous crayfish populations die out entirely when infected. ^{W. Köstenberger}



Fig. 3: Egg-bearing stone crayfish female (*Austropotamobius torrentium*) from the Münichbach creek population.

However, one of the creeks, the "Münichbach", hosts a wealthy, reproducing population of *Austropotamobius torrentium* (Fig. 3, 4), while in the other creek no crayfish can be found. The most probable reason for the survival of the autochthonous population may sound unusual to conservationists:

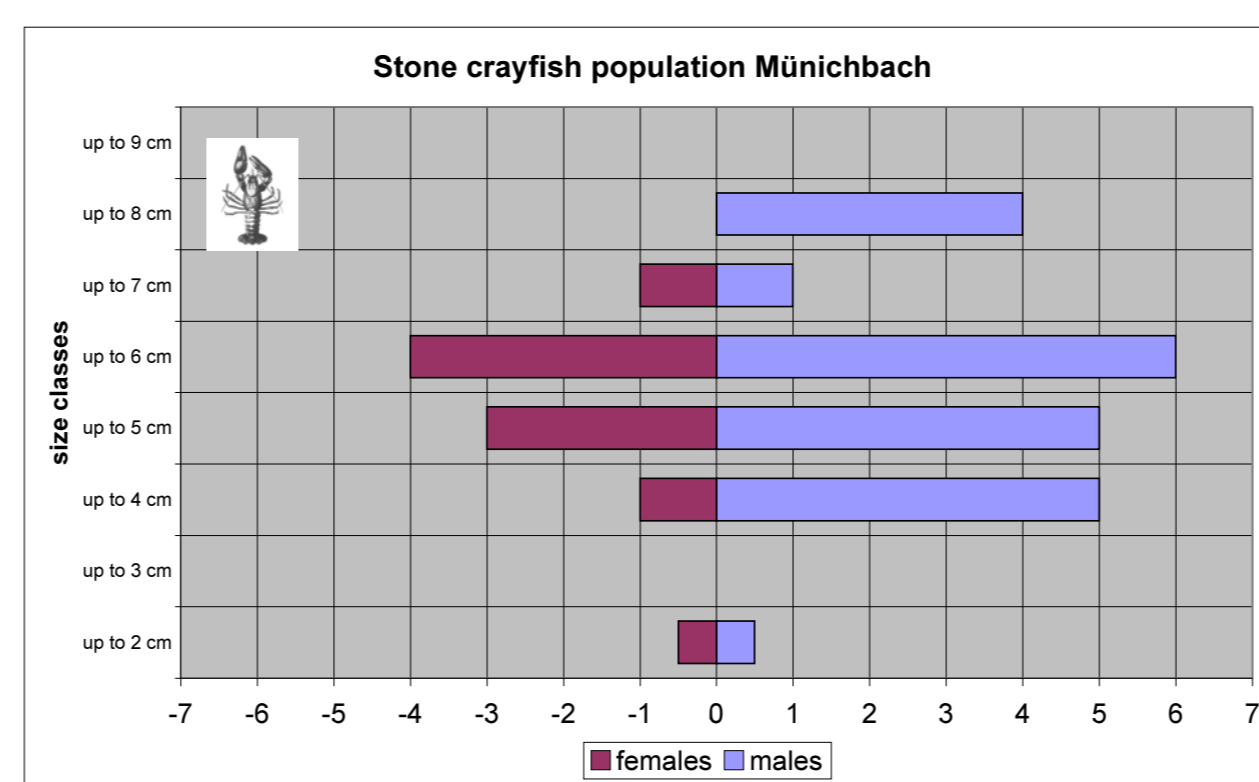


Fig.4: Size classes of the stone crayfish population found in the "Münichbach" creek indicate a wealthy population. The male bias is due to behavioural differences, the low number of found juveniles is due to the manual capture technique.

Several anthropogenic barriers, such as dams and pipes, interrupt the "Münichbach" creek's lower course. Additionally, it is inhabited by the brown trout, *Salmo trutta*.

Paradoxically, both factors obviously protect the stone crayfish population as they inhibit upstream migration of infectious signal crayfish. A comparable situation is known from creeks leading into the Attersee lake, Upper Austria ⁽³⁾.



Fig.5: One of the pipes interrupting the Münichbach creek's lower course and obviously inhibiting contacts between the upper course stone crayfish and infectious signal crayfish. ^{G. Pfundner}

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