

Current status and management of American bullfrog *Lithobates catesbeianus* in Flanders

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American bullfrog *Lithobates catesbeianus* is one of the world's worst invasive species and suspected to cause substantial ecological damage around the globe through predation, competition and pathogen transmission. The species has been introduced in Flanders at the end of the 1990s, with first observations in nature in 1996. The first proof of reproduction in Flanders dates back to 2001 at several places in the Grote Nete Valley. Since then the population has been expanding its distribution area, and now holds an area of occupancy of 17 km² occurring in more than 70 km² grid cells. The largest stronghold of bullfrog is a big (meta)population in the valley of the Grote Nete where the species is now established for more than a decade. Here, the pond-rich valley of the Grote Nete river hosts a large reproducing population in a complex of several hundreds of - largely private - ponds used for recreational fishing and gardening. In the north of the province of Antwerp, smaller isolated populations (less than 10 water bodies with reproduction) are present (municipalities of Hoogstraten, Arendonk and Kasterlee). To halt the spread, and reduce its impact (predation, competition and spread of diseases) on native biota, regional and local authorities, ngo's, conservation managers, a social economy company and scientists worked together in the cross-border EU co-funded Interreg project Invexo (www.invexo.be). Attempts were undertaken to eradicate the smaller populations, using a variety of active trapping techniques (double fyke netting, pond drawdown, filling of ponds and habitat reconversion, seine netting, electrofishing, hand netting and nightlighting). Research was performed into cost-effectiveness of double fyke nets. This catching gear is relatively cheap, easy to handle and known has documented catchability for both larval and adult stages, thereby offering some perspectives for integrated control of populations. Management followed a holistic approach, integrating active removal with habitat management by introduction of native predatory fish, which has been shown to increase the general quality of the aquatic habitats involved. After Invexo (2009-2012), the Agency for Nature and Forest (ANB) funded a follow-up project (2013) with further research into the catchability of adult bullfrogs, detailed inventory of the population and follow-up of managed populations. As a consequence, after 4 years of active trapping and destruction of one core population in the cluster of ponds, the population in Hoogstraten is depleted and presumably eradicated. In the pond complex in Arendonk, the situation is less clear. Here, several ponds are still infected and there are indications that the situation is worsening. Inventory also shows that the Grote Nete population is still under westward expansion. Meanwhile, risk analysis was performed for bullfrog in Belgium in order to underpin legislative action to prevent new incursions. Tackling bullfrog would require a dedicated management plan and would entail consolidating the partnership of authorities, volunteer networks and social economy companies.

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