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No barriers for invasive species – case study: *Reynoutria japonica* Houtt.

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Background

The invasive potential of alien plant species is favoured by the ability to overcome geographical barriers. Japanese knotweed is a species of Asian origin, being introduced in Europe for ornamental purposes. Tolerance to different environmental conditions, dispersal strategy and the ability to overcome native species support the invasive status of *Reynoutria japonica*. The presence of the Japanese knotweed, considered one of the world's worst invasive species, was recorded in Romania as a subspontaneous species in 1940, in the northwestern part of the country. For a long time, the Carpathian Mountains managed to stop the spread of the Japanese knotweed to the southern part of Romania. We recently documented the spread of the species over the Carpathians both downstream, using tributary rivers as transport vectors towards the Danube, and upstream, on the southern slopes of the Meridional Carpathians.

Methods

Between 2018-2021, we investigated the presence of *Reynoutria japonica* in certain areas of the Oriental and Meridional Carpathians. Knowing the type of habitat preferred by this species, the research focused mainly on the assessment of mountain river banks and along forest roads, on an altitudinal gradient.

Fig. 1 - Japanese knotweed on the Aries river bank

Results

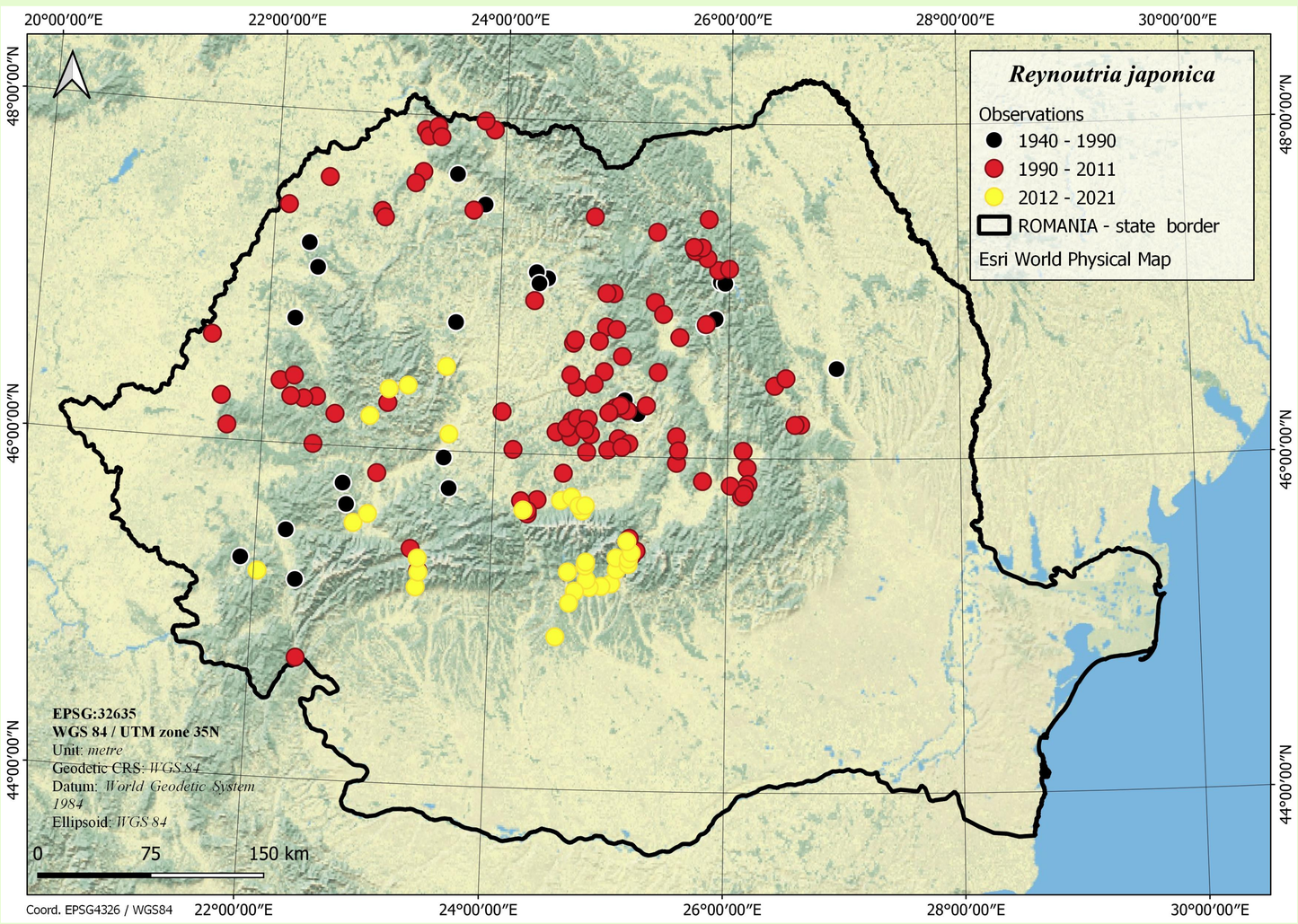

Fig. 2 – Updated distribution map for Japanese knotweed

The target species was identified at a maximum altitude of 1042 m, on the Vistisoara Valley on the northern slope of the Fagaras Mountains and at 1017 m on the Bear Valley, on the southern slope of the Iezer - Papusa Mountains. We underline that the mentioned mountain valleys are closed to public traffic, forest roads can only be used by the machinery serving the forest exploitation activities.

Fig. 3 – Japanese knotweed at 1017 m altitude on Bear Valley, Iezer - Papusa Mountains

The increased propagule pressure and anthropogenic impact on mountain habitats coupled with the high tolerance of the species to a wide range of environmental factors facilitated its dispersal.

Updated distribution map shows that Japanese knotweed managed to cross the Meridional Carpathians, its presence being indicated both at the foot of the mountains, advancing south on Danube tributary rivers and on the valleys that ascend the southern slope.

We consider that it is only a matter of time until Japanese knotweed establishes populations in Dobrogea, the only province of Romania where the species has not yet been recorded. Given the magnitude of the ecological and socio-economic impact of this species in other similar invaded areas of Europe, we recommend *Reynoutria japonica* as a priority species and a suitable candidate for management within the national invasive alien species action plan.

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