PS2-73. Morpho-anatomical features and distribution patterns of underground organs in *Reynoutria japonica* and *Reynoutria* × *bohemica* (Polygonaceae)

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The rhizomatous taxa of the *Reynoutria japonica* complex (Polygonaceae) are characterised by highly efficient vegetative growth, making them one of the most invasive and problematic plants worldwide. Precise knowledge of the distribution of the underground organs, and in particular of the resprouting rhizomes, is a key prerequisite for targeted eradication measures.

In the present study, we aimed at (1) clarifying existing differences in the morpho-anatomical characteristics of rhizomes and roots, (2) assessing their respective distribution patterns along the soil profile and (3) developing an approach for estimating the rhizome resprouting potential in knotweed populations. During digging activities in November 2023, we described the underground organs of three wild populations for both *Reynoutria japonica* and *Reynoutria* ×*bohemica* in Canton Ticino (southern Switzerland). In addition, rhizome resprouting tests were carried out in greenhouse experiments allowing to assess key rhizome morphological characteristics.

The obtained results show that rhizomes are characterised by pith tissue in the section centre and display nodes with peripheral dormant buds that enable them to resprout. Rhizome biomass is mainly concentrated in the first 40 cm of soil, although some outlying rhizomes may be found in deeper soil layers depending on soil compaction and related penetrability. Roots, on the contrary, dominate and are more abundant in deeper soil layers, constituting more than 75% of total biomass situated below 40 cm. Rhizome resprouting rates are significantly correlated with ontogenetic pith brightness, rhizome diameter and taxon. To estimate the overall rhizome resprouting potential, the amount of expected resprouting nodes was theoretically calculated for both taxa by combining data on the distribution of rhizome nodes and their respective pith brightness category as a proxy for the resprouting capacity. Such amount of expected resprouting nodes may equivalent to 1958 n/m^2 with standard error limits ranging from 1783 to 2179 n/m^2 and 1630 to 2240 n/m^2 for *R. japonica* and *R.* ×*bohemica*, respectively.

Finally, we provide practical advice on how these outcomes can be used to optimise investment in machinery and human resources for the management of these rhizomatous taxa, and more specifically to determine the optimum depth of intervention during soil improvement operations.

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