



## Azione A.13

# Distribution Map of *Robinia pseudacacia* in the SAC IT5210003 sites; SAC IT5210046 and SPA IT5220025

**Distribution Map of Robinia  
pseudacacia in the SAC IT5210003  
sites; SAC IT5210046 and SPA  
IT5220025**

**Azione A.13**

**30/09/2022**

**LIFE IPE IMAGINE**

**LIFE19 IPE/IT/00015**

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Attachment 1: SAC IT5210046/SPA IT5220025

Attachment 2: SAC IT5210003

## ABSTRACT

The aim of the activities presented here is to create a cartography of the distribution of the invasive alien species *Robinia pseudoacacia* in the SAC IT5210003 and SAC IT5210046/SPA IT5220025 sites and the Habitat present in these three N2000 sites, expanding and improving the knowledge already acquired through previous projects.

Both bibliographic research and field activities were carried out (verification points and phytosociological surveys) to obtain precise data on the presence of *Robinia pseudoacacia* and the characterization of the phytocoenoses in the three N2000 sites investigated.

The data collected in the field on the distribution and coverage of *Robinia pseudoacacia* and the presence of Habitat of Directive 92/43/eec in the three sites were reported in the GIS environment, allowing the creation of 1: 10,000 scale maps. The maps show a widespread and consistent presence of black locust within the SAC IT5210003 and the absence of habitat 91E0 while, in the SAC IT5210046 and ZPS IT5220025 the presence of *Robinia pseudoacacia* is scarce and limited only to some very small areas.

## INTRODUCTION

The Anthropocene is the era in which humans and our societies have become a global geophysical force. This epoch is characterized by a eroding of biogeographical barriers, due to the human-mediated dispersion of species into new regions, causing ecological, economic and social damages. The ecology of invasions comprises a wide range of taxa, of which terrestrial plants are the most studied due to the severe impacts they cause.

The invasion process is a gradual process in which non-native species have to go through three main stages: transport, stabilization and dispersal. Overcoming different ecological and economic barriers is important for the transition from one stage to another. If the expansion of the non-native population causes ecological or economic damage, then it can be considered invasive.

Invasive alien species have characteristics that enable them to overcome barriers and outcompete native species. The elements that determine high invasibility of the habitat include disturbances, unused resources, available ecological niches, and the presence of propagules.

Alien vegetation invasion is an increasing phenomenon on a global and national scale. In Europe, 3749 alien species have been currently recorded and naturalised. In Italy, there are 791 alien plant taxa, 570 of which are naturalised and 221 invasive. 83 out of 132 habitats are subject to some degree of impact from alien plants, with *Ailanthus altissima*, *Robinia pseudoacacia*, *Senecio inaequidens*, *Amorpha fruticosa* and *Carpobrotus edulis* being the most frequent invasive alien species. Invasive alien plant species can cause serious impacts on biodiversity and ecosystem services, but can also cause important effects from an economic point of view.

*Robinia pseudoacacia* is one of the most widely distributed alien invasive tree species throughout Europe. This species causes significant changes to the microbial, chemical-physical characteristics of the soils, microarthropod communities and plant communities. It is amply demonstrated that *Robinia pseudoacacia* has a high invasive potential and is capable of altering local biodiversity and ecosystem services through a process of homogenization of the micro-environmental conditions of the populations, favoring the settlement of alien, ruderal and non-forest species both in the plantations of and in recent secondary stands that have escaped from the introduction areas. Therefore, the management of *Robinia* reforestation of secondary stands and areas near native forests is of fundamental importance to prevent the spread of this alien tree species and to favor the restoration and increase of the resilience of native forests.

Considering this, in order to define the *Robinia pseudacacia* containment interventions to improve the habitats and their reconnection, the first phase involved the creation of a map of the areas with a high presence of *Robinia pseudoacacia* in the SAC IT5210003 and SAC/SPA IT5210046 of the Umbria region.

## DESCRIPTION OF ACTIVITIES AND METHODOLOGY

The activities carried out with the aim of creating a cartography of the distribution of the invasive alien species *Robinia pseudoacacia*, can be summarized in three main phases.

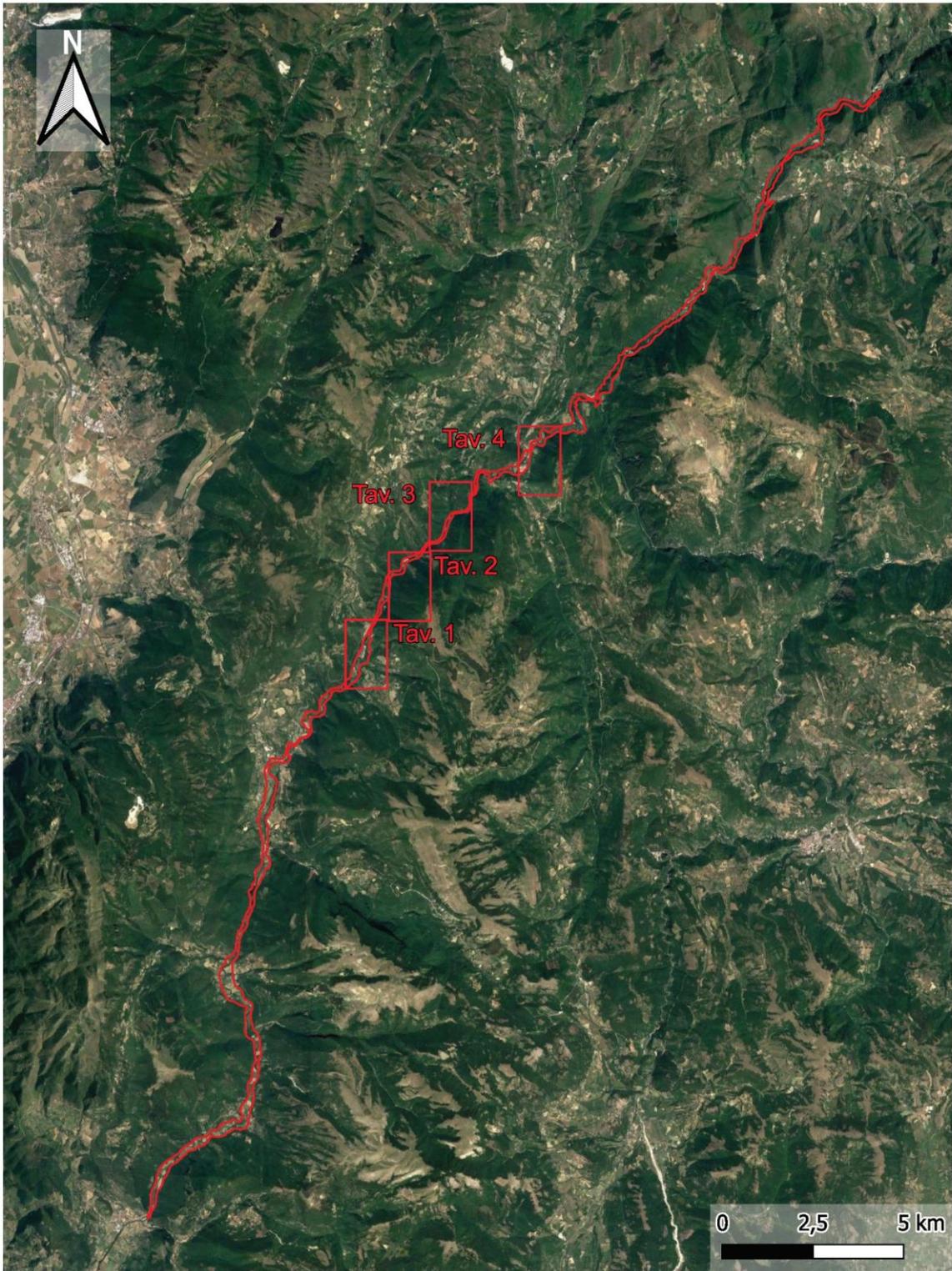
The first activity carried out involved extensive bibliographic research. In particular, bibliographic material was searched regarding the riparian plant communities and the habitats associated, including the maps already produced for the River Tiber sites in the SAC IT5210003 and the river Valnerina on the SAC IT5210046 and SPA IT5220025), the ecology and syntassonomy of *Robinia pseudoacacia* and the methodology for the containment of *Robinia Pseudoacacia*.

In the second phase, field activities within the two selected N2000 sites (River Tiber in the SAC IT5210003 and the Valnerina on the SAC IT5210046 and SPA IT5220025) to identify the areas with the presence of *Robinia pseudoacacia* were carried out. In detail, a total of 10 field trips were carried out along approximately 40 km of the Nera river and 45 km of the Tiber river in the sections included within the three N2000 areas. For this activity, a GPS was used to memorize the coordinates of the starting and ending points of the areas characterized by the presence of *Robinia pseudoacacia* and by the different plant communities. In total, over 200 points were recorded. In addition to GPS, a tablet was also used to indicate the main characteristics of the phytocoenoses present in the various areas identified, such as the dominant species and those typical of the habitats and also the percentage of coverage of *Robinia pseudoacacia*. The collected data were then reported in the GIS environment in order to identify the polygons characterized by the presence of *Robinia pseudoacacia* and those characterized by the presence of native plant communities. Subsequently, the comparison of the data collected concerning the main characteristics of the plant communities, with those obtained through the bibliographic material, has allowed us to obtain information regarding the presence of habitats of Directive 92/43/eec. Finally, the field investigations were implemented through the execution of 20 floristic-vegetational surveys according to the phytosociological method. The surveys were carried out in representative areas characterized by the presence of habitats of community interest and in those with a high presence of *Robinia pseudoacacia* potentially suitable for the execution of interventions to improve habitats 92A0 and 91E0 \* conservation status.

The results of this second phase made it possible to obtain precise data on the presence of black locust in the three N2000 sites investigated and the vegetational characterization of the phytocoenoses present. In the Tiber river, the data collected showed a widespread and consistent presence of black locust along the entire stretch of the river falling within the SAC IT5210003 and the absence of habitat 91E0\*. On the contrary, in the SAC IT5210046 and ZPS IT5220025 of Valnerina the presence of *Robinia pseudoacacia* was scarce and limited only to some very small areas adjacent to the provincial road 209 thus not affecting the conservation status of habitats 92A0 and 91E0 \*. For this reason, it was decided to exclude the Valnerina sites from the areas of interventions to improve habitats 92A0 and 91E0 \* conservation status.

In the third phase, the data collected in the field on the distribution and coverage of *Robinia pseudoacacia* and the presence of Habitat of Directive 92/43/ECC in the three N2000 sites were reported in the GIS environment, allowing the creation of a 1: 10,000 scale maps. Attributes regarding the percentage coverage of *Robinia pseudoacacia* and the tree species present in the dominant layer have also been associated with the map. Attachment 1 shows the maps relating to the distribution of *Robinia Pseudoacacia* exclusively present in SAC IT5210046 (Valnerina) and the relative overall map. Attachment 2 shows the distribution maps of *Robinia Pseudoacacia* in the SAC IT5210003 (river Tiber) and the related overall map.

# **Attachment 1**



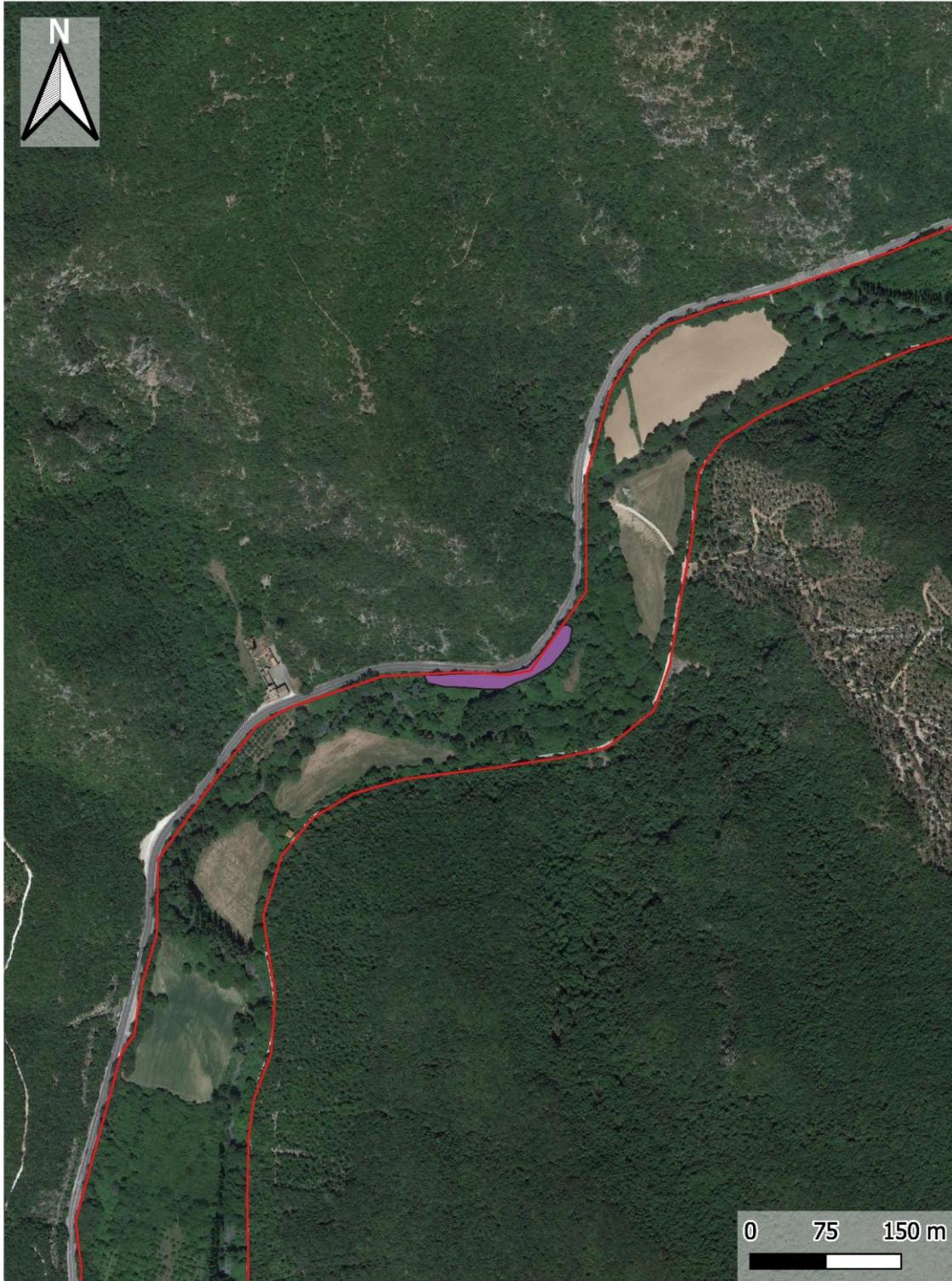
Confine ZSC IT5210046

Tav. 1



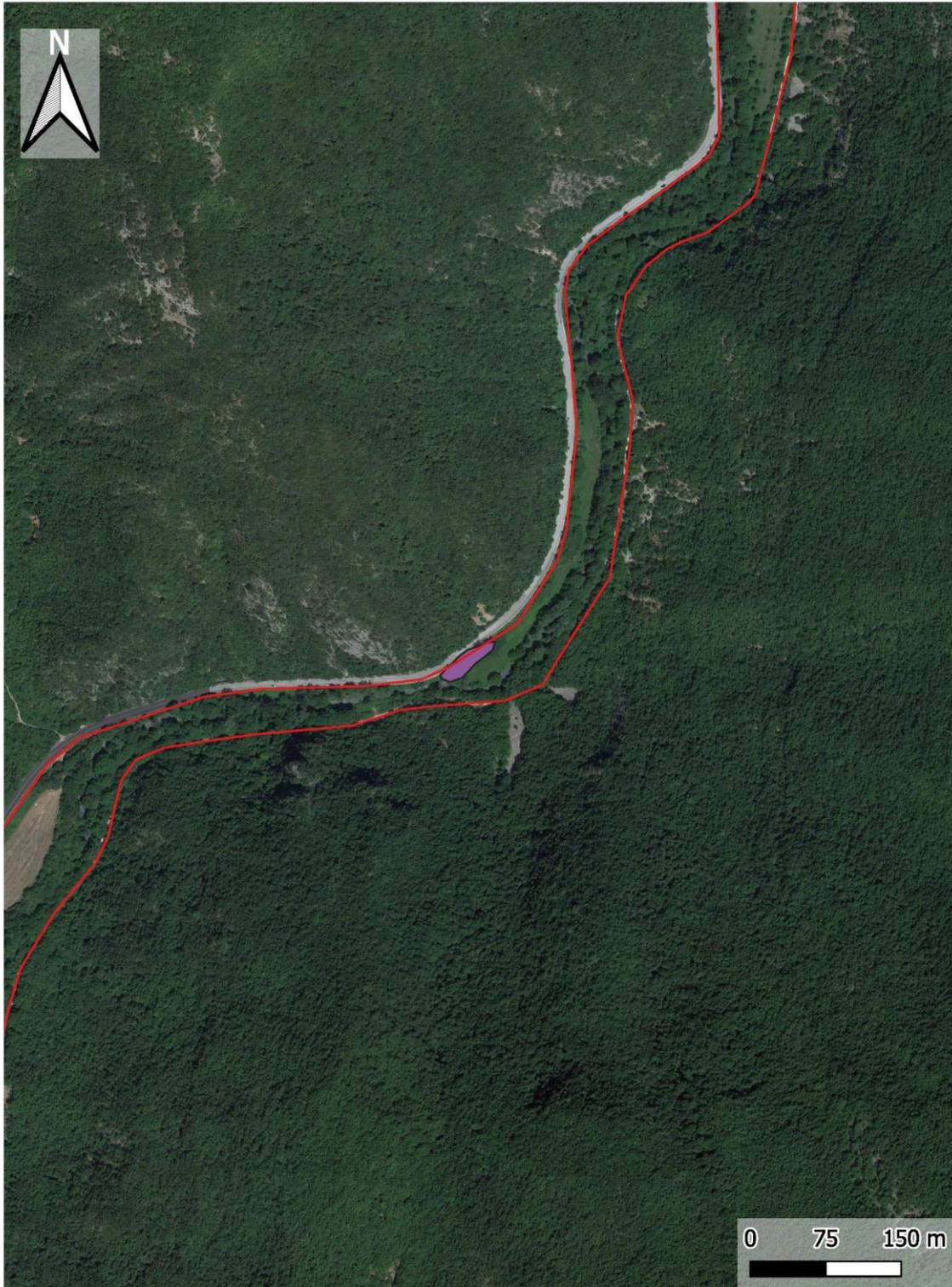
- Confine ZSC IT5210003
- Vegetazione a Robinia pseudoacacia

Tav. 2



- Confine ZSC IT5210003
- Vegetazione a Robinia pseudoacacia

Tav. 3



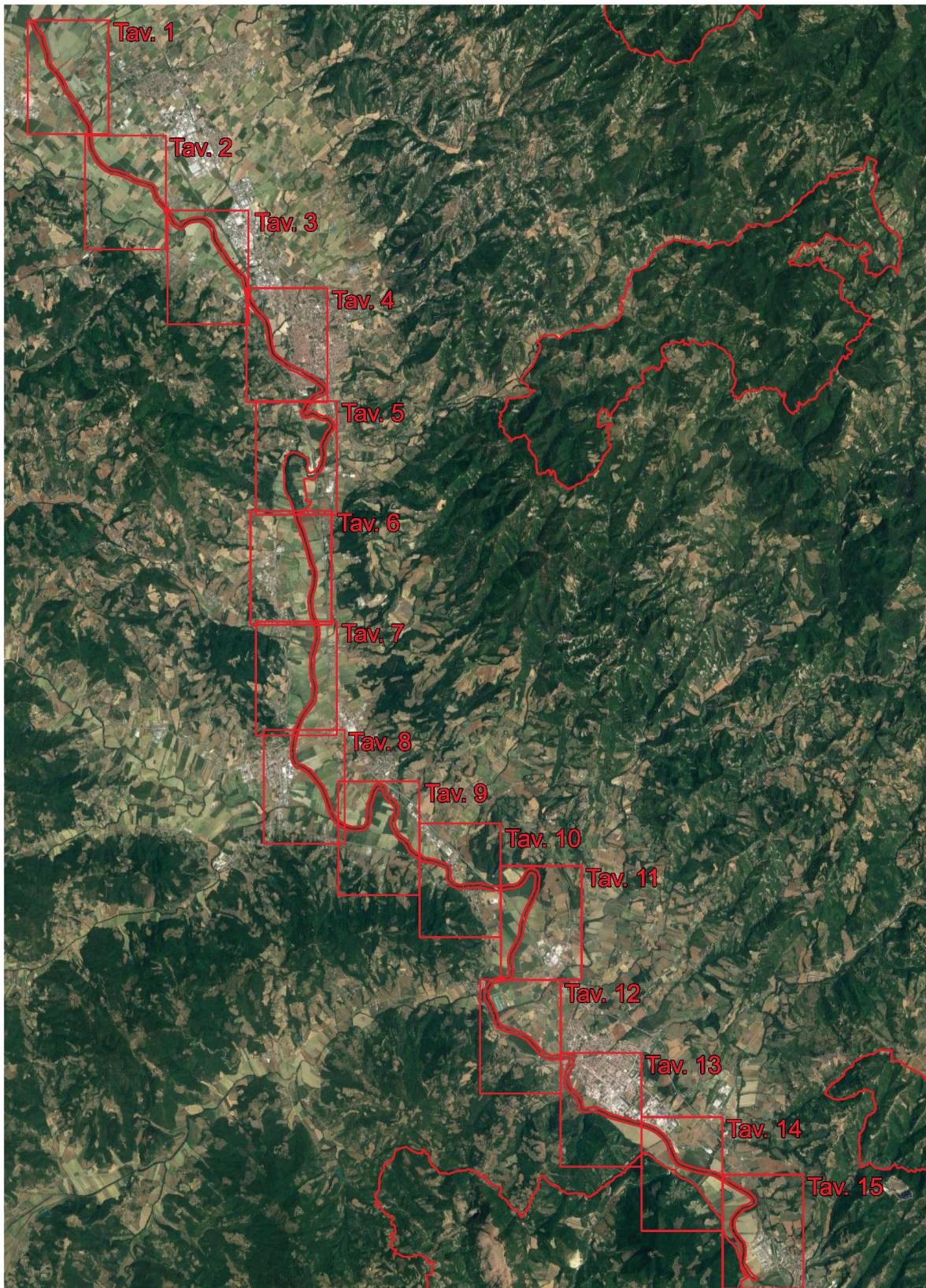
- Confine ZSC IT5210003
- Vegetazione a Robinia pseudoacacia

Tav. 1



- Confine ZSC IT5210003
- Vegetazione a Robinia pseudoacacia

# **Attachment 2**



Confine ZSC IT5210003

Tav. 1



0 250 500 m

□ Confine ZSC IT5210003    ● Punti di verifica    ■ Vegetazione a Robinia pseudoacacia

Tav. 2



□ Confine ZSC IT5210003    ● Punti di verifica    ■ Vegetazione a Robinia pseudoacacia

Tav. 3



□ Confine ZSC IT5210003    ● Punti di verifica    ■ Vegetazione a Robinia pseudoacacia

Tav. 4



□ Confine ZSC IT5210003    ● Punti di verifica    ■ Vegetazione a Robinia pseudoacacia

Tav. 5



0 250 500 m

□ Confine ZSC IT5210003    ● Punti di verifica    ■ Vegetazione a Robinia pseudoacacia

Tav. 6



0 250 500 m

□ Confine ZSC IT5210003    ● Punti di verifica    ■ Vegetazione a Robinia pseudoacacia

Tav. 7



0 250 500 m

□ Confine ZSC IT5210003    ● Punti di verifica    ■ Vegetazione a Robinia pseudoacacia

Tav. 8



□ Confine ZSC IT5210003    ● Punti di verifica    ■ Vegetazione a Robinia pseudoacacia

Tav. 9



□ Confine ZSC IT5210003    ● Punti di verifica    ■ Vegetazione a Robinia pseudoacacia

Tav. 10



0 250 500 m

□ Confine ZSC IT5210003    ● Punti di verifica    ■ Vegetazione a Robinia pseudoacacia

Tav. 11



□ Confine ZSC IT5210003    ● Punti di verifica    ■ Vegetazione a Robinia pseudoacacia

Tav. 12



0 250 500 m

□ Confine ZSC IT5210003   ● Punti di verifica   ■ Vegetazione a Robinia pseudoacacia

Tav. 13



□ Confine ZSC IT5210003    ● Punti di verifica    ■ Vegetazione a Robinia pseudoacacia

Tav. 14



0 250 500 m

□ Confine ZSC IT5210003    ● Punti di verifica    ■ Vegetazione a Robinia pseudoacacia

Tav. 15



0 250 500 m

□ Confine ZSC IT5210003    ● Punti di verifica    ■ Vegetazione a Robinia pseudoacacia