

DATA ON THE PRESENCE OF INVASIVE AND POTENTIALLY INVASIVE ALOGEN PLANTS IN OLT COUNTY (ROMANIA)

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Abstract

The research carried out in Olt County regarding invasive and potentially invasive alogen plant species is a necessary step in order to complete the information on their distribution at the national level. The data obtained will be able to be used for a careful monitoring of these plants and the adoption of the necessary management measures regarding the eradication or prevention of their introduction and spread.

In this sense, an inventory of invasive and potentially invasive plant species identified on the territory of Olt county is presented, with information on the geographical origin, life form, biological form, an assessment of the degree of invasiveness, chorological data, habitat, as well as aspects related to the impact they exert on native vegetation, human health or the economy.

The preliminary analysis of the list of invasive and potentially invasive alogen plants identified in Olt County highlights, in particular, the presence of some species of concern for the European Union (such as *Ailanthus altissima*, *Asclepias syriaca* and *Elodea nuttallii*). Besides these, the most widespread invasive species found in Olt county are *Ambrosia artemisiifolia*, *Robinia pseudoacacia*, *Morus alba*, *Amorpha fruticosa*, *Acer negundo*, *Amaranthus retroflexus*, *Erigeron annuus*, *E. canadensis*, *Lycium barbarum*, *Sorghum halepense*, *Xanthium orientale* subsp. *italicum*.

It is well known that the impact of invasive species on the environment, the economy and in some situations even on human health is major and that is why these organisms must be subject to an extensive and continuous monitoring process. Also, in order to control the introduction and spread of invasive and potentially invasive species, a series of appropriate management measures are required.

Key words: *invasive and potentially invasive alogen plants, Olt county, Romania.*

INTRODUCTION

Globally, invasive alogen species are defined as the second cause (after habitat destruction or loss) of species extinction in a region and the decline of native biodiversity (Genovesi & Shine 2004).

Naturalized adventitious plants capable of spreading over large distances

from their parent plants are considered invasive (Richardson *et al.* 2000).

These species have the ability to multiply easily and occupy new habitats at the expense of native species due to favorable ecological factors (according to Dihoru 2004). It prefers disturbed habitats, where competition is reduced due to human intervention (Otves Carola *et al.* 2014).

According to Botnariuc & Vădineanu (1982), the consequences of the introduction of alien plants into new territories, far from the homeland, often result in unusual increases in the number of individuals of the given species, which frequently lead to ecological and economic catastrophes.

The invasion of new species in different parts of the European continent is a continuous process, which makes these species the focus of researchers around the world. Thus, in the last decades in many European countries, including Romania, data and lists of invasive and potentially invasive alien species have been published, but they must be permanently supplemented with new data obtained.

The updating of distribution data for alien species is necessary at the level of each region in Romania. In Oltenia, as in the whole country, natural and semi-natural ecosystems are increasingly threatened by some non-native plant species. They affect not only regional biodiversity, but also human health, agriculture and food production. In order to avoid or limit the negative effects of alien plant invasion on the environment and the economy, these organisms must be subject to an extensive and continuous monitoring process. Monitoring areas or regions for the naturalization or proliferation of new adventive species serves as an early warning system of the imminence of new invasions. Such observations may indicate immediate actions to be taken to eradicate some species at an early stage, before they become established over a wide geographical area and form numerous sites of infestation that may be difficult to control or eliminate later (Haber 1997). The first important step in prevention is to identify these alien species which have the

potential to become invasive, and therefore, require special attention. It is necessary to prevent potentially invasive species from becoming invasive (McNeely *et al.* 2001).

In this sense, the study was carried out on the distribution of invasive and potentially invasive alien species in Olt county and their impact on native flora and vegetation, in order to ensure a complex monitoring of these species in the future.

Olt County is located in southwest Romania, on the lower reaches of the Olt River, in the regions of Oltenia (the part located west of the Olt River) and Muntenia (the part located east of the Olt River). It is bordered to the north by Vâlcea county, to the east by Argeș and Teleorman counties, to the west by Dolj county. It is part of the category of counties bordering the Danube river. In the southern part, along a length of 47 km, the Danube delimits the country's border with Bulgaria (Coteș & Urucu 1975).

The chorological data on invasive or potentially invasive alien plant species in Olt county are few, being found sporadically in some flora and vegetation works published over time (Grecescu 1909, Buia 1938, Păun 1963, 1964, 1965, 1966, Popescu 1995, Popescu *et al.* 1998, Nyárády 1950, Costea 1998, Hodișan & Morar 2008, Ianovici 2009, Sîrbu & Oprea 2011, Răduțoiu A. 2008, Răduțoiu & Stan 2013, Dihoru & Boruz 2013, Burdușel *et al.* 2020 etc.).

MATERIALS AND METHODS

In order to establish the list of invasive and potentially invasive alien plant species in Olt county, field research was carried out in the periods September - October 2019, June - October 2020, 2021 and June - September 2022.

For this purpose, the GPS Essentials application, available for the

Android operating system, was installed on the phone in order to be able to record the GPS coordinates for each species identified in the field. The plants were photographed with a Nikon camera.

The species that could not be identified directly in the field, were collected and later determined in the laboratory, then they were herborized and included in the herbarium of the University of Craiova [CRAI].

The taxa inventoried in Olt county are listed in alphabetical order. For each species, information is presented on the basis of which the floristic analysis was made: scientific name, family, life span of the plant (annual or biannual, perennial), biological form (according to Sârbu *et al.* 2013), native distribution, invasiveness status in Romania (according to Anastasiu *et al.* 2019) and the chorology presented as follows: literature data (the author and the year of publication are mentioned) and field data (personal data obtained as a result of investigations in the field). The nomenclature of invasive and potentially invasive alien species is presented according to Sârbu *et al.* 2013.

Abbreviations: Native distribution:

Am - America, Am N - North America, Am S - South America, Trop. and subtrop. Am - Tropical and subtropical America, Trop. - Tropical, Subtrop. - Subtropical, Afr - Africa, As - Asia, Md - Mediteranean, Eu - Europe, C - Central, N - North, E - East, S - South, W - West; **Life span:** A - annualy, B - biennial, P - perennial; **Bioforms:** T - Therophytes, H - Hemicryptophytes, G - Geophytes, Hd - hydrophytes, PhLi - Lianas, PhM - Megaphanerophytes, PhN - Nanophanerophytes, Ph - phanerophytes; **Invasive status:** i - invasive, pi - potentially invasive; other abbreviations: OT county - Olt county.

RESULTS AND DISCUSSIONS

As it is already well known, the existing communication routes (sea, air, land) represent the primary corridor for the introduction of adventitious plant species in a new area (according to Pauchard & Alaback 2006). Communication pathways have an important role in plant invasion, for this reason they represent a priority for identifying the distribution patterns of adventitious species and their invasion potential within habitats. Therefore, lands associated with roadsides are very suitable sites for studying the spread of invasive species (Forman 2001; Lovell & Stone 2005; Pyšek *et al.* 2005; Pauchard & Alaback 2006 etc.).

In Olt County, the lands associated with the edges of the roads were first inventoried, then cultivated lands, uncultivated lands (ruderalized land), courtyards, gardens, ruderal places, water banks etc.

Results

The list of invasive and potentially invasive alogen plant species identified in Olt County is presented below:

1. ***Abutilon theophrasti*** Medik. – Malvaceae, A, T, As, i, chorology for OT county: Iancu Jianu, Vulpeni (Păun 1966), Romula Forest (Popescu *et al.* 1998); personal data: on the border with a corn crop, on the outskirts of the locality of Orlea Nouă; between crops; ruderalized land - the localities Văleni, Blaj, Ulmet, Potelu, Vișina Nouă, Mărunței, Pleșoiu.

2. ***Acer negundo*** L. – Aceraceae, A, T, As, i, chorology for OT county: Dobriceni (Burdușel *et al.* 2020), personal data: roadside - Caracal, Stoenești, Radomirești, Dăneasa, Găneasa, Slatina on DN65, Baș on DN65, Drăghiceni, Tufeni, Vișina Nouă, Valea Mare.

3. ***Ailanthus altissima*** (Mill.) Swingle – Simaroubaceae, P, PhM, As E, i, chorology for OT county: Iancu Jianu, Căluș, Groșani, Balș, Dobrun (Păun 1966), Găvănești, Ghioșani, Chintești, Butoi, Potopinu, Fălcoiu (Burdușel *et al.* 2020); personal data: roadside in the localities of Osica de Sus, Osica de Jos, Fălcoiu, Stoenesti, Reșca, Gostavățu, Rusănești, Obârșia; roadside, close to Crucea Eroilor, outskirts of Corabia town; Balș town, Str. Nicolae Titulescu; on the range of the localities Morunglav, Pleșoiu, Slatina, Găneasa; abandoned land, Caracal town, Str. December 1, 1918; railway embankment, Caracal town; roadside between Caracal and Stoenesti localities; between the localities of Stoenesti and Peștra; the yard of a house, Peștra locality; the side of the road, between the localities of Peștra and Dăneasa, the locality of Dăneasa, abandoned land, the localities of Drăgănești-Olt, Stoicănești, Seaca, Mihăiești, Radomirești, Drăghiceni, Redea, Redișoara; between Proaspeți and Curtișoara localities, DJ546; between Curtișoara and Verguleasa localities; Locality Verguleasa, DJ546; the localities of Poganu, Vulturești, Dobroteasa, Vitomirești, Cezieni, Corlătești, Mărgăritești, Fântânele, Slăveni, Băbiciu, Jieni, Izbiceni, Orlea, Orlea Nouă, Hotaru, Potelu, Ștefan cel Mare, Ianca Nouă, Ianca, Stăvaru, Însurăței, Brăneț, Olari, Butoi, Pârșcoveni, Baldovinești, Groșani, Tabaci, Oboga, Bobicești, Comănești, Morunglav, Runcu Mare, Cherleștii Moșteni, Oporelu, Creți, Vineți, Mihăești, Seaca, Văleni, Ghimpețeni, Stoborăști, Tufeni; between the localities of Icoana and Ciurești; the localities Potcoava, Movileni, Greci, Corbu, Vitănești, Sârbi-Măgura, Guesti, Bărăști, Vădăstrița, Piatra, Brâncoveni, Fălcoiu, Frăsinet Gară, Traian, Studinița, Brastavățu, Criva de Jos,

Vâlcele, Bărcănești, Salcia, Arcești-Cot, Valea Mare, Coteana, Bălănești, Colibași, Petculești, Mărgineni-Slobozia.

4. ***Amaranthus albus*** L. – Amaranthaceae, A, T, Am N, i, chorology for OT county: Piatra Olt (Nyárády 1950, cited by Costea 1998 and Burdușel *et al.* 2020), Câmpuri, Curtișoara, Găvănești, Vulpeni (Păun 1963), Groșani (Păun 1963, Burdușel *et al.* 2020), Butoi, Potopinu, Fălcoiu (Burdușel *et al.* 2020); personal data: Cezieni, Scărișoara, Ștefan cel Mare, Urzica, Fălcoiu, Vlădila, Milcovu din Deal.

5. ***Amaranthus blitoides*** S. Watson var. ***blitoides*** – Amaranthaceae, A, T, Am N, i, chorology for OT county: personal data: Ștefan cel Mare, Potelu.

6. ***Amaranthus blitum*** L. subsp. ***blitum*** – Amaranthaceae, A, T, Md, i, chorology for OT county: Morunglav (Păun 1963, Burdușel *et al.* 2020), Morunești, Bărăști, Comănești, Fălcoiu (Burdușel *et al.* 2020), personal data: Ciurești, Potelu, Stăvaru, Frăsinet Gară, Traian, Vișina Nouă.

7. ***Amaranthus crispus*** (Lesp. et Thévenau) N. Terracc. – Amaranthaceae, A, T, Am S, i, chorology for OT county: Morunglav, Bobicești (Păun 1963), Băleasa, Gubandru, Dobrun, Ulmet, Fălcoiu (Burdușel *et al.* 2020), personal data: Fărcașu de Jos, Tufeni, Potelu.

8. ***Amaranthus deflexus*** L. – Amaranthaceae, P, H, Am S, i, chorology for OT county: Caracal (Grecescu 1909, cited by Sîrbu & Oprea 2011), personal data: Cezieni, Potopinu.

9. ***Amaranthus hybridus*** L. – Amaranthaceae, A, T, Trop. and subtrop. Am, i, chorology for OT county: personal data: Brăneț.

10. ***Amaranthus powellii*** S. Watson – Amaranthaceae, A, T, Am N, i, chorology for OT county: Slatina (leg. Negrean 1978,

Costea 1998, cited by Sîrbu & Oprea 2011), personal data: Cezieni.

11. ***Amaranthus retroflexus*** L. – Amaranthaceae, A, T, Am N, i, chorology for OT county: Balș (Păun 1963), Groșșani, Butoi, Potopinu, Fălcoiu (Burdușel *et al.* 2020), personal data: roadside between the localities of Oboga and Morunlav; within the radius of the localities of Morunlav, Balș; the localities Drăgănești-Olt, Stoicănești, Văleni, Radomirești, Crăciunei, Redea, Redișoara; between the localities of Proaspeți and Curtișoara; DJ546, Dumitrești, Vulturești, Dobroteasa, Racovița, Rusăneștii de Sus, Ianca Nouă, Urzica, Vulpeni, between the localities of Prisaca and Curtișoara, Ianca Jianu, Căluș, Oboga, Colibași, Strejești, Satu Nou, Ghimpețeni Noi, Potcoava, Bacea, Movileni, Greci, Potelu, Piatra, Fălcoiu, Dobrosloveni, Comanca, Frăsinet Gară, Traian, Vlădila, Vădastra, Tabonu, Criva de Jos, Slătioara, Vâlcele, Mărunței, Dăneasa, Slăveni, Grădinari.

12. ***Ambrosia artemisiifolia*** L. – Asteraceae, A, T, Am N, i, chorology for OT county: Balș, Brâncoveni, Piatra-Olt (Hodișan & Morar 2008), Stoenesti (Ianovici 2009), Groșșani, Ghioșani, Baldovinești, Balș, Chintești, Bobicești, Gengea, in the riverside forest, Butoi, Potopinu at Buduroi (Burdușel *et al.* 2020), personal data: roadside on the outskirts of Balș; the localities Mirila, Bobicești, Brăneț, Bârza, Olari, Șopârlița, Fălcoiu, Potopinu, Dobrosloveni, Reșcuța, Stoenesti, Băbiciu, Scărișoara, Rusănești, Cilieni, Vișina, Româna, Oboga; the edge of some agricultural crops in Olari; Osica de Sus, Cioroiu, Fărcașele, Fărcașu de Jos, Vișina Nouă, Vădastra, Obârșia, Bucinișu; ruderalized places next to the canals at Orlea Nouă; forest edge between Oboga and Morunlav localities; the side of the road in Morunești, between the Morunești

and Cepari localities; between Cepari and Cocorăști, within the radius of the locality of Cocorăști; between the localities of Arcești and Pleșoiu; between Strejești and Mamura localities; between Cherlești Moșteni and Deleni localities; Cucuieți, Ibănești; between the localities Găneasa and Balș; roadside between Caracal and Stoenesti localities; between the localities of Stoenesti and Peștra; the side of the road, between the localities of Peștra and Dăneasa; the locality of Dăneasa, the localities Drăgănești-Olt, Stoicănești, Văleni, Seaca, Mihăiești, Radomirești, Crăciunei, Drăghiceni, Caracal, Redea, Redișoara; between the localities of Găneasa and Slatina, on DN65; Slatina; between Proaspeți and Curtișoara localities, DJ546; Vulturești, Dobroteasa; between the localities of Dobroteasa and Dejești; Stănuleasa; between the localities of Leleasca and Topana; Cezieni, Corlătești; between Balș and Racovița, D154A; Mărgăritești, Rusăneștii de Sus, Blaj, between the localities of Blaj and Chilizii, on the side of the road through the Blajului forest, Chilizii, between the localities of Bobu and Fălcoiu, Fărcașu de Jos, Doanca, Hotaru, Ștefan cel Mare, Ianca Nouă, between the localities of Ianca Nouă and Stăvaru; between the localities of Doba and Colibași, Satu Nou, Teslui, between the localities of Teslui and Oprelu, Mihăiești, Seaca, Văleni, Nicolae Titulescu, Ghimpețeni, Bârza, between the localities of Tufeni and Icoana, Ciurești, Potcoava, Movileni, Șerbăneștii de Sus, Greci, Brebeni, Alimănești, between the localities of Perieți and Potcoava, Bărăști, Ianca, Urzica, Vădăstrița, Vădastra, Cotenii, Piatra, Brâncoveni, Vlăduleni, Frăsinet Gară, Vlădila, Crușovu, Brastavățu, Tabonu, Slătioara, Ipotești, Dranovățu, Jitaru, Negreni, Cepari, Grădiștea, Belgun,

Optași-Măgura, Bălănești, Valea Mare, Mihăilești-Popești.

13. ***Amorpha fruticosa*** L. – Fabaceae, P, PhN, Am N, i, chorology for OT county: Cioroiu, Fălcoiu (Burdușel *et al.* 2020), personal data: roadside between the localities of Fărcașele and Stoenеști, the localities of Șopârlița, Osica de Sus, Fălcoiu, Reșcuța; on the bank of the Siliștioara canal, at Corabia, it almost blocks the canal; the outskirts of Arcești, between Arcești and Pleșoiu, between Găneasa and Balș; the outskirts of Stoenеști, Radomirești; between the localities of Balș and Găneasa, on DN65; between the localities of Găneasa and Slatina, on DN65; The town of Slatina; between Curtișoara and Verguleasa, DJ546; Dobroteasa, Dejești; Sâmburești; between the localities of Tonești and Leleasca; Cârștani, Mărgăritești; between the localities of Oboga and Morunglav; between the localities of Radomirești and Mihăești; between the localities of Coteana and Bălănești; Potelu, Milcovu din Deal, Bărcănești, between the localities of Negreni and Optași-Măgura, Mărunței, Drăghiceni, Slatina, Valea Mare, Mihăilești-Popești, Mărgineni-Slobozia.

14. ***Armoracia rusticana*** P. Gaertn., B. Mey. et Scherb. – Brassicaceae, P, H, Eu SE, As V, i, chorology for OT county: Balș N, Olteț foodplain, at the confluence with Geamărtăului river (Burdușel *et al.* 2020).

15. ***Artemisia annua*** L. – Asteraceae, A, T, As, i, chorology for OT county: personal data: Stoicănești, Redea, Cezieni, Ștefan cel Mare.

16. ***Asclepias syriaca*** L. – Asclepiadaceae, P, H, Am N, i, chorology for OT county: personal data: Vulpeni.

17. ***Atriplex hortensis*** L. – Chenopodiaceae, A, T, As C, SW, chorology for OT county: personal data: Redea, Balș, Găneasa.

18. ***Azolla filiculoides*** Lam. – Azollaceae, A, Hd, Am N, i, chorology for OT county: on the canals of the Danube meadow, in the Corabia – Orlea – Potelu area (Popescu 1995); personal data: It was also observed in recent years at Corabia – Orlea - Potelu, in some places, covers the surface of the channels, which in the spring have a brick-red color due to the fern fronds. On the Siliștioara channel, at Corabia, with great abundance.

19. ***Bidens frondosa*** L. – Asteraceae, A, T, Am N, i, chorology for OT county: Fălcoiu S, Romula Forest (Burdușel *et al.* 2020); personal data: Orlea.

20. ***Cuscuta campestris*** Yunck. – Convolvulaceae, A, T, Am N, i, chorology for OT county: Piatra-Olt (Buia 1938), Iancu Jianu (Păun 1966), Groșani, Saru Forest, Baldovinești, Butoi, Osica de Sus, Potopinu at Buduroi, Fălcoiu (Burdușel *et al.* 2020), personal data: Balș, Cezieni, Potelu, Brâncoveni, Frâsinet Gară, Vișina, Obârșia.

21. ***Datura stramonium*** L. – Solanaceae, A, T, Am N, i, chorology for OT county: Balș (Păun 1964, 1966), Oboga, at the edge of alluvial plain forest (Burdușel *et al.* 2020), personal data: roadside between the localities of Arcești and Pleșoiu, Stoicănești, Redea, Redișoara, Vulturești, Sâmburești, Cezieni, Corlătești, Blaj, Ștefan cel Mare, Deveselu, Potelu, Însurăței, Traian, Obârșia Nouă, Ipotești, Optași Măgura, Comani, Peștra, Gostavățu.

22. ***Echinocystis lobata*** (Michx) Torr. et A. Gray – Cucurbitaceae, A, T, Am N, i, chorology for OT county: personal data: roadside, Drăgănești-Olt locality.

23. ***Eclipta prostrata*** (L.) L. – Asteraceae, A, T, Am trop., pi, chorology for OT county: personal data: Orlea, near canals.

24. ***Elaeagnus angustifolia*** L. – Elaeagnaceae, P, PhN, As, i, chorology for

OT county: Romula Forest (Popescu *et al.* 1998), personal data: on the banks of the Danube, outskirts of Corabia locality; roadside between Caracal and Stoenеști localities; between the localities of Stoenеști and Pestra; between the localities of Ianca Nouă and Stăvaru, between the localities of Stăvaru and Urzica, Ianca, Fălcoiu, Criva de Jos, Milcovu din Deal.

25. ***Elodea canadensis*** Michx. – Hydrocharitaceae, P, Hd, Am N, i, chorology for OT county: Romula Forest (Popescu *et al.* 1998).

26. ***Elodea nuttallii*** (Planch.) H. St John – Hydrocharitaceae, P, Hd, Am N, i, chorology for OT county: Fălcoiu (Păun 1963, Burdușel *et al.* 2020), personal data: canals from Corabia – Orlea – Potelu, with abundant populations, the Siliștioara canal, on the outskirts of Corabia.

27. ***Erigeron annuus*** (L.) Pers. subsp. ***annuus*** – Asteraceae, B, T, Am N, i, chorology for OT county: Dobrun Forest (Păun 1963), Groșani, Baldovinești, Bobicești, Chintești, Genghea, Butoi, Potopinu at Buduroi, Cioroiu, to the Olteț mouth (Burdușel *et al.* 2020); personal data: between the localities of Stejaru and Ipotești; between the localities of Coteana and Bălănești; Schitu; Fărcașele; Balș; Spineni; between the Greci and the Brebeni; Tabonu; the edge of the forest between the localities of Oboga and Morunqlav; the edge of the road between the localities of Morunqlav and Morunești; between the localities of Morunești and Cepari, within the radius of the locality of Cocorăști, between the localities of Pleșoiu and Colibași, between the localities of Strejești and Mamura, the locality of Mamura, the locality of Deleni, between the localities of Deleni and Cucuieți, between the localities of Căzănești and Vănești, the locality of Ibănești, between the localities of

Ibănești and Albești, the outskirts of the locality of Cornățelu; roadside Rusciori locality, close to Rusciori lake; Scornicești locality, Str. Pișcani; between the localities of Jitaru and Valea Mare; between the localities of Valea Mare and Slatina; between the localities of Drăghiceni and Caracal; Crăciunei, Drăghiceni, Caracal belt, Redea, Rotunda; between Curtișoara and Verguleasa, DJ546; Vulturești, Dobroteasa; between the localities of Dobroteasa and Dejești; Vitomirești, between the localities of Vitomirești and Bulimanu; between Glodu and Cireșu localities; Stănuleasa, Sâmburești, Tonești; between the localities of Tonești and Leleasca; between the localities of Leleasca and Topana; Căndelești, Ciorâca, Pielcani, Chilia; between the localities of Chilia and Profa; between Profa and Tătulești localities; between Tătulești and Colonești localities; Ciocănești; between the localities of Vlaici and Bărăștii de Vede; between the localities of Bărăștii de Vede and Bărăștii de Cepturi; Cezieni; between Balș and Racovița, D154A; between the localities of Blaj and Chilia, on the side of the road through the Blajului forest; on the side of the road at Fălcoiu, Frăsinet Gară, Studinița, Optași Măgura, Piatra-Olt, Mihăilești-Popești, Mărgineni-Slobozia.

28. ***Erigeron annuus*** (L.) Pers. subsp. ***strigosus*** (Muhl. ex Willd.) Wagenitz – Asteraceae, B, T, Am N, i, chorology for OT county: Romula Forest (Popescu *et al.* 1998), personal data: between the Siliștioara canal and the road, outskirts of Corabia, Morunqlav, between Cepari and Cocorăști, Strejești, Slatina, Cezieni, Prisaca.

29. ***Erigeron bonariensis*** L. – Asteraceae, A, T, Am S, pi, chorology for OT county: Bobu, Ulmet, Pârșcoveni (Burdușel 2015, cited by Burdușel *et al.* 2020), Osica de Sus, in the alluvial plain of

Olteț river (Burdușel *et al.* 2020), personal data: Caracal, Redea - recently identified also in Dolj county, Dobrotești locality, in the cemetery.

30. ***Erigeron canadensis*** L. – Asteraceae, A, T, Am N, i, chorology for OT county: Balș (Păun 1964, 1966), Gropșani, Broșteni, Baldovinești, Balș N, alluvial plain of Geamartăului, near to the flow in to Butoi, Osica de Sus W, alluvial plain of Olteț, in arenosis (Burdușel *et al.* 2020); personal data: between the Siliștioara canal and the road, the outskirts of Corabia; the side of the road, the localities of Româna, Oboga, between the localities of Morunești and Cepari; forest edge between the localities of Oboga and Morunglav, Drăghiceni, Caracal, Redea, Rotunda, Slatina, Verguleasa, DJ546, Vulturești, Dobroteasa, Dejești, Vitomirești, Glodu, Cireșu, Stănuleasa, Tonești, between the localities of Ciorâca and Pielcani, Chilia, Profa, Bărăștii de Cepturi, Mereni, Cezieni, Corlătești, Balș, Racovița, D154A, Rusăneștii de Sus, Potelu, Ștefan cel Mare, Radomiru, Brăneț, Pescărești, Tabaci, Prisaca, Iancu Jianu, Satu Nou, Corbu, Ghimpețenii Noi, Stoborăști, Brebeni, Coteana, Bălănești, Perieți, Vitănești, Bărăști, Potelu, Ianca, Fălcoiu, Traian, Studinița, Studina, Obârșia, Criva de Jos, Ipotești, Dranovățu, Optași Măgura, Șerbănești, Bârca, Mirila, Mărunței, Gostavățu, Piatra-Olt, Strejești, Valea Mare, Mihăilești-Popești, Mărgineni-Slobozia, Optași-Măgura.

31. ***Euphorbia humifusa*** L. - Euphorbiaceae, A, T, As, C, pi, chorology for OT county: Balș (Burdușel 2017, cited by Burdușel *et al.* 2020), personal data: Caracal, Ștefan cel Mare.

32. ***Euphorbia maculata*** L. – Euphorbiaceae, A, T, Am N, i, chorology for OT county: Balș (Păun 1965), Osica de Sus (Păun 1963), Cioroiu, Fălcoiu

(Burdușel 2017, cited by Burdușel *et al.* 2020), personal data: Balș, Caracal, Cezieni, Brăneț, Slatina, Fălcoiu, Deveselu, Studinița, Vădastra.

33. ***Fraxinus pennsylvanica*** Marsh. – Oleaceae, A, PhM, Am N, i, chorology for OT county: Romula (Popescu *et al.* 1998).

34. ***Galinsoga parviflora*** Cav. – Asteraceae, P, T, Am S, i, chorology for OT county: Balș (Păun 1963), Fălcoiu (Răduțoiu & Stan 2013), Gropșani, Baldovinești, Butoi, Osica de Jos (Burdușel *et al.* 2020), personal data: Ștefan cel Mare.

35. ***Gleditsia triacanthos*** L. – Fabaceae, P, PhM, Am N, pi, chorology for OT county: Romula Forest (Popescu *et al.* 1998), Gropșani, Potopinu, Cioroiu, Fălcoiu (Burdușel *et al.* 2020), personal data: Morunești.

36. ***Helianthus tuberosus*** L. – Asteraceae, P, G, Am N, i, chorology for OT county: Balș, Dobrețu, Gropșani (Burdușel *et al.* 2020), personal data: roadside between Vitomirești and Bulimanu localities; between the localities of Profa and Tătulești, Brăneț, Baldovinești, Dâmburile, Pescărești, Gropșani, Vulpeni, Tabaci, Prisaca, Curtișoara, Călui, Oboga, Cocorăști, Doba, Teslui, Cornățelu, between the localities of Creți and Vineți, Izvoarele, Vlădila, Obârșia, Slătioara, Milcovu din Deal, Ipotești, between the localities of Bărcănești and Greci, Liiceni, Brebeni, Bălănești.

37. ***Juncus tenuis*** Willd. – Juncaceae, P, G, Am N, i, chorology for OT county: Balș (Păun 1963), Saru, Butoi, Osica de Sus, Tabonul Mic, Fălcoiu (Burdușel *et al.* 2020), personal data: between the localities of Pielcani and Chilia, between the localities of Chilia and Profa.

38. ***Lycium barbarum*** L. – Solanaceae, A, PhN, As E, i, chorology for OT county:

Căluș, Dobrun, Iancu Jianu, Morunglav (Păun 1966), Dobriceni, Iancu Jianu (Burdușel *et al.* 2020), personal data: the edge of the road on the outskirts of Cherleștii Moșteni, Drăgănești-Olt, Stoicănești, Seaca, Mihăiești, Radomirești, Saru Forest, Balș, Găneasa, on DN65, between Găneasa and Slatina, on DN65, Slatina, Valea Mare, Curtișoara, Verguleasa, DJ546, between the localities of Poganu and Dumitrești, Vulturești, between the localities of Pielcani and Chilia, Rusăneștii de Sus, Izbiceni, Ștefan cel Mare, between the localities of Stăvaru and Urzica, Deveselu, Brăneț, Gropșani, between the localities Prisaca and Curtișoara, between the localities of Belgun and Bobicești, Potcoava, Șerbăneștii de Sus, Alimănești, Vitănești, Ianca, Vădăstrița, Piatra, Brâncoveni, Dobrosloveni, Studinița, Vădastra, Obârșia, Tabonu, Criva de Jos, Ipotești, Coteana, Vâlcele, Brebeni, Optași Măgura, Bălănești, Mărunței, Comani, Stoenescu, Dranovățu.

39. **Matricaria discoidea** DC. – Asteraceae, A, T, Am N, i, chorology for OT county: Bucinișu, Redea.

40. **Morus alba** L. – Moraceae, P, PhM, As E, i, chorology for OT county: Căluș, Iancu Jianu (Păun 1963), Văleni, Ghioroiu, Gropșani, Potopinu (Burdușel *et al.* 2020), personal data: Balș, Str. Mihai Viteazu; the edge of the road between the localities of Corbeni and Româna; roadside between the localities of Oboga and Morunglav, within the radius of the locality of Morunglav; Morunești; between Cepari and Cocorăști, within the radius of the locality of Cocorăști; between the localities of Pleșoiu and Colibași; the outskirts of the locality of Cherleștii Moșteni; between the localities of Deleni and Cucuiești; the locality of Căzănești; between the localities of Cornățelu and Poboru; railway

embankment, the locality of Caracal; roadside between Caracal and Stoenescu localities; between the localities of Stoenescu and Peștera; the side of the road, between the localities of Peștera and Dăneasa; Drăgănești-Olt; between Drăgănești-Olt and Stoicănești; Văleni, Seaca, Mihăiești, Radomirești; between the localities of Radomirești and Dăneasa; Rotunda; between the localities of Balș and Găneasa, on DN65; between the localities of Găneasa and Slatina, on DN65; Saru Forest; Curtișoara, Verguleasa, DJ546; between the localities of Poganu and Dumitrești; Vulturești, Sâmburești, Tonești; between the localities of Tonești and Leleasca; between the localities of Pielcani and Chilia; between Profa and Tătulești localities; between the localities of Vlaici and Bărăștii de Vede; Cezieni, Mărgăritești, Rusăneștii de Sus, Osica de Jos, Gostavățu, Izbiceni; between Brăneț and Olari localities; Pârșcoveni, Baldovinești, Găvănești, Gropșani, Iancu Jianu, Oboga, Bobicești, Cherleștii Moșteni, Seaca, Văleni, Nicolae Titulescu; between Nicolae Titulescu and Ghimpeșeni localities; Tufeni, Icoana, Potcoava, Coteana, Izvoarele; between Perieți and Potcoava localities; Buzești, Corbu, Guești, Potelu, Ianca, Piatra, Brâncoveni, Fălcoiu, Dobrosloveni, Deveselu, Frăsinet Gară, Brastavățu, Tabonu, Criva de Jos, Vâlcele, Salcia, Arcești-Cot, Jitaru, Schitu, Bălănești; between the localities of Săltănești and Beria de Sus; Buicești, Optași Măgura, Brebeni, Comani, Fântânele, Slăveni, Băbiciu, Drăghiceni, Mihăilești-Popești, Mărgineni-Slobozia, Jitaru.

41. **Oenothera biennis** L. – Oenotheraceae, B, T, Am N, pi, chorology for OT county: Balș, Morunglav (Păun 1966), Butoi (Burdușel *et al.* 2020), personal data: Fărcașele, Deveselu,

Studinița, Vădastra, Câmpu Părului, between Negreni and Optași Măgura, Comani, Grădinari localities.

42. ***Oxalis corniculata*** L. – Oxalidaceae, P, H, Am N, i, chorology for OT county: Chintești, Fălcoiu, Potopinu, Cioroiu (Burdușel *et al.* 2020).

43. ***Parthenocissus inserta*** (A. Kerner) Fritsch – Vitaceae, P, PhLi, Am N, i, chorology for OT county: Dejești.

44. ***Parthenocissus quinquefolia*** (L.) Planch. – Vitaceae, P, PhLi, Am N, i, chorology for OT county: Slătioara.

45. ***Phytolacca americana*** L. – Phytolaccaceae, P, H, Am N, i, chorology for OT county: Iancu Jianu, Morunglav (Păun 1964, 1966), personal data: roadside between Dobroteasa and Dejești localities, Satu Nou, Mihăilești-Popești.

46. ***Populus × canadensis*** Moench – Salicaceae, P, PhM, hybrid, pi, chorology for OT county: Tetoiu, Corbeni (Burdușel *et al.* 2020), personal data: Fălcoiu.

47. ***Portulaca oleracea*** L. – Portulacaceae, A, T, As, pi, chorology for OT county: Gropșani, Butoi, Potopinu, Fălcoiu (Burdușel *et al.* 2020), personal data: Slatina, Dejești, Cezieni, between the localities of Balș and Bechet, before Saru forest; Blaj, Chilii, Plăviceni, Rusănești, Potcoava, Potelu, Fălcoiu, Dobrosloveni, Deveselu, Frăsinet Gară, Traian, Vlădila, Studinița, Vișina, Vișina Nouă, Obârșia, Tabonu, Criva de Jos, Milcovu din Deal, Ulmi, Spineni, Oboga de Jos, Corbeni, Optași Măgura, Brebeni, Coteana, Mărunței, Dăneasa, Gostavățu, Băbiciu, Găneasa, Valea Mare, Mărgineni-Slobozia.

48. ***Prunus cerasifera*** Ehrh. – Rosaceae, P, PhN, As W, Eu SE, pi, chorology for OT county: Potopinu (Burdușel *et al.* 2020), personal data: Balș, Str. Tudor Vladimirescu; between the localities of Balș and Găneasa, on DN65; between the localities of Găneasa and Slatina, on

DN65; The localities of Slatina, Valea Mare; between Curtișoara and Verguleasa, DJ546; Vulturești; between the localities of Dobroteasa and Dejești; between Sâmburești and Tonești localities; Cezieni, Dâmburile, Găvănești, Gropșani, Prisaca, Iancu Jianu, Mamura; between the localities of Radomirești and Mihăești; Seaca; between the localities of Icoana and Ciurești; Sârbii-Măgura, Bărăști, Brâncoveni, Fălcoiu, Potopinu, Comanca, Vlădila, Vișina Noua, Obârșia, Criva de Jos, Milcovu din Deal, Ipotești, Spineni, Beria de Sus, Runcu Mare, Optași Măgura, Brebeni, Comani, Pestra, Slăveni, Arcești-Cot, Mihăilești-Popești, Mărgineni-Slobozia, Jitaru.

49. ***Reynoutria japonica*** Houtt. – Polygonaceae, P, G, As E, i, chorology for OT county: personal data: Vulpeni, Comănești (cultivated as an ornamental species).

50. ***Robinia pseudoacacia*** L. – Fabaceae, P, PhM, Am N, i, chorology for OT county: Romula (Popescu *et al.* 1998), Vulpeni, Dobriceni, Gropșani, Gengea, Potopinu, Cioroiu (Burdușel *et al.* 2020), personal data: planted on the side of the road at Șopârlița, between the localities of Osica de Sus and Fălcoiu, Dobrosloveni, Reșcuța, Hotărani, Fărcașu de Jos, Stoenești, Rusănești, Cileni, Vișina, Bucinișu; Balș, Str. Nicolae Titulescu, Str. Mihai Viteazu; Oltețu bank, Balș; between the localities of Balș and Bechet, before the Saru forest; roadside between Oboga and Morunglav localities; Morunești, Mamura locality, Cherleștii Moșteni; between Deleni and Cucuieți localities; between Căzănești and Vănești localities; plantation between Poboru and Rusciori localities; roadside Rusciori locality, close to Rusciori lake; roadside between Caracal and Stoenești localities; between the localities of Stoenești and Pestra; between

Drăgănești-Olt and Stoicănești; Văleni, Radomirești, Dăneasa, Drăghiceni, Rotunda; between Balș and Găneasa localities, on DN65; Slatina, Valea Mare; between Proaspeți and Curtișoara localities, DJ546; between the localities of Curtișoara, Verguleasa, DJ546; between the localities of Poganu and Dumitrești; Vulturești, Dobroteasa, Dejești, Vitomirești, Glodu, Cireșu, Stănuleasa, Sâmburești, Tonești, Leleasca, Topana, Căndelești, Ciorâca; between the localities of Pielcani and Chilia; between the localities of Profa and Tătulești; Colonești, Vlaici, Bărăștii de Vede, Bărăștii de Cepturi, Mereni, Cezieni, Corlătești, Racovița, Mărgăritești, Rusăneștii de Sus, Blaj; between the localities Ulmet and Osica de Jos; Potelu; between the localities of Ianca Nouă and Stăvaru; between the localities of Vădăstrița and Vădastra; Brăneț, Olari, Butoi, Pârșcoveni, Baldovinești, Dâmburile, Găvănești, Gropșani, Prisaca, Curtișoara, Dobrețu, Ianca Jianu, Oboga, Corbeni, Belgun, Bobicești, Morunglav, Cepari, Cocorăști, Doba, Cherleștii Moșteni, Poboru; between the localities of Creți and Vineți; Optași, Drăghiceni, Văleni; between the localities of Nicolae Titulescu and Ghimpețeni; Ghimpețenii Noi, Stoborăști, Tufeni, Icoana, Ciurești, Movileni, Brebeni, Izvoarele, Recea, Bălteni, Buzești, Corbu, Vitănești, Sârbii-Măgura, Guești, Bărăști, Ianca, Ianca Nouă, Piatra, Fălcoiu, Frăsinet Gară, Traian, Tabonu, Criva de Jos, Slătioara, Negreni, Schitu, Dobrun, Zorleasca, Beria de Sus, Cârlogani, Runcu Mare, Mihăilești-Popești, Optași-Măgura.

51. **Rudbeckia laciniata** L. – Asteraceae, P, H, Am N, i, chorology for OT county: Vulpeni (cultivated as an ornamental species).

52. **Solidago canadensis** L. – Asteraceae, P, H, Am N, i, chorology for OT county: Deveselu, Obârsia, Drăghiceni, Vulpeni. In

Deveselu and Vulpeni localities, it was observed in many places, cultivated as an ornamental species.

53. **Solidago gigantea** Aiton subsp. **serotina** (Kuntze) McNeill – Asteraceae, P, H, Am N, i, chorology for OT county: between the localities of Pielcani and Chilia, between the localities of Chilia and Profa, between the localities of Tătulești and Colonești, between the localities of Vlaici and Bărăștii de Vede, Studinița, Salcia.

54. **Sorghum halepense** (L.) Pers. – Poaceae, P, H, Md, i, chorology for OT county: Dobrun, Pârșcoveni, Șopârlița (Păun 1966), personal data: ruderalized meadows on the outskirts of the Orlea Nouă locality, next to the canals; roadside, next to an agricultural crop, between the localities of Caracal and Stoenesti, between Drăgănești-Olt and Stoicănești, Rotunda, Slatina, Curtișoara, Verguleasa, DJ546, Vulturești; between the localities of Dobroteasa and Dejești; between the localities of Chilia and Profa; Cezieni, Corlătești; between the localities of Bobu and Fălcoiu; Izbiceni; between the localities of Ianca Nouă and Stăvaru; between the localities of Vișina Nouă and Studina; between the localities of Oboga and Morunglav; Mamura, Drăghiceni, Mihăiești; between the localities of Seaca and Văleni; between the localities of Nicolae Titulescu and Ghimpețeni; Ghimpețenii Noi; between the localities of Potcoava and Bacea; Movileni, Drăgănești-Olt, Potelu, Ianca, Vișina, Vișina Nouă, Coteni, Piatra, Brâncoveni, Vlădueni, Dobrosloveni, Frăsinet Gară, Vlădila, Câmpu Părului, Slătioara, Milcovu din Deal, Ipotești, Greci, Brebeni, Dranovățu, Floru, Movileni, Catanele, Schitu, Bălănești, Milcov, Runcu Mare, Coteana; between the localities of Negreni and Optași Măgura, Mărunței, Pestra,

Fântânele, Gostavățu, Slăveni, Băbiciu, Piatra-Olt, Colibași, Mărgineni-Slobozia, Jitaru.

55. ***Trigonella caerulea*** (L.) Ser. – Fabaceae, A, T, Md, pi, chorology for OT county: Butoi, Osica de Sus, NE Tabonul Mic (Burdușel 2017, cited by Burdușel *et al.* 2020).

56. ***Vallisneria spiralis*** L. – Hydrocharitaceae, P, Hd, Trop. Subtrop., i, chorology for OT county: Fălcoiu (Burdușel *et al.* 2020).

57. ***Veronica persica*** Poir. – Scrophulariaceae, A, T, As SV, i, chorology for OT county: Balș, Osica de Sus (Răduțoiu A. 2008), Dobriceni, Baldovinești, Fălcoiu (Burdușel *et al.* 2020).

58. ***Xanthium orientale*** L. subsp. ***italicum*** (Moretti) Greuter – Asteraceae, A, T, Am N, i, chorology for OT county: Balș (Păun 1966), Romula (Popescu *et al.* 1998), Gropșani, Saru, Baldovinești, Chintești, Potopinu (Burdușel *et al.* 2020), personal data: at the edge of a corn crop and in grassy places, with a lot of *Daucus carota* on the outskirts of Orlea Nouă locality; the edge of cultivated lands on the outskirts of Bârza locality; Brăneț, Olari, Șopârlița, Osica de Sus, Fălcoiu, Potopinu, Dobrosloveni, Reșca, Reșcuța, Fărcașu de Jos, Stoenesti, Rusănești, Cilieni, Vișina Nouă, Vădastra, Obârșia, Bucinișu; between the Siliștioara canal and the road, the outskirts of the Corabia locality; the edge of the road between the locality of Corbeni and Româna; edge of the forest between the localities of Oboga and Morunglav; the edge of the road between the localities of Morunești and Cepari; within the radius of the locality of Cocorăști; the outskirts of the locality of Arcești; the localities of Mamura, Deleni, Poboru, Stoicănești, Văleni, Radomirești, Drăghiceni, Caracal, Redea, Valea

Comăncii, Slatina, Valea Mare; between the localities of Proaspeți and Curtișoara, DJ546; between the localities of Curtișoara and Verguleasa, DJ546; Dumitrești, Vulturești, Dobroteasa, Dejești; between the localities of Tonești and Leleasca; between the localities of Leleasca and Topana; Căndeleşti, Ciorâca; between the localities of Profă and Tătulești, Colonești; between the localities of Balș and Racovița, D154A; Chilii, Scărișoara, Doanca, Vădăstrița; between the localities of Vișina Nouă and Studina; Comanca, Baldovinești, Dâmburile, Găvănești; between the localities of Prisaca and Curtișoara; Colibași, Beria de Jos; between the localities Seaca and Văleni; Ghimpețenii Noi, Bârza; between the localities of Tufeni and Icoana; Ciurești, Movileni, Șerbăneștii de Sus, Bălănești, Vițănești, Potelu, Ianca, Urzica, Piatra, Fălcoiu, Potopinu, Comanca, Traian, Tabonu, Criva de Jos, Optași Măgura, Brebeni, Piatra-Olt, Mihăilești-Popești.

59. ***Xanthium spinosum*** L. – Asteraceae, A, T, Am S, i, chorology for OT county: Balș (Păun 1966), Gropșani (Burdușel *et al.* 2020), personal data: roadside at Româna locality; between Morunglav localities and Morunești; Stoicănești, Drăghiceni, Rotunda, Vulturești, Cezieni, Chilii, Fălcoiu, Reșca, Reșcuța, Brăneț, Mihăești, Potelu, Deveselu, Traian, Tabonu, Optași Măgura, Bălănești, Valea Mare, Mihăilești-Popești, Jitaru.

60. ***Zingeria pisdica*** (Boiss.) Tutin – Poaceae, A, T, As SW, chorology for OT county: Găvănești, Pârșcoveni, Romula Forest (Beldie, in Săvulescu 1972), Bobicești, in the Olteț alluvial plain (Păun 1967), Saru Forest (CRAI, leg. Răduțoiu & Dumitriu 2006, cited by Dihoru & Boruz 2013), Piatra Olt, in the alluvial plain (I, leg. Soran 1958, cited by Dihoru & Boruz 2013), Romula (Reșca) (CRAI, leg. Păun &

Pop 1955, cited by Dihoru & Boruz 2013), Slătioara (Șerbănescu 1965, cited by Dihoru & Boruz 2013).

Discussion

Biological monitoring, the activity of recording consistent species-specific information over time (Haber 1997), is necessary to determine which new adventive species become established in a new range and to lead to improved management.

Regarding adventitious species, data are needed on the range of the species, their abundance, preferred habitats, rate of spread, impact on other species, natural enemies, response to control attempts etc. (Haber 1997).

Analyzing from the floristic view, it is found that the identified taxa belong at 29 botanical families, of which the largest share has the *Asteraceae* family (16), followed by *Amaranthaceae* (8), *Fabaceae* (4), *Hydrocharitaceae* (3), the families *Poaceae*, *Solanaceae*, *Vitaceae*, *Euphorbiaceae* with 2 representatives and the rest of the families with one representative.

The analysis of geographical origin highlights the predominance of species originating in America (especially North America), followed by species from Asia, South America, tropical and subtropical America.

Also, the analysis of the inventory of invasive and potentially invasive alien species in Olt county highlights the presence of some taxa of concern for the European Union (such as *Ailanthus altissima*, *Asclepias syriaca* and *Elodea nuttallii*). In addition to these taxa, the most widespread invasive species found in Olt county are *Ambrosia artemisiifolia*, *Robinia pseudoacacia*, *Morus alba*, *Amorpha fruticosa*, *Amaranthus retroflexus*, *Erigeron annuus*, *E. canadensis*, *Lycium barbarum*,

Sorghum halepense, *Xanthium orientale* subsp. *italicum*, *Acer negundo*.

Among the most common species of adventitious plants in Europe (according to Pyšek *et al.* 2009), we can also mention the species identified in Olt county during field studies in recent years: *Ailanthus altissima*, *Acer negundo*, *Robinia pseudoacacia*, *Erigeron canadensis*, *E. annuus* with subsp. *annuus* and subsp. *strigosus*, *Xanthium orientale* subsp. *italicum*, *Amaranthus retroflexus*, *Datura stramonium*, *Helianthus tuberosus*, *Solidago canadensis*, *S. gigantea*, *Veronica persica*, *Oenothera biennis*, *Galinsoga parviflora*, *Amaranthus albus*, *A. blitoides*, *Reynoutria japonica*, *Elodea nuttallii*, *Juncus tenuis* etc.

Some of the species identified in Olt county are among the main invasive species in Romania (according to Anastasiu & Negrean 2005, 2007): *Ambrosia artemisiifolia*, *Acer negundo*, *Ailanthus altissima*, *Robinia pseudoacacia*, *Amorpha fruticosa*, *Azolla filiculoides*, *Erigeron canadensis*, *E. annuus*, *Echinocystis lobata*, *Elodea nuttallii*, *Xanthium spinosum*, *Xanthium orientale* subsp. *italicum*, *Morus alba*, *Fraxinus pennsylvanica*, *Helianthus tuberosus*, *Reynoutria japonica* and others.

Among the species identified in Olt county, some have a very high frequency or are spread throughout the studied region, most of the time with abundant populations (for example, *Ailanthus altissima*, *Ambrosia artemisiifolia*, *Morus alba*, *Robinia pseudoacacia*, *Erigeron annuus*, *E. canadensis*, *Lycium barbarum*, *Sorghum halepense*, *Amorpha fruticosa* etc.).

Frequently encountered in Olt county is *Ailanthus altissima*, a taxon that has been identified in many localities in the county, in some places the population of

Ailanthus was estimated to be up to 500 individuals, with mature specimens but also with numerous juvenile individuals. This taxon has a high negative impact, being in competition with native species, especially due to its strong regeneration.

Ambrosia artemisiifolia is considered one of the 100 most invasive species in Europe (Pyšek *et al.* 2009), whose allergenic pollen causes great problems for human health, especially causing severe allergic rhinitis (Juhász *et al.* 2001; Juhász *et al.* 2002 ; Juhász *et al.* 2004; Ianovici *et al.* 2009). Currently, the biggest problem has been observed especially in the plain area of Olt county, where the species *Ambrosia artemisiifolia* is found on large areas and in the most varied ecosystems: meadows (pastures and hayfields), cultivated areas and gardens, in areas of recreation, roadsides, forest edges, meadows, cemeteries, residential areas (urban and rural), in industrial areas, but especially in localities on abandoned lands or in various stages of construction of new buildings etc.

Azolla filiculoides, a fern mentioned in the Red Book of vascular plants from Romania as a vulnerable species (Dihoru & Negrean 2009), is an adventive species, from North and South America, naturalized in Western, Central and Southern Europe. This species was mentioned in the specialized literature as being present on the surface of the canals from Corabia – Orlea – Potelu in Olt county (Popescu 1995). Following the field studies carried out in recent years, it was observed that this fern covers in many places the surface of the canals from Corabia - Orlea - Potelu, where it has an abundant development, replacing some native species.

Elodea nuttallii, another invasive species, originally from North America, was observed on the canals from Corabia -

Orlea - Potelu, with a large development on the Siliștioara canal from Corabia, where it competes with the native species, affecting especially the taxon *Marsilea quadrifolia* L. which is protected at European level.

Analyzing the list of invasive and potentially invasive alien species in Olt county, it is observed that some of them are meliferous (*Asclepias syriaca*, *Robinia pseudoacacia*, *Helianthus tuberosus*, *Rudbeckia laciniata*, *Prunus cerasifera*, *Amorpha fruticosa* etc.). According to Wieseler 2005, Jacobsson *et al.* 2008 (cited by Sîrbu C. *et al.* 2016) however, the negative effect of meliferous neophytes on biodiversity through their competition with native flora to attract pollinators should not be ignored.

Other species (for example *Eclipta prostrata*, *Phytolacca americana* etc.) are present in Olt county, but with a small number of individuals, without having an obvious impact on native habitats.

None of the invasive plant species identified in Olt county is subject to control measures, perhaps only to a small extent *Ambrosia artemisiifolia*.

It has been observed that some species such as *Reynoutria japonica*, *Asclepias syriaca*, *Rudbeckia laciniata*, *Acer negundo*, *Helianthus tuberosus*, *Solidago canadensis*, *S. gigantea*, *Ailanthus altissima* are cultivated in some localities for ornamental purposes, and others are used for feeding animals and poultry (such as *Portulaca oleracea*, *Helianthus tuberosus*, some species of *Amaranthus*, for example *A. retroflexus*).

Among those cultivated for ornamental purposes, *Reynoutria japonica* is a vigorous species that presents a real danger, being an invasive species with a large amplitude ecological and often forming impressive monoclonal

communities, drastically reducing the diversity of native species in invaded habitats, as can be observed in many areas of Transylvania. The species has an extensive system of rhizomes, which reach 5-6 m (sometimes even 15-20 m long) and which penetrate up to about 2 m deep in the soil (Barney *et al.* 2006, cited by Sîrbu & Oprea 2011), which makes this

CONCLUSIONS

In Olt county, 60 species of invasive and potentially invasive alien plants were identified, three of which are considered species of concern at EU level (*Ailanthus altissima*, *Asclepias syriaca* and *Elodea nuttallii*). If the report is made to the total number of invasive and potentially invasive alien species in Romania (130), it can be said that approximately 47% are also found in the territory of Olt county.

Many of the invasive species cause irreversible changes in nature, threaten human health or cause damage to the national economy (for example, in addition to the three species of interest for the EU, can also be mentioned the species *Ambrosia artemisiifolia*, *Amorpha fruticosa*, *Morus alba*, *Helianthus tuberosus*, *Elodea canadensis* etc.). The presence of such species causes losses in agriculture, forestry, fishing and other activities. Some of these species are mentioned for the first time from Olt County (such as *Reynoutria japonica*, *Asclepias syriaca*, *Rudbeckia laciniata*, *Eclipta prostrata* etc.), and for many other species other common names are added to those already known.

Detailed knowledge of the distribution of invasive alien plant species in the different regions of Romania is a priority of biodiversity conservation programs.

species considered a big problem due to the fact that it is very difficult to combat and involves very high costs.

Among the identified species, some are extremely aggressive, easily occupying new habitats, at the expense of native species (*Ailanthus altissima*, *Ambrosia artemisiifolia*, *Elodea nuttallii*, *Xanthium orientale* subsp. *italicum* etc.).

Therefore, it can be said that a first step in the management of invasive and potentially invasive alien plant species identified on the territory of Olt county would be their careful monitoring. It is also necessary to increase the level of awareness regarding these species, to adopt appropriate measures to limit their expansion and to eradicate as much as possible the most aggressive species from the point of view of invasiveness before they become stabilized and form numerous sites of infestation which might be difficult to control or eliminate later.

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