

# **PIT-Telemetry as a Method to Study the Habitat Requirements of Fish Populations. Application to Native and Stocked Trout Movements.**

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## **ABSTRACT**

Passive integrated transponder (PIT) technology was used to study the behaviour of fishes during the summer season in two headwater streams of northeastern Portugal. A total of 71 PIT tags (12 mm long x 2.1 mm diameter) were surgically implanted in 1<sup>+</sup> stocked (39) and native (32) brown trout of two size classes (< 20.0 and ≥ 20.0 cm). Eight independent antennae, connected to a multi-point decoder (MPD reader) unit, were placed in different microhabitats, selected randomly every three days during the observation period (29 August to 9 September in Baceiro stream and 19 September to 4 October in Sabor stream). The results confirmed this method as a suitable labour efficient tool to assess the movement and habitat use of sympatric stocked and native trout populations. About 76.9% of stocked and 59.4% of native PIT tagged trouts were detected. Multivariate techniques (CCA, DFA and classification tree) showed a separation in habitat use between the two sympatric populations. Stocked trout used, mainly, the microhabitats located in the middle of the channel with higher depths and without cover. Furthermore, these fishes displayed a greater mobility and a diel activity pattern different to native trout populations.

**Key-words:** PIT tag, brown trout, stocking, habitat use, movement