

DISTRIBUTION OF INVASIVE PLANT *AILANTHUS ALTISSIMA* (MILL) SWINGLE IN THE DANUBE SPA - BAZIAS - IRON GATE

**HERNEA CORNELIA¹, MIHOC CORINA², SORESCU CARMEN²,
ONCIA SILVICA¹ BORLEA GH.F¹, TENCHE CONSTANTINESCU ALINA MARIA¹**
¹Banat's University of Agricultural Sciences and Veterinary Medicine of Timisoara, Calea Aradului ,
No. 119, Timisoara, e-mail: corneliahernea@usab-tm.ro
²Environmental Protection Agency Caras - Severin, Petru Maior Street, No. 73, Resita

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ABSTRACT

Originary from China, *Ailanthus altissima* was first introduced in our country like an ornamental tree and in urban area possible due to its tolerance of pollutants and resistance to drought. In present the tree of heaven is one of the few invasive tree species from our country maybe because its huge capacity of vegetative and generative reproduction, fact that contribute to its spread. Research made in the Danube SPA - Bazias - Iron Gate ("Iron Gate" Natural Park) showed that the species is not found in the forest land but occupy large surface along the Danube river, between Socol and Berzasca towns.

INTRODUCTION

Invasive plants is very well adapted for many ecosystems because their huge ecological amplitude, their very good capacity of vegetative and sexual reproduction and their fast growth.

Global climate change, degradation of natural habitats and ecosystems are significant factors that contribute to alien invasive species spread.

The invasive species may cause very big change on biodiversity and may produce even the destruction of native species from the ecosystem.

The Convention on Biological Diversity (CBD) identifies alien invasive species like one of the major interdisciplinary problems. This international convention ask, to all involved members, to prevent introduction, to keep under control and it of possible to realize eradication of alien species with a huge impact about habitats, ecosystems and native species.

In Romania, according to the third national rapport CBD from 2005, there are registered many invasive alien species. A total number of 112 species and clones of alien tree species are recorded, of which only 6 are invasive: - *Acer negundo*, *Ailanthus altissima*, *Amorpha fruticosa*, *Cytisus scoparius*, *Fraxinus americana* and *Fraxinus pennsylvanica*.

Ailanthus altissima (Mill.) Swingle (*Ailanthus glandulosa* Desf.) – named like de „tree of heaven”, *ailanthus*, “cenușer” in Romania or *chouchun* (smelly tree) in China is a tree from *Simaroubaceae*.

Ailanthus altissima is native from China which is abundant in urban habits and along roadsides but also in natural habits (Kowarick and Saumel, 2007). In our country the tree has been introduce for degraded lands plantation and for ornamental use too. It was cultivated especially in the South of Romania where become almost spontaneous. Tree of heaven develop quickly because its capacity of vegetative and sexual reproduction. Its sexual reproduction leads to high production of winged fruits scattered by wind over long distance (Kowarik, 1995, Motard and all. 2011). This species is also reproduced vegetative by vigorous root suckers growing from root buds (Pan and Bassuk, 1986).

There is very few information in scientific literature although the species is already widespread.

The aim of this paper is to highlight the presence of *Ailanthus altissima* in the Danube SPA-Bazias-Iron Gate.

MATERIAL AND METHODS

In order to highlight the presence of *Ailanthus altissima* in Danube SPA-Bazias-Iron Gate there was a double strategy. Firstly it was the study of Forest Management Plan for the Berzasca Forest Administration (Management Unit IX Sirinia South, Management Unit VIII Sirinia North) and Forest Management Plan of Moldova Noua Forest Administration (Fetele Dunarii Management Production), secondly it was itinerary studies.

RESULTS AND DISCUSSIONS

The analyses of stand composition from forest land closed to Danube showed the absence of *Ailanthus altissima* trees or seedlings. Itinerary studies along roadsides highlight very large area occupied by heaven of tree.

In order to put in evidence the presence of this species in Danube SPA - Bazias - Iron Gate, the itinerary studies was made on two routes, the first one from Socol to Pojijena, the second one from Berzasca to Moldova Noua.

On the first route, Socol -Pojijena, there has been identified *Ailanthus altissima* in various forms: bushes along the road, isolated trees (Figure 1) or clusters of seedlings (Figure 2).

Most of the cases are found pure bushes or row of tree of haven but there was reported situation when tree of haven is found in association with other species. An example is the point situated at 4.2 km from Socol (Socol-Pojijena route) where seedlings of tree of haven have been detected under *Gleditsia triacanthos* tree (Figure 3). Another one is the association between *Ailanthus altissima* and *Robinia pseudoacacia* in the meadow area closed to Danube.

Berzasca town (44°38'51.1" and 21°56'25.3") has been the starting point on the second route. In the first part of the route there has plenty of black locust, after approximately 1.6 km tree of haven and black locust have been identified together (figure 4).

Further, along the whole length of route, both on the waterfront and on the opposite side of the road bushes, row of tree or isolated tree of *Ailanthus altissima* have been reported.



Figure 1 Trees of *Ailanthus altissima*



Figure 2 Seedlings of *Ailanthus altissima*



Figure 3 Seedlings of *Ailanthus altissima* under tree of *Gleditsia triacanthos*



Figure 4 Black locust and tree of haven close to the river.

CONCLUSIONS

Analysis of data from Forest Management Plans highlights the absence of tree of haven in forest land. Outside the forest land, on the route Socol-Pojejena-Berzasca has been highlighted the abundance of this species along the road, on the boat side and on the treeless slope. While in most places tree of haven appear as small bushes or pure row of tree, there have been identified situations in which the species occurs in intimate mixture with other species, especially black locust. There also been identified seedlings of *Ailanthus altissima* under shade-intolerant species like *Gleditsia triacanthos*.

In order to establish measures to eliminate this invasive species which contributed to native species elimination, researches are necessary.

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*** Amenajamentul Unității de producție IX Sirinia Sud, Ocolul Silvic Berzasca.

*** Amenajamentul Unității de Producție XVIII Sirinia Nord, Ocolul Silvic Berzasca.

*** Amenajamentul Unității de Producție VI Fețele Dunării, Ocolul Silvic Moldova Nouă.