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Abstract

Anguillicola crassus Infection in Different Ecosystems of the Southwestern European Area †

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Abstract: The European eel is critically endangered (IUCN, 2020) due to several factors (climate change, barriers to migration, pollution, unsustainable exploitation, illegal trading and poaching, and pathogens). However, the relative effect of these factors can hardly be quantified. *Anguillicola crassus* is a nematode known as one of the most harmful parasites for the European eel. Being hematophagous and inducing serious alterations to the swimbladder, it can reduce swimming performances and thus may impair silver eel migration and reproduction. Since its introduction (in the early 1980s) from Asia to Europe, this invasive parasite has spread rapidly through its new host's geographic range. In that context, an extensive study was conducted in 2018 in seven pilot basins (one lagoon and two rivers on the Mediterranean side and four rivers on the Atlantic side) in the SUDOANG project to investigate the epidemiological status of *A. crassus* and the parameters influencing its distribution. The eel population was monitored in a harmonized way through a sampling network using standardized data collection methods. We sampled 36 to 96 eels (yellow and silver stages) in each pilot basin by electrofishing or fyke nets. We identified significant differences of *A. crassus* occurrence between basins, which were partly explained by eel life traits (density, feeding activity) and habitat characteristics (temperature, salinity). This study contributes to quantifying and better understanding the mechanisms of infection of *A. crassus* in different ecosystems and to increasing the awareness of its possible negative effects on the eels of the Sudoe Area.

Keywords: *Anguillicola crassus*; European eel; swimbladder invasive parasite; prevalence; SDI; Southwestern European area

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