INVASIVE PLANTS FROM THE CERNA OF OLTET BASIN

PLANTE INVAZIVE DIN BAZINUL CERNEI DE OLTEȚ

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Abstract: *In this paper we are presenting the main invasive species from the Cerna of Oltet Basin. The invasive species from the Cerna of Oltet Basin are species with luxuriant development on a certain area, on the prejudice of other species, due to a dominant and favourising ecological factor, natural and anthropic. From this category are also the adventive plants which usually grow in anthropogenic habitats (cultivated fields and/or ruderal area). Among these we mention: Amorpha fruticosa, Ambrosia artemisiifolia, Calamagrostis epigeios, Cardaria draba, Centaurea solstitialis, Cirsium arvense, Conyza canadensis, Hordeum murinum, Pteridium aquilinum, Sambucus ebulus, Xanthium italicum and other.*

Rezumat: *În această lucrare se prezintă principalele specii invazive din Bazinul Cernei de Olteț. Plantele invazive sunt acele specii care au o dezvoltare luxuriantă pe o anumită suprafață, în detrimentul celorlalte, datorită unui factor ecologic dominant şi favorizant, natural sau antropic. Din această categorie fac parte şi plantele adventive care cresc obişnuit în habitate antropogene (câmpuri cultivate şi/sau arii ruderale). Dintre acestea amintim: Amorpha fruticosa, Ambrosia artemisiifolia, Calamagrostis epigeios, Cardaria draba, Centaurea solstitialis, Cirsium arvense, Conyza canadensis, Hordeum murinum, Pteridium aquilinum, Sambucus ebulus, Xanthium italicum ş.a.*

***Key words*:** invasive plants, Cerna of Oltet Basin.

INTRODUCTION

In order to be invasive a plant should have certain qualities: to be endowed with fast spreading means, to produce many embryos annually , to have at disposal vegetative reproduction means, to grow fast, to be large in size and have strong underground organs and not be preferred by phytophagous animals. Some of the plants identified in the examined territory become invasive.

MATERIAL AND METHOD

The first stage while studying the Basin of the Cerna of Oltet was the reading of the bibliographical material. That is why many publications mentioned in the bibliography represented a reference material through the similarity of the geographical zone and the studied one. Starting from this information we repeatedly studied the area conform to the method of itinerary as the surface was very large, but when necessary we used the method of stationary and detailed our analyses collecting and preserving the floristic material.

The identification of the taxons was performed on preserved dry material or on live material, using the latest taxonomic informative sources (Beldie Al., 1977, 1979, Săvulescu T., 1952-1976, Tutin T.G., et al. 1964-1980, Ciocârlan V., 2000).

RESULTS AND DISSCUSIONS

1. *Amórpha fruticósa* L. – Fabáceae Fam.

This species of North- American origin can be found in the lower side of the examined territory in the meadow land of the river Cerna. It flowers and it fructifies abundantly and in addition to this it becomes thicker through sucking. Even though, at the beginning it was cultivated now it is difficult to be controlled. Its only advantage is that it consolidates the soil in which it grows.

2. *Ambrósia artemisiifólia* L. – Asteráceae Fam.

It is of North- American origin. It forms dense local masses in ruderal territories along the main road in the basin and has the tendency to expand. In many European countries it is considered "quarantine weed". It will not be impossible for this species to acquire this status, even in our case, unless measures to control its spreading are taken.

3. *Calamagróstis epigéjos* Roth – Poáceae Fam.

It is a strong plant, with a rhizome which can be found from the level of the locality called Oteteli (at the confluence of the rivers Cerna and Olteț) up to the region of the sub-Carpathian hills (at the level of the locality called Slătioara). Along with the rhizomes the flying fruits are an advantage for this species when it spreads on new territories. This species does not demand a certain substratum and it can be found on various soils.

4. *Cardária drába* (L.) Desv. – Brassicáceae Fam.

It is a species frequently found in the places along the communication means from the basin to which it lends a white look. It has a great spreading ability by means of its offshoots from its roots and by its great number of seeds which become mature at the beginning of the summer. It flowers in abundantly in spring and spreads a pleasant smell.

5. *Centauréa solstitiális* L. – Asteráceae Fam. (Fig. 1)

It is an annual species frequently met in the ruderal places, fallow fields, and antropophile grass plods from the Cerna of Olteț Basin. It usually establishes itself on dense soils, poor in humus. Its presence in grass plots contributes to their degradation. In the places where it establishes it self it grows rapidly because the fact that it is not used as fodder and because of its thorns at the level of the inflorescence.

Fig. 1. General aspect with *Centauréa solstitiális* L.

6. *Círsium arvénse* (L.) Scop. – Asteráceae Fam.

Indigenous Eurasian plant, it is also ruderal and segetal**.** In the searched territory it can be found in various cultures, especially stalky ones where it develops high colonies. The calix of the fruit and the development of the offshoots on the roots makes it successful in creating widespread clusters and makes it capable of eliminating other cultures.

7. *Conium maculátum* L. – Apiáceae Fam.

It is a strong plant, growing up to 2 meters in height, biannual, nitrophile**,** and also toxic. It forms pure, thick clusters true fortresses growing in ruderal places especially in highly humid ones such as the meadow land of the Cerna river. It spreads a fetid smell like that of a mouse. It is a toxic pland and therefore it is not eaten by animals. People do not seem eager to destroy these fortresses that bring only trouble. It can be recognized by the purple spots on its stem.

8. *Conýza canadénsis* (L.) Cronquist (*Erígeron canadénsis* L.) – Asteráceae Fam.

It is of North American origin. It is an annual species present in almost any border of a cultivated land, any ruderal field and even on the street of the basin. We observed that a single well developped plant can produces over a milion fruit, a fact which gives this plant the status of a first degre nitrophil invasive plant.

9. *Daúcus caróta* L. subsp. *caróta* – Apiáceae Fam.

It is an euroasien taxon frequently met in the basin. It does not seem to be demanding in terms of temperature and it is found on the lower side of the territory up to the level of the sub-Carpathian hills. It grows on various soils, of we take into consideration their acidity. In ruderal places and in *Festuca pratensis* grass plots it is invasive and it gives them a white look when these plants flower. The presence of this plant in such grass plots leads to their depreciation and the plant is also avoided by farm animals.

10. *Erigeron annuus* (L.) Pers. (*Stenáctis ánnua (*L.) Less. – Asteráceae Fam.

It is an annual plant of medium size, which during the last decades produces dense populations and dominates the surfaces by its white-blue color. During 1970-1980 this species was considered new say that the status of invasive plant describes it best.

11. *Galinsóga parviflóra* Cav. – Fam. Asteráceae

It is South-American origin (Peru). It seems to have imigrated to the Roumanian flora during the 1-st world war. It multiplies rapidly as commensal plant in hoed lands, both on the hills and in the mountains especially in cornfields. In Copăceni, Slătioara, Stroieşti and Cerna it is present in all gardens. Its massive developement it impoverishes the substratum but it can be used as fresh fodder for pigs and birds. The only way to control it is to hoe regularly. Its success is ensured by the great number of embryos it produces and by its rapid growth.

12. *Hórdeum murínum* L. – Fam. Poáceae

This is an annual species, of eurasian origin, which is indigenuous and also nirophil. It lives for a short time on ruderal lands from the lower and middle side

of Cerna-Olteț Basin. They are often exclusivistic. The plant has a frail rachis and each group of three ears detaches itself and fixes easily on people's clothes and on animals. Obviously a significant part in its chorology is played by rodents who store the fruit as food. The phitocoenosis where it can be faund alternate with those of *Cardária drába*.

13. *Matricária perforáta* Mérat *(M. inodóra* L.) – Asteráceae Fam.

Annual plant, frequently met in ruderal places and in fallow lands it often becomes the only one dominanting. Where it is not controlled it spreads easily in the nearly cultures (especially in stalky ones). Due to the great number of the fruit created by a single individual we can give this plant the status of invasive species.

14. *Nárdus strícta* L. – Poáceae Fam.

It is a species present at the level of the sub-Carpathian depression up to the sub-alpine region of the searched territory. There it forms lawns by itself.

The spreading of the lawns that it creates is due to its great ability to adapt. It does not survive excesive drought or massive floods. Its poor value as fodder makes animals which graze on those surfaces ewoid it.

To increase its value as fodder urgent measures are demanded in order to control this species.

15. *Onopordúm acánthium* L. – Asteráceae Fam.

It is a strong nitrophile plant, up to 2 metres high, frequently met in ruderal places on the lower side of the examined territory. Very few individuals may also be present in fallow fields. When it settles in one places it sometimes becomes the only dominating plant.

16. *Polýgonum áviculare* L. s.l. – Polygonáceae Fam.

Pioneer species, extremely widespread in the Romanian Flora with a weak resistance to competition but remarkably tough when stepped on it. As soon as an empty space appears it is the first one to occupy it. It has a great ability to from parcels where it is the only one to dominate. However we are still unable to understand how its friut spread so fast, possibily with the help of the factors which tread down the land and also duet o the water. The plant can be found along the paths or the country roads which are not frequently used as well as on the border of the main roads.

17. *Pterídium aquilínum* (L.) Kuhn – Hypolepidáceae Fam. (Fig. 2.)

Fig. 2. General aspect with *Pterídium aquilínum*

Native species, with a well developped rhizome system which is also efficient when it spreads through the lawns in the mountains and on the hills, in the *Bétula péndula* forest, on parquets and acid soils. It produces on these very persistent and exclusivist clusters. This phenomenon can be noticed especially on the Plaiul Cernei Hill where hundreds of hectare are occupied by this species. It is not eaten by animals as it is highly toxic. It spreading is also favoured by grazing which weakens the other plants.

18. *Rúmex alpínus* L. – Polygonáceae Fam.

It develops luxuriantly along the mountain streams from the basin and its development becomes eplosive beside or on the place of the sheepfolds where great amounts of dung accumulate. It is an ultranitrophile plant. When growing on the place of sheepfolds it is co-inhabits with *Urtíca diòica* and sometimes with *Rúmex obtusifólius*, with which it may be mistaken unless we know that *Rúmex alpínus* has the branches of the adpres inflorescence. It is hard to be controlled because of its rhizome system which is very well developped and because of its large leaves which cast a shade on the soil and allow only the growth of certain species such as: *Stellária némorum*, *S. média*.

To control the growth of such species people have tried to boil the rhizomes in order to feed the pigs but this method had no result. Therefore it continues to be a problem which needs to be solved. After the dug disappears the plant withdraws gradually.

19. *Sambúcus ébulus* L. – Caprifoliáceae Fam.

Strong plant with an extremely strong rhizome system. It can be recognized by its very fetid smell even when young, by anyone. It is a nitrophile species which produces great colonies by the road boarders in alder plantations and also in dirty places. The colnies are difficult to be desfroyed. Local people ignore its presence as it is not useful. More than this they consider its presence in places with a lot of garbage to be beneficial as it reduces the dull atmosphere of these places.

20. *Verátrum álbum* L. subsp. *lobeliánum* (Bernh.) Arcang. L. – Liliáceae Fam.

It is a perennual plant, toxic, with great leaves on the stem which are pubescent at least on the inferior side. The weed bushes dominated by this species are found in mountainous lawns of the studied territory and it does not from a separate asociation. The plants represent invasions in the lawns of *Violo declinatae – Nardetum strictae* sau *Festuco rubrae – Agrostietum capillaris*.At the border of the forest on Stânişoara peak the groups of Veratrum extend them selves on notable surfaces, invading the lawns nearby in 2-3 years time.

The toxicity of this plant is given by the presence of some alcaloids such as: proveratrină, ermine, less jervină in its vegtative organs.

The plants of *Verátrum* can be eaten by sheep without causing them illnesses only after the frost.

To conclude, we notice that these weed bushes have a double economic aspect: on the one hand they hold remarkable surfaces of unremarkable lands and on the other hand it reresent a permanent danger to the animal production.

21. *Xanthium italicum* Moretti – Fam. Asteráceae

It is probably of American origin. Despite the fact that it is an annual plant it spreads in a remarkable way. It is large in size, it fructifies abundantly, whatever the climatic conditions may be. In each pseudofruit which has 2 layers there are 2 fruit and seeds. Of these 2 at least one insures an offspring. In the examined territory it is frequently met fallow fields on the lower side of the land.

When passing through such a field any animal or person can notice the embryos of the plants hanging on them. It is also difficult to get rid of them. The embryos are capable of surviving for a long time in the soi land they germinate successively, therefore it is difficult to clean up the invaded lands. It also destroys the wool of the sheep.

CONCLUSIONS

In this paper we have presented 21 invasive species identified in the Cerna of Olteț Basin. They belong to 9 botanic families.

The families with the greatest number of representatives are: Asteraceae – 9, and, for behind, Poaceae – 3. The rest of the families (Liliaceae, Caprifoliaceae, Polygonaceae, Hypolepidaceae, Apiaceae, Brassicaceae and Fabaceae) have less than 2 species.

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