CONTRIBUTIONS REGARDING INVASIVE ALIEN PLANTS IN THE VĂLCAN MOUNTAINS

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ABSTRACT

The Vălcăcan Mountains are part of the Southern Carpathians, tanging between the East Jiul rivulet and West Jiul rivulet. Starting from our wish to contribute to the study of the flora and the vegetation in the region of Oltenia, and also to the prevention of its reduction because of irrational exploitation, we began, in 2007, the botanical research in the Vălcăcan Mountains. The flora and fauna in this region of the Carpathians are very rich and interesting. There are some particularities, given by the relief, altitude, climate, nature of rocks and soil.

We consider that studying and knowing the flora and the vegetation of this area, whose vegetal carpet undergoes profound transformations caused by some anthropo-zoogenic factors, meet a present necessity. The geobotanical research in the Vălcăcan Mountains in the last years resulted in the identification of 28 invasive alien species. The majority of them are ruderal. A significant number of such plants have been deliberately grown for decorative and forestry purposes, especially by the employees of the ROMSILVA consider that this situation has a negative impact on the natural and semi-natural ecosystems in the researched territory, knowing that the deliberate transplantation of some species has not been not done properly and the estimated impact on the biodiversity has not been taken into account. Other species were introduced unintentionally, but we consider it a consequence of human negligence, especially when the phyto-sanitary norms are not observed.

INTRODUCTION

The Vălcăcan Mountains are part of the Southern Carpathians, tanging between the East Jiul rivulet and West Jiul rivulet.

Starting from our wish to contribute to the study of the flora and the vegetation in the region of Oltenia, and also to the prevention of its reduction because of irrational exploitation, we began, in 2007, the botanical research in the Vălcăcan Mountains. The flora and fauna in this region of the Carpathians are very rich and interesting. There are some particularities, given by the relief, altitude, climate, nature of rocks and soil.

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MATERIAL AND METHOD

The field research on the field was carried out between 2007-2010, during all seasons and having clearly defined itineraries. The research underpinned solid bibliographical documentation with respect to the physical and geographical environment:
the relief, geology-lithology, types of rocks, hydrographic net, soils and the general and local climate. The findings included vegetal associations, and the vascular flora was closely analyzed, especially taking into consideration the anthropic factor.

RESULTS AND DISCUSSIONS

The geobotanical research in the Vâlcun Mountains in the last years resulted in the identification of 28 invasive alien species. The majority of them are ruderal. A significant number of such plants have been deliberately grown for decorative and forestry purposes, especially by the employees of The Forestry Institutions (ROMSILVA) in that area.

For each species of invasive alien plants in the researched territory, we shall also refer to: corology, ecology and the vegetal association in which this species develop.


The abiotic phytocoenosis of this plant community may be seen in the hillock area, on the eroded lands at the base of the slopes. This plant community can be found in the Jiu Valley, Sohodol Valley, Tismana Valley and Bistrița-Vâratic Valley, at heights ranging between 400-550 m.s.m. These phytocenoses although represented by an invasive species, i.e. *Robinia pseudoacacia*, are of crucial importance because they fix the soil and protect it against erosion.

*Phytolacca americana* L., coming from North America, is an invasive evergreen plant, seen subspontaneously in the localities at the foot of the Vâlcun Mountains, especially in the soils rich in nitrogen.

*Polygonum cuspidatum* Sieb. et Zucc. (*Reynoutria japonica* Houtt.), is a species coming from Eastern Asia, cultivated for decorative purposes, seen subspontaneously in the Tismana Valley and Jiu Valley.

*Gleditsia triacanthos* L., a plant native to North America, is cultivated for decorative and forestry purposes and it can also be seen subspontaneously. *Oenothera biennis* L. a biannual species, brought from North America is an adventive species often met in the beech tree area.

*Ailanthus altissima* (Miller) Swingle, coming from China, is cultivated for decorative purposes in our country, but it also grows subspontaneously in the degraded and sunny fields. We can see it in the Vâlcun Mountains, in the Tismana Valley, Bistrița-Vâratic Valley and Sohodol Valley. In the Vâlcun Mountains this species form plant community *BALLOTO NIGRAE-AILANTHETUM ALTISSIME* Sirbu and Oprea 2011 described in Moldova and identified in this area but with a slightly different floristic composition.

*Impatiens glandulifera* Roy lei (I. Roy lei Walp.) is an annual species with pink-purple, spurred flowers, originating in Himalaya. It was cultivated in our country for decorative purposes, becoming subspontaneous. It can be encountered in shady, moist places, in the area of the beech tree.

*Vinca minor* L. is sporadically seen at the edge of the beech tree woods, in the Jiu Valley.

*Lycium barbarum* L. (*L. halimifolium* Miller.) is a hedge bush, imported from China, also growing subspontaneously in the Bistrița-Vâratic Valley and Jiu Valley.

*Helianthus tuberosus* L. is often met in extremely moist areas, forming very large vegetal communities.

*Amorpha fruticosa* L. is cultivated for hedges and protection curtains, growing also subspontaneously among bushes and at the edge of the woods in the hillside area that was investigated.
Xanthium spinosum L. is an invasive alien plant encountered near human communities and degraded meadows because of overpasturing.

Xanthium strumarium Moretti is a terrophyte, an annual plant growing in the hillside area.

Coryza canadensis (L.) Cronq. (Erigeron canadensis (L.) (Char. Sisymbriion) grows on the degraded meadows in the hillside areas in the Jiu Valley and the Tismana Valley.

Solidago canadensis L. is rarely seen in the Vâlcă Mountains, as it grows mostly in the moist soils on the river meadows between Tismana, Peștișani and Runcu.

Erigeron annus (L.) Pers. (Char. Arctio, Sisymbriion, Calistegion sepium, Salicetea, Alno-Ulmion) is an annual terrophyte often met in places near human communities and cultivated from the hillside to the mountain areas. It is a species native of South America.

Juncus tenuis Willd. (Char. Polygonion avicularis) is an annual terrophyte, coming from South-West Asia, often encountered in the field of the Vâlcă Mountains.

Veronica persica Poiret., (Char. Polygono-Chenopodietalia), is an annual terrophyte, coming from South-West Asia, often encountered in the hillside area, in the fields of the Vâlcă Mountains.

Physalis alkekengi L., (Char. Alno-Ulmion), is a hemicryptophyte plant stemming from North America, often encountered in the Tismana Valley, through accacia plantations, rare woods and bushes.

Armoracia rusticana Gaertn., B. Meyer et Scherb. (A. lapathifolia Usteri), (Char. Arctio, Calystegion, Bidentetea), is a an evergreen species, native of South-Eastern Europe and West Asia, an edible plant, growing sub-spontaneously in the river meadows and orchards in the Jiu Valley.

Amaranthus retroflexus L. is an annual terrophyte, coming from North America, often encountered in the hill area, near human communities and weeding cultures.

Ambrosia artemisiifolia L. native of North America, first reported in Germany in 1863 and in Romania in 1910 has become very dangerous for crops being considered phytosanitary quarantine weed.

CONCLUSIONS

The intensive abiotic activity, but not only that, has brought about the invasion of allochtonous (non-native) species in the natural and semi-natural degraded ecosystems in our country.

The geobotanical research in the Vâlcă Mountains in the last years resulted in the identification of 28 invasive alien species. The majority of them are ruderal. A significant number of such plants have been deliberately grown for decorative and forestry purposes, especially by the employees of The Forestry Institutions (ROMSILVA) in that area.

We consider that this situation has a negative impact on the natural and semi-natural ecosystems in the researched territory, knowing that the deliberate transplantation of some species has not been not done properly and the estimated impact on the biodiversity has not been taken into account.

Other species were introduced unintentionally, but we consider it a consequence of human negligence, especially when the phyto-sanitary norms are not observed. The use of pesticides in agriculture is only accidental. Due to the unsuitable agricultural work and the unilateral use of herbicides, some species of segetal plants spread.

BIBLIOGRAPHY


