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## IN SITU TEST OF ADAPTIVE PONDS FOR MITIGATING EFFECTS OF INVASIVE CRAYFISH IN WESTERN EUROPE

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Non-indigenous crayfishes are spreading through Europe's aquatic systems and cause many concern. The burrowing crayfish *Faxonius immunitis*, first observed in the Upper Rhine Valley in 1993 disperses along the river catchment. In small standing waters the populations can attain very high densities, cause the disappearance of macrophytes and turn the pond into a turbid water alternative state. In order to propose ecological engineering methods to mitigate crayfish invasion in restored small standing waters, we tested preferences of the crayfish for different sediment compositions under controlled conditions. The study of crayfish habits permit to propose restoration methods to manage the effects of the invasive alien crayfish. Newly created ponds were covered by different mix of sand and gravel fine layer to test *in situ* efficiency of these methods. The gravel was intended to impede the harmful digging of the crayfish and mitigate its deleterious ecosystem effects. Several technics were tested to both prevent crayfish settlement and allow macrophyte and macroinvertebrate communities to recover. Restoration efficiency is assessed through crayfish, macrophytes and macroinvertebrates surveys as well as estimation of the recovery of some restored standing water functions and services.

Limiting the spread of invasive crayfish is a current but quite impossible issue. This collaborative adaptative management between site managers and scientists could be a part of the solution. This experiment is a part of project Emys-R ([www.emysr.cnrs.fr](http://www.emysr.cnrs.fr)).

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