

**ALIEN PLANT SPECIES IN GIURGIU COUNTY, ROMANIA:  
AN INVENTORY AND DISTRIBUTION ANALYSIS**

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**Abstract:** Giurgiu County, a crucial hub in the Pan-European Corridor with the sole Danube bridge to Bulgaria, plays an important role in potential pathways for introducing alien plant species. However, the information regarding the distribution of alien plants in this county is incomplete. Our study aims to address this gap by providing a comprehensive analysis of the current distribution of alien plant species based on field records collected from September 2019 to November 2022. Following the guidelines of the POIM/178/4/1/120008 project, data were collected across diverse habitats. Our findings reveal 89 alien plant taxa, including 58 newly reported at the county level. Over half of the alien plant species (66.29%) are also present in the natural protected areas. The study contributes essential information for biodiversity conservation, emphasizing ongoing monitoring and invasive species management within Giurgiu County's protected areas.

**Keywords:** invasive species, field record, Prevention and Management Project, Romania

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**Introduction**

Biological invasions, recognized as the second-largest threat to populations, communities, and ecosystems, have become a critical concern across diverse fields, ranging from biological systematics to the conservation of natural, semi-natural, and human-made ecosystems (Aneva *et al.* 2018). This significant risk is underscored by the rapid, uncontrolled spread of alien invasive plant species, which endangers various habitat types (Barudanović *et al.* 2021).

Many studies suggest that habitats play a crucial role in determining the extent of invasion by alien species (Chytrý *et al.* 2008). Understanding biological invasions and their predictability requires considering the role of habitats, especially as ongoing global changes are likely to alter patterns of habitat availability, potentially facilitating future invasions in certain habitats (Lodge 1993; Rounsevell *et al.* 2006; Pyšek *et al.* 2010).

At a local scale, habitats become more prone to plant invasions when endowed with available resources, as observed in urban, cultivated, and riparian habitats that often exhibit the highest concentrations of alien plant species. These habitats face substantial local invasions marked by frequent disturbances and distinct resource pulses, particularly nutrients (Davis *et al.* 2000; Chytrý *et al.* 2008; Pyšek *et al.* 2010).

In the European context, anthropogenic habitats, such as industrial and agricultural areas, alongside other significantly disturbed habitats like forested areas and semi-natural habitats, host the largest share of alien and invasive plants (Pyšek *et al.*

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2009; Nikolić *et al.* 2013). In areas with intensive human influence, invasive plants can be found almost everywhere, colonizing cultivated areas, industrial, ruderal, and other disturbed habitats known for their susceptibility to alien plant colonization (Lambdon *et al.* 2008; Vukovic *et al.* 2010; Silva & Smith 2006).

A considerable proportion of recorded introductions and naturalization in the last two decades is attributed to the larger movement of people, goods, and services associated with rapid tourism development in the area. This increased human activity could support both unintentional and deliberate introductions, emphasizing the complex relationship between human influence, habitat disturbance, and the spread of invasive species (Hulme 2007).

Giurgiu County, bordered by Bulgaria and situated north of the Danube in Muntenia, is a crucial hub for floristic studies. Various watercourses, such as the Danube, Argeş, and Neajlov, along with numerous protected areas, collectively contribute to the region's distinctive biodiversity. As the county seat, its strategic location along major transportation routes like Bucharest-Sofia-Athens and Bucharest-Istanbul establishes it as a key border crossing point for goods and people. Also, recognized as an important Danube port, Giurgiu is a key element in the Danube-Rhine Canal-Main Danube transport corridor, linking it to nine countries, the Black Sea, and the North Sea (RomaniaDateGeografice.net, n.d.). As a crucial point along the pan-European railway network and with the sole Danube bridge to Bulgaria, Giurgiu's strategic connectivity underscores its significance in potential pathways for introducing invasive plant species (South Muntenia Regional Development Agency, n.d.).

However, the distribution data of alien plants in Giurgiu County are not homogeneous, reflecting an incomplete mapping of its flora. Chorological data on alien plant species in Giurgiu County, previously also recognized as Vlaşca County, remain partial and scattered across various papers published over time (Brândză 1879-1883; Grecescu 1898, 1909; Panţu 1909-1912; Morariu 1946; Borza 1966, 1968; Nedelcu 1967; Popescu 1971; Tarnavski *et al.* 1974; Doltu *et al.* 1984; Nedelcu *et al.* 1991; Costea 1998; Paucă-Comănescu *et al.* 2001; Oprea *et al.* 2004; Ianovici 2011; Dumitraşcu *et al.* 2011; Negrean 2011; Sîrbu & Oprea 2011 etc.).

Our study aims to bridge this gap by providing a comprehensive analysis of the current distribution of alien plant species in Giurgiu County based on our field records. This effort seeks to enrich our understanding of the alien and invasive flora in Giurgiu County, filling in data gaps at the national level, particularly in the southern part of the country, from the Muntenia region. The results are intended to offer a reliable local and regional analysis for strategic planning related to the management of invasive plants and biodiversity conservation, aligning with Regulation (EU) No. 1143/2014 of the European Parliament and of the Council on the prevention and management of the introduction and spread of invasive alien species.

### **Material and methods**

**Study area.** Giurgiu County, located in southern Romania along 72 km of the lower course of the Danube, covers 3526 km<sup>2</sup>, representing 1.5% of the country's total area. The plain relief, gently sloping in the North West – South East direction, includes subunits like the Burnas Plain and sections of the Vlăşia, Găvanu-Burdea, and Titu plains. The region features terraces and meadows along the Danube, Argeş, and Neajlov

Rivers, with the Danube meadow showcasing unique characteristics (RomaniaDate Geografice.net, n.d).

The county experiences a temperate-continental climate and has a hydrographic network primarily consisting of the lower sections of the Danube and the Argeş River. Natural lakes are scarce, with Comana being notable.

Giurgiu County is part of the silvosteppe vegetation zone, with small, degraded grasslands and clusters of forests (RomaniaDateGeografice.net, n.d). The county encompasses various protected areas (Fig. 1), including the Oloaga Forest – Grădinari Nature Reserve (RONPA0435), Comana Natural Park (RONPA0928), and four Sites of Community Importance (SCI) – Comana (ROSCI0043), Gura Vedei – Şaica – Slobozia (ROSCI0088), Middle Argeş Floodplain (ROSCI0106), Bolintin Forest (ROSCI0138) Positioned on the border between the forest-steppe and the steppe, these areas exhibits distinctive phytocenological features and impressive floristic diversity (Management Plan of Comana Natural Park, 2018).

**Data collection and analysis.** The authors acquired the data for this study through periodic field inventories carried out from September 2019 to November 2022, encompassing both summer and autumn seasons. The methodology adhered to the guidelines outlined by the POIM/178/4/1/120008 project: “Adequate management of invasive species in Romania in accordance with EU Regulation 1143/2014 regarding the prevention and management of the introduction and spread of invasive alien species”.

Our data collection encompassed diverse natural and anthropogenic habitats, including roadsides, railway embankments, cemeteries, vacant areas, watercourses, grasslands, cultivated land, abandoned arable land, and backyards. These routes are illustrated in Fig. 1, where, for an overview, we also included the points from the literature that we approximated, as they did not clearly specify coordinates or locations but only at the locality level.

For each route traversed within these habitat types, we completed a field sheet that included GPS coordinates, locality, population size of the species, phenophase, and abundance (where applicable).

Regarding population size, a five-step scale was utilized, as follows: 1 (1-10 individuals); 2 (11-50 individuals); 3 (51-100 individuals); 4 (101-500 individuals); 5 (over 500 individuals).

To streamline the information in this study, we provide details on the localities where alien plant species were observed, including habitat types and population sizes, with occasional inclusion of coordinates. For additional details, it is noted that such information can be requested from the authors or the POIM project manager.

For a comprehensive overview, we've integrated our findings with prior reports on alien plants in Giurgiu County from the literature. Detailed information can be found in Appendix 1, where we note the initial reports, and, when no previous records exist, we note our findings as new reported. Additionally, Appendix 2 lists all taxa mentioned in the literature for Giurgiu County, with an asterisk and gray marking indicating species found by us in the field.

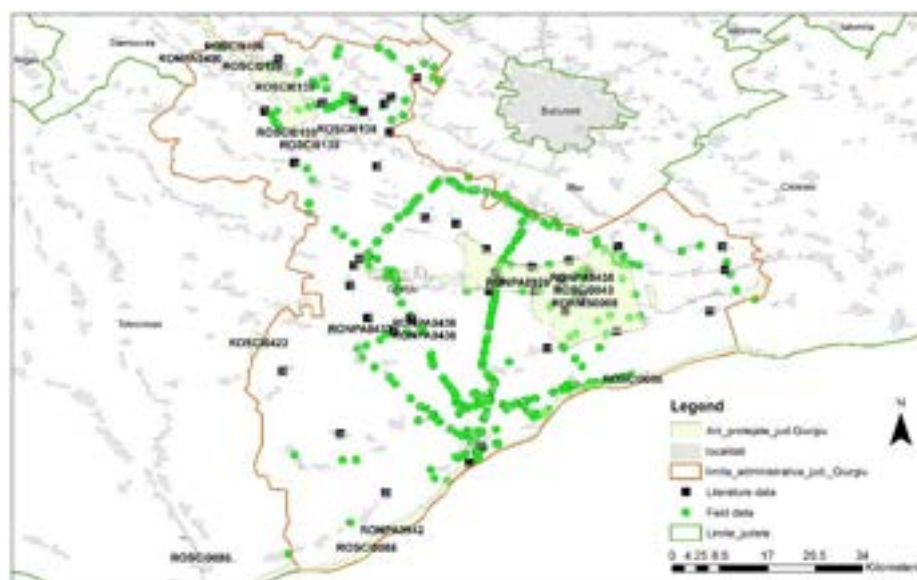


Fig. 1. Integrated map of field observations and literature-referenced points in Giurgiu County

Taxonomic nomenclature follows the World Checklist of Vascular Plants database (WCVF 2022) and Sârbu *et al.* (2013). The list of alien flora (see Appendix 1) is presented in alphabetical order. For each taxon, the following data were registered and analyzed: family, life span, life form, origin (according to Sârbu *et al.* 2013 and Sîrbu & Oprea 2011), method of introduction, residence time, and invasive status (based on POIM, 2020). The terminology used to determine the status of alien plants in Romania adheres to Richardson *et al.* (2000) and Pyšek *et al.* (2004).

Abbreviations: **Life form:** Ch – Chamaephyte; G – Geophyte; H – Hemicryptophyte; HH – Helohydrophyte; PhLi – Liana; Ph – Phanerophyte; T – Therophyte; Ht – Hemitherophyte. **Origin:** Afr – Africa; Am – America; As – Asia; Eu – Europe; Trop – Tropical; Med – Mediterranean; N – North; E – East; S – South; W – West; C – Centre (central). **Way of introduction:** a – accidental; d – deliberate. **Residence time:** arh – archaeophyte; neo – neophyte; cry – cryptogenic taxa. **Invasive status:** c – casual; n – naturalized; i – invasive. **Comana Natural Park** – CNP.

### Results

As a result of our conducted research, we hereby present the identified alien plant species within the territory of Giurgiu County:

***Abutilon theophrasti* Medik.:** Băneasa, Colibași, Comana (CNP), Comasca, Falaștoaca (CNP), Frătești, Ghimpați, Giurgiu (near the railway, port area), Gostinu, Malu Spart, Oinacu, Oncești, Popești, Prundu, Puieni (CNP), Vlad Țepeș (CNP). Habitats: various habitat types (road edges, railway embankments, riverbanks etc.). Population size: 1 to 3 on the scale.

***Acer negundo* L.:** Adunații-Copăceni, Braniștea (CNP), Călugăreni (CNP), Comana, Crevedia Mare, Daia, DJ101A, on the shore of Argeș River (between Stoenești

and Găiseni), DN5, on the side of the road (between Uzun and Ploșoru), Giurgiu (on the side of some streets: Gloriei Street, Bălănoaiei Street; Central square area, Plantelor Canal, Bizetz Bridge, Port Road, port area, Groapa cu Cenușa Lake and surroundings, at the foot of the bridge over the Danube towards Ruse, in the train station area), Hotarele, Letca Nouă, Malu Spart, on the shore of Argeș River, Mihai Bravu (CNP, in the train station area), Mihăilești, Mogoșești, Oncești, Palanca, Ploșoru, Podu Popa Nae, Remuș, Stâlpu, Stoenesti, on the shore of Sabar River, Uzun (CNP), Vadu Lat, Valea Plopilor, Vlad Țepeș (CNP), Vinătorii Mici. Habitats: various habitat types (road edges, railway embankments, riverbanks etc.). Population size: 1 to 3 on the scale.

***Ailanthus altissima* (Mill.) Swingle:** Adunații-Copăceni, Băcu, Bălănoaia, Braniștea (CNP), Călugăreni (CNP, in the area of the bridge over Neajlov River, the market, the edge of the road, and the forest), Colibași, Comasca (in the forest on the edge of the Danube River), Comana (CNP), Cosoba, Crucea de Piatră (CNP, the side of the road, on the sloping embankment of the road), Daia, DJ101A, between Stoenesti and Găiseni on the shore of Argeș, Frasinu, Frătești, Giurgiu (Groapa de Cenușa Lake, port area, train station area, Central Square area, Plantelor Canal, Bizetz Bridge, Port Road, Bălănoaiei Street, Drumul Fermei Street), DN5 between Uzun and Ploșoru, Greaca, Gostinu, Hotarele, Izvoarele, Letca Nouă, Malu Spart, Mihăilești, Mogoșești, Obedeni, Oinacu, Pietrele, Săbăreni, Schitu, Tântava, Uzun, Vadu Lat, Valea Bujorului, Valea Dragului, Valea Plopilor, Vlașin. Population size: 1 to 5 on the scale. The largest populations (4-5) are found on road edges. Other habitat types include waterbanks, meadow habitats, forested areas, and others.

***Albizia julibrissin* Durazz.:** Colibași, Comana (44.173843°N, 26.133209°E, in CNP, the landscaped area of the Adventure Park, near the Dorințeler footbridge), Frătești (43.977312°N, 25.963323°E, edge of the cemetery), Ploșoru. Habitats: cemeteries, roadside edges, and lawns. Population size: 1 on the scale.

***Amaranthus albus* L.:** Colibași, Comana (CNP), Crivina, Frătești, Ghizdaru, Giurgiu (Port Road, Gloria Street), Mihai Bravu (CNP, in the train station area), Oncești (train station). Habitats: roadside edges, lawns, garbage deposits, railway tracks, and riverbanks. Population size: 1 - 2 on the scale.

***Amaranthus blitum* L.:** Giurgiu (43.869686°N, 25.964479°E, the abandoned railway near the port), Slobozia (43.840363°N, 25.896361°E, in the ruderal area on the banks of an irrigation canal). The population size is 1 on the scale.

***Amaranthus cruentus* L.:** Bolintin-Vale, Crivina, Cosoba, Stâlpu (44.268832°N, 25.851715°E, the space between the road and the fences of the houses) with a population size is 1 on the scale.

***Amaranthus deflexus* L.:** Călugăreni (CNP), Malu Spart, in the area of the bridge over the Argeș River, Pietrișu, Săbăreni, Vede. Habitats: roadside edges and riverbanks. Population size: 1 to 3 on the scale.

***Amaranthus hybridus* L.:** Bălanu, Crucea de Piatră (CNP), Mihai Bravu (CNP, in the train station), Valea Bujorului, Vieru (43.93333°N, 25.870066°E). Habitats: roadside edges, railway tracks, and riverbanks. Population size: 2 on the scale.

***Amaranthus palmeri* S.Watson:** Giurgiu (43.865925°N, 25.956667°E, in the port area), Oncești (43.942884°N, 25.893861°E, Oncești train station), Izvoarele, Valea Dragului, Valea Bujorului. Habitats: roadside edges and vacant lots. Population size 1 - 2 on the scale.

***Amaranthus powellii* S.Watson:** Crivina (44.434784°N, 25.766123°E, on an area for the storage of garbage), Mogoșești (44.244072°N, 26.096508°E). Habitats: garbage deposits and at roadside edges. Population size: 2 on the scale.

***Amaranthus retroflexus* L.:** Adunații-Copăceni, Bălănoaia, Băneasa, Bâcu, Bolintin-Vale, Brăniștari (CNP), Braniștea, Călugăreni (CNP), Cămineasca, Cetatea, Comana (CNP), Comasca, Cosoba, Crivina, Crucea de Piatră (CNP), Daia, Dărăști-Vlașca, Dealu, DN5B, between Bălănoaia and Vlașin, Drăgăneasca, Frasinu, Frătești, Ghimpați, Ghizdaru, Giurgiu (near the railway embankment, vacant area between houses, place with various discarded waste, the edge of the streets, in the harbor through the cracks between the slabs of the cliff and the pavement, the ruderal area at the foot of the bridge over the Danube towards Ruse), Gorneni, Gostinu, Grădinari, Hotarele, Izvoarele, Joița, Malu Spart, Mihai Bravu (CNP), Mihai Vodă, Mihăilești, Mogoșești, Novaci, Obedeni, Oinacu, Oncești, Pietrele (CNP), Popești, Prundu (CNP), Puieni (CNP), Radu Vodă, Remuș, Schitu, Stâlp, Stoenesti, Vadu Lat, Valea Bujorului, Valea Dragului, Valea Plopilor, Vlad Țepeș (CNP), Vlașin. Population size: 2 on the scale, frequently found especially at roadside edges.

***Ambrosia artemisiifolia* L.:** Adunații-Copăceni, Bălănoaia, Bâcu, Bolintin-Deal, Bolintin-Vale, Brăniștari (CNP), Braniștea, Călugăreni (CNP), Cămineasca, Căscioarele, Cetatea, Colibași, Comana (44.159088°N, 26.134811°E, CNP), Comasca (on the embankment parallel to the Danube River and in the forest on the banks of the Danube River), Crivina, Crucea de Piatră (CNP), Daia, Dărăști-Vlașca, Dealu, Drăgăneasca, Falaștoaca (CNP), Florești, Frasinu, Frătești, Ghimpați, Giurgiu (the surroundings of Groapa de Cenușă Lake, empty area between houses, the Plantelor Canal, the port area, the edge of the abandoned (unused) road to the former customs house, the gravel embankment at the Bizetz Bridge, the edges of the Plantelor Canal, the riverside area of the railway leading to the port), Gogoșari, Gorneni, Gostinu (the embankment parallel to the Danube River), Grădinari, Grădiștea, Izvoarele, Izvoru, Joița, Letca Nouă, Malu Spart, Mihai Bravu, Mihai Vodă, Mihăilești, Milcovățu, Mogoșești, Novaci, Palanca, Plopșoru, Popești, Prundu (44.102802°N, 26.178511°E, CNP), Remuș, Oncești, Săbăreni, Slobozia, Stâlp, Stoenesti, Tântava, Uzun (CNP), Vadu Lat, Valea Bujorului, Valea Plopilor, Vlad Țepeș (CNP). Population size: from 1 to 5 on the scale, with scale 4-5 being mostly observed at the edges of roads and railway tracks.

***Amorpha fruticosa* L.:** Adunații-Copăceni, Bălănoaia, Băneasa, Bâcu, Bolintin-Deal, Brăniștari (CNP), Braniștea, Călugăreni (CNP), Căscioarele, Comana (44.160835°N, 26.10195°E, CNP), Comasca, Cosoba, Crivina, Crucea de Piatră (CNP), Drăgăneasca, Gostinu, DJ101A, on the shore of Argeș River (between Stoenesti and Găiseni), DJ603 between Comana and Mihai Bravu (44.143753°N, 26.095358°E, CNP), DN5 between Uzun and Plopșoru, Falaștoaca (CNP), Pietrele, Frătești, Giurgiu (43.913406°N, 25.970385°E, the area of the commercial complex, the edge of the abandoned (unused) road to the former customs, the embankment of the railway and the adjacent areas, in the port, the area of warehouses and cranes near the Danube bank, the edges of the Plantelor Canal, the ruderal area at the foot of the bridge over the Danube River, Gloriei Street), Gostinari, Gostinu, Grădinari, Joița, Malu Spart, Mihăilești, Palanca, Podu Papa Nae, Puieni, Slobozia, Stâlp, Stoenesti, Tântava, Uzun, Vlad Țepeș (CNP). Population size: from 1 to 5 on the scale, predominantly observed along riverbanks.

***Armoracia rusticana*** G.Gaertn., B.Mey. & Scherb.: Bălănoaia, Bolintin-Vale, Călugăreni (CNP), Cămineasca, Clejani, Crivina, Daia, between Stoenesti and Găiseni (44.493183°N, 25.677437°E, on the shore of Argeş River), Frăteşti, Ghimpaţi, Giurgiu, Gorneni, Izvoarele, Joiţa, Mihăileşti, Oinacu, Uzun (CNP), Valea Bujorului. Habitats: roadsides, riverbanks, vacant areas, garbage deposits etc. Population size: 1-2 on the scale.

***Artemisia annua*** L.: Călugăreni (CNP), Cosoba, Giurgiu (43.872631°N, 25.935013°E, the ruderal bank of the Plantelor Canal), Gostinu, Frăteşti, Malu Spart, Mihăileşti, Novaci, Pietrişu, Uzun (CNP). Habitats: the water's edge, in grasslands areas, and in garbage deposits. Population size: 1-2 on the scale.

***Bassia scoparia*** (L.) A.J.Scott: Adunaţii-Copăceni, Braniştea, Călugăreni (CNP), Ghimpaţi, Giurgiu, Stoenesti. Habitats: roadside, on vacant lots. Population size: 1-2 on the scale.

***Bidens frondosa*** L.: Comana (44.173843°N, 26.133209°E, CNP), Giurgiu (the cobbled bank of the Plantelor Canal, Ciobanu Island, port area), Gostinari, Malu Spart. Habitats: primarily on the water's edge. Population size: 1-2 on the scale.

***Calendula officinalis*** L.: Frăteşti, Joiţa, Mihăileşti, Uzun (CNP), Vlaşin. Habitats: roadside and in the green spaces in front of residential areas. Population size: 1-2 on the scale.

***Campsis radicans*** (L.) Bureau: Bălani, Bolintin-Vale, Cămineasca, Frăteşti, Giurgiu, Mihăileşti, Milvovăţu, Popeşti, Valea Plopilor. Habitats: roadside, garbage deposits. Population size: 1-2 on the scale.

***Cannabis sativa*** L.: Bălănoaia, Băcu, Cămineasca, Cetatea, Comana (CNP), Cosoba, Dărăşti-Vlaşca, Frăteşti, Ghimpaţi, Gorneni, Gostinu, Novaci, Onceşti, Popeşti, Slobozia, 503A between Onceşti and Radu Vodă. Habitats: roadside, arable land, dikes, irrigation canals. Population size: 1-2 on the scale.

***Catalpa bignonioides*** Walter: Călugăreni (CNP), Mihăileşti, Plopşoru, E70 between Gorneni and Stâlpu, 5B between Bălănoaia and Vlaşin. Habitats: forest edges and roadsides. Population size: 1 on the scale.

***Celtis occidentalis*** L.: Giurgiu (43.879693°N, 25.946686°E, near Groapa cu Cenuşă Lake). Habitats: roadside. Population size: 1 on the scale.

***Citrullus lanatus*** (Thunb.) Matsum. & Nakai: Malu Spart (44.437702N, 25.733446E, the meadow area near the banks of the Argeş River), Gostinu (the sandy beach on the bank of the Danube River). Habitats: waterside, meadow. Population size: 1 on the scale.

***Coreopsis tinctoria*** Nutt.: Călugăreni (CNP), Comana (44.173843°N, 26.133209°E, CNP), Crivina, Giurgiu (43.882776°N, 25.963481°E, the sloping bank of the Plantelor Canal), Malu Spart, Vărăşti. Habitats: garbage deposits, roadside, landscaped lawns. Population size: 1 on the scale.

***Cosmos bipinnatus*** Cav.: Colibaşi, Ghimpaţi, Remuş. Habitats: vacant lots, cemeteries, green spaces in front of residential areas. Population size: 1-2 on the scale.

***Cuscuta campestris*** Yunck.: Cămineasca, Colibaşi, Crivina, Daia, DJ101A, between Găiseni and Stoenesti, Falaştoaca (CNP), Frăteşti, Ghimpaţi, Giurgiu (the port area, the vicinity of the railway, the banks of the Plantelor Canal), Gostinu, Grădiştea, Malu Spart, Milcovăţu, DJ504A between Gogoşari and Vieru, Puieni (CNP), Slobozia, Uzun, Valea Dragului, Vlad Ţepeş (CNP). Habitats: waterside, roadside, canals, meadows, agricultural land, railways, garbage deposits. Population size: 1-3 on the scale.

***Datura stramonium* L.:** Bălanu, Braniștea, Comana (CNP), Comasca, Daia, Frătești, Giurgiu, Gostinu, Hotarele, Joița, Mihai Bravu (CNP), Mihăilești, Oinacu, Pietrișu, Popești. Habitats: railways, waterside, garbage deposits, vacant lots, lawns. Population size: 1-2 on the scale.

***Datura wrightii* Regel:** Adunații-Copăceni, Călugăreni (CNP), Crivina, Crucea de Piatră (CNP), Daia, Dărăști-Vlașca, Ghimpați, Gorneni, Grădiștea (CNP), Izvoarele, Malu Spart, Mihăilești, Novaci, Oinacu, Pietrele (CNP), 5B road between Bălănoaia and Vlașin. Habitats: roadside, green spaces in front of residential areas, vacant lots, garbage deposits. Population size: 1-2 on the scale

***Eclipta prostrata* (L.) L.:** Giurgiu (Plantelor Canal), Comasca (the shore of the Danube River), Gostinu, Slobozia (the shore of the Danube River). Habitats: waterside, canals, dikes. Population size: 1-2 on the scale.

***Elaeagnus angustifolia* L.:** Adunatii-Copăceni, Călugăreni (CNP), Crevedia Mare, Daia, E85 between Uzunu and Daia, Giurgiu, Gorneni, Izvoarele, Mihăilești, Oncești, Vadu Lat, Vlașin. Habitats: meadows, vacant lots, roadside, green spaces in front of residential areas. Population size: 1-2 on the scale.

***Eleusine indica* (L.) Gaertn.:** Bolintin-Vale, Crivina, Ghimpați, Giurgiu (Giurgiu port and its surroundings, the railway embankment and adjacent areas, parking areas and streets), Gostinu. Habitats: ditches, railways, sidewalks, Danube bank, vacant lots, green spaces in front of residential areas, garbage deposits. Population size: 1-4 on the scale.

***Elodea nuttallii* (Planch.) H.St.John:** Comasca, Gostinari (44.185152°N, 26.213626°E), Slobozia (43.835257°N, 25.917461°E). Habitats: sandy beach on the Danube, temporary ponds. Population size: 3 on the scale.

***Erigeron annuus* (L.) Desf.:** Adunații-Copăceni, Bolintin-Vale, Căscioarele, Comana (CNP), Comasca, Cosoba, Crucea de Piatră (CNP), Dărăști-Vlașca, Frătești, Ghimpați, Giurgiu, Gogoșari, Gostinu, Grădinari, Izvoru, Malu Spart, Mihai Bravu (CNP), Mihai Vodă, Mihăilești, Novaci, Plopșoru, Podu Papa Nae, Remuș, Vieru. Habitats: green spaces in front of residential areas, roadside, dikes, embankments, meadows, waterside (Argeș River), forests, vacant lots, canals. Population size: 1-5 on the scale.

***Erigeron bonariensis* L.:** Adunații-Copăceni, Giurgiu (43.884794°N, 25.962166°E, near the road bridge over the Plantelor Canal). Habitats: roadside, vacant lots, canals. Population size: 1-2 on the scale.

***Erigeron canadensis* L.:** Adunații-Copăceni, Bălănoaia, Bolintin-Vale, Brăniștari (CNP), Braniștea, Călugăreni (CNP), Cămineasca, Căscioarele, Cetatea, Colibași, Comana (CNP), Comasca, Crevedia Mare, Crivina, Daia, Dărăști-Vlașca, Drăgăneasca, Falaștoaca (CNP), Frătești, Ghimpați, Ghizdaru, Giurgiu (the port area, the embankment of the railway and the adjacent areas, the Plantelor Canal, next to the fences, the green area at the edge of the streets, the Central Square, the Groapa cu Cenușă Lake, Ciobanu Island, the ruderal area at the foot of the bridge over the Danube River), Gorneni, Gostinu, Grădiștea, Hotarele, Izvoarele, Joița, Malu Spart, Mihai Vodă, Prundu (CNP), Mihăilești, Milcovău, Mogoșești, Novaci, Obedeni, Oinacu, Oncești, Podu Popa Nae, Popești, Radu Vodă, Săbăreni, Stâlpu, Stoenesti, Vadu Lat, Valea Dragului, Vărăști, Vlad Țepeș (CNP). Habitats: riverbanks, canals, railways, asphalt cracks, concrete embankments, railway embankments, waterside, Danube bank, arable land, forests, green spaces in front of residential areas. Population size: 1-4 on the scale.



***Erigeron sumatrensis* Retz.:** 44.135593°N, 26.218632°E, on DJ412 between Falaștoaca and Prundu (CNP), 44.05089°N, 26.104219°E, between Băneasa and Pietrele, Giurgiu (43.883653°N, 25.963503°E, near the road bridge over the Plantelor Canal), 44.018913°N, 25.800421°E, between Izvoarele and Radu Vodă, Varlaam. Habitats: gravel-covered embankment, canals, roadside. Population size: 1-2 on the scale.

***Euphorbia maculata* L.:** Comana (CNP), the landscaped area adjacent to the Adventure Park), Giurgiu (the parking area and a ruderal place near the Central Square, the Giurgiu port, the Plantelor Canal). Habitats: cemeteries, waterside, lawns. Population size: 1 on the scale.

***Euphorbia marginata* Pursh:** Ghimpați (44.196487°N, 25.788286°E, vacant area next to the cemetery, where vegetable waste is thrown), Frătești (the cemetery). Habitats: vacant lots, green spaces in front of residential areas. Population size: 1 on the scale.

***Euphorbia prostrata* Aiton:** Giurgiu (Giurgiu Port, in the cracks between the slabs of the cliff and the pavement, the abandoned railway near the port). Population size: 2 on the scale.

***Fallopia aubertii* (L.Henry) Holub:** Gogoșari, Mihai Bravu (CNP, the train station). Habitats railway, arable lands. Population size: 1 on the scale.

***Ficus carica* L.:** Dărăști-Vlașca (ruderal place where vegetable waste is thrown). Habitats: vacant land. Population size: 1 on the scale.

***Fraxinus pennsylvanica* Marshall:** Bălănoaia, Călugăreni (CNP), Crucea de Piatră (CNP), Daia, DN5 between Crucea de Piatră and Ploșșoru, DN5B between Vlașin and Bălănoaia, Frătești, Ghimpați, Giurgiu, Gostinu, Mihăilești, Pietrele (CNP), Prundu (CNP), Vlașin, E70 between Stâlpu and Valea Plopilor. Habitats: waterside, abandoned land, roadside, forests, Danube bank, vacant lots. Population size: 1-2 on the scale.

***Gaillardia pulchella* Foug.:** Frătești (the cemetery), Giurgiu (43.882776°N, 25.963481°E, Plantelor Canal, Bizetz Bridge), Grădiște. Habitats: green spaces in front of residential areas. Population size: 1 on the scale

***Galinsoga parviflora* Cav.:** Oinacu, Stoenești. Habitats: waterside, vacant land. Population size: 1 on the scale.

***Gleditsia triacanthos* L.:** Adunații-Copăceni, Bălănoaia, Băneasa, Bolintin-Vale, Brăniștari (CNP), Braniștea, Călugăreni (CNP), Cetatea, Comana (CNP), Comasca, Cosoba, Crevedia Mare, Crucea de Piatră (CNP), Daia, Dărăști-Vlașca, Drăgăneasca, DJ412 between Gostinari and Prundu, between Comana and Mihai Bravu (CNP), Frasinu, Frătești, Ghimpați, Giurgiu, Gorneni, Gostinu, Hotarele, Malu Spart, Mihai Bravu (CNP), Mogoșești, Oinacu, Oncești, Pietrele (CNP), Prundu (CNP), DN5 between Crucea de Piatră and Ploșșoru, Radu Vodă, Remuș, Săbăreni, Schitu, Stoenești, Tântava, Vadu Lat, Valea Bujorului, Valea Plopilor, Vlașin. Habitats: roadside, concrete embankments, meadows, waterside, Danube bank, railways, green spaces in front of residential areas. Population size: 1-5 on the scale.

***Helianthus annuus* L.:** Adunații-Copăceni, Braniștea, Călugăreni (CNP), Cămineasca, Daia, Ghimpați, Gorneni, Mihăilești, Novaci, Oncești, Ploșșoru, Radu Vodă, Valea Plopilor. Habitats: waterside, ditches, roadside, sandy beach on the Danube, green spaces in front of residential areas, vacant land. Population size: 1-2, and 5 on the scale.

***Helianthus tuberosus* L.:** Adunații-Copăceni, Bălănoaia, Bălanu, Călugăreni (CNP), Crivina, Crucea de Piatră (CNP), Daia, Dărăști-Vlașca, Falaștoaca (CNP), Frătești, Ghimpați, Giurgiu (the railway embankment and adjacent areas, Drumul

Fermei Street, Balanoaiei Street), Gorneni, Gostinu, Grădiștea, Hotarele, Izvoarele, Joița, Letca Nouă, Malu Spart, Mihăilești, Popești, Remuș, Schitu, Stâlpu, Tântava, Uzun (CNP), Vadu Lat, Vărăști, Varlaam. Habitats: cemeteries, railway embankments, waterside, roadside, green spaces in front of residential areas, ruderal meadows. Population size: 1-3 on the scale.

***Ipomoea purpurea* (L.) Roth:** Crivina, Dărăști-Vlașca, Gostinu, Uzun (CNP). Habitats: dikes, garbage deposits, green spaces in front of residential areas. Population size: 1 on the scale.

***Koelreuteria paniculata* Laxm.:** DN5 between Uzun and Ploșoru, Giurgiu, Gorneni, Letca Nouă, Mihăilești, Uzun (CNP), Vadu Lat, Valea Plopilor, E70 between Valea Plopilor and Ghimpați, Stâlpu. Habitats: roadside, vacant lots, plantations. Population size: 1 on the scale.

***Lemna minuta* Kunth:** Comana (44.177836°N, 26.140844°E, CNP), Comasca, Gostinu (43.989786°N, 26.14673°E, water channel near the Danube River). Habitats: temporary ponds. Population size: 3 on the scale.

***Lindernia dubia* (L.) Pennell:** Gostinu (the shore of Danube River), Slobozia (the shore of Danube River). Habitats: sandy beach on the Danube. Population size: 1 on the scale.

***Lycium barbarum* L.:** Bălănoaia, Baneasa, Brăniștari (CNP), Braniștea, Călugăreni (CNP), Comana (CNP), Crucea de Piatră (CNP), Daia, Dărăști-Vlașca, Frătești, Ghimpați, Ghizdaru, Giurgiu, Gorneni, Gostinu, Hotarele, Malu Spart, Mihăilești, Mogoșești, Oinacu, Pietrele (CNP), Popești, Schitu, Valea Dragului, Varlaam, Stoenesti. Habitats: roadside, riverbanks, green spaces in front of residential areas, vacant lots. Population size: 2-5 on the scale.

***Matricaria discoidea* DC.:** Daia (43.982052°N, 25.989082°E), E70 between Uzun and Daia. Habitats: roadside, green spaces in front of residential areas. Population size: 1 on the scale.

***Mirabilis jalapa* L.:** Dealu, Frătești (the cemetery), Remuș. Habitats: cemeteries, roadside, vacant lots. Population size: 1-2 on the scale.

***Morus alba* L.:** Adunații-Copăceni, Băneasa, Băcu, Brăniștari (CNP), Braniștea, Călugăreni (CNP), Cămineasca, Comana (CNP), Cosoba, Crucea de Piatră (CNP), Daia, Dărăști-Vlașca, Drăgăneasca, Pietrele, E85 between Uzun and Ploșoru, Falaștoaca (CNP), Frătești, Ghimpați, Giurgiu, Gorneni, Gostinu, Hotarele, Izvoarele, Letca Nouă, Mihai Bravu (CNP), Mihăilești, Novaci, Oinacu, Oncești, Puieni (CNP), Popești, Radu Vodă, Remuș, Săbăreni, Stoenesti, Uzun (CNP), Valea Bujorului, Valea Plopilor, Vărăști, Vlașin. Habitats: railway embankments, cemeteries, waterside, canals, agricultural land, green spaces in front of residential areas. Population size: 1-2 on the scale.

***Morus nigra* L.:** Adunații-Copăceni, Băneasa, Bolintin-Vale, Brăniștari (CNP), Călugăreni (CNP), Cămineasca, Comana (CNP), Dealu, Frătești, Ghimpați, Giurgiu (the edge of the abandoned (unused) road to the former customs, the railway embankment and the adjacent areas, Giurgiu Port), Gostinu, Izvoarele, Malu Spart, Mihai Bravu (CNP), Mihai Vodă, Mihăilești, Novaci, Palanca, Ploșoru, Schitu, Stoenesti, Vadu Lat, Valea Dragului, Valea Plopilor, DJ603 between Comana and Mihai Bravu (CNP). Habitats: railway embankments, cemeteries, waterside, canals, agricultural land, green spaces in front of residential areas. Population size: 1-2 on the scale.

***Nicotiana glauca* Link & Otto:** Novaci (44.300949°N, 25.981157°E). Habitats: green spaces in front of residential areas. Population size: 1 on the scale.

***Oenothera biennis* L.:** Ghimpați, Grădișteea, Malu Spart, Remuș, Vadu Lat. Habitats: roadside, green spaces in front of residential areas. Population size: 1 on the scale.

***Oenothera glazioviana* Micheli:** Căscioarele (44.504082°N, 25.62943°E, the shore of Argeș River), Falaștoaca (44.183311°N, 26.202961°E, CNP), Remuș (the cemetery), Vlad Țepeș (44.136093°N, 26.121971°E, CNP). Habitats: cemeteries, waterside, railway embankments. Population size: 1-2 on the scale.

***Oenothera speciosa* Nutt.:** Adunații-Copăceni, Călugăreni (CNP), Frătești, Remuș (the cemetery). Habitats: vacant lots, green spaces in front of residential areas. Population size: 1-2 on the scale.

***Oxalis corniculata* L.:** Varlaam (44.254515°N, 26.09104°E). Habitats: waterside, meadow. Population size: 1 on the scale.

***Oxalis stricta* L.:** Colibași, Mihai Bravu (CNP), Giurgiu. Habitats: railways, meadow, asphalt cracks, green spaces in front of residential areas. Population size: 1 on the scale.

***Panicum capillare* L.:** 401A between Găiseni and Stoenеști (44.49408°N, 25.677843°E, on the shore of Argeș River), Mihăilești, Frătești (the train station), Gostinu (the beach on the bank of the Danube River), Malu Spart (the shore of Argeș River), Podu Popa Nae (the shore of Argeș River), Slobozia (the beach on the bank of the Danube River). Habitats: sandy beach on the Danube, dikes, railways, riverbanks, concrete platforms, green spaces in front of residential areas. Population size: 1-3 on the scale.

***Panicum dichotomiflorum* Michx.:** 401A between Găiseni and Stoenеști (44.49408°N, 25.677843°E, the shore of Argeș River), Mihăilești, Giurgiu (Giurgiu Port, empty area between warehouses, cranes, the edge of the Danube River), Gostinu (the beach on the bank of the Danube River). Habitats: sandy beach on the Danube, vacant lots. Population size: 1 on the scale.

***Parthenocissus inserta* (A.Kern.) Fritsch.:** Bolintin-Vale, Cămineasca, Crucea de Piatră (CNP), Daia, Dărăști-Vlașca, Drăgăneasca, Giurgiu, Gorneni, Gostinu, Mihai Bravu (CNP), Mihăilești, Novaci, Oncești, Remuș. Habitats: ruderal vegetation on the Danube bank, roadside ditches, railway embankments, forests, vacant lots. Population size: 1-4 on the scale.

***Paspalum distichum* L. (*Paspalum paspalodes* (Michx.) Scribn.):** Gostinu (the shore of Danube River), Slobozia (the shore of Danube River). Habitats: sandy beach on the Danube. Population size: 4 on the scale.

***Paulownia tomentosa* (Thunb.) Steud.:** E85 between Uzunu and Plopșoru, Novaci, Oncești (43.968456°N, 25.857862°E, ruderal place at the edge of crops where household waste is thrown). Habitats: roadside edges, green spaces in front of residences. Population size: 1 on the scale.

***Petrosedum ochroleucum* (Chaix) Niederle (*Sedum ochroleucum* Chaix):** Frătești (the cemetery), Giurgiu (Sfântul Haralambie cemetery). Population size: 1 on the scale.

***Petunia integrifolia* (Hook.) Schinz & Thell.:** Crucea de Piatră (CNP), Giurgiu (Giurgiu Port, Plantelor Canal, Bizetz Bridge, Port Road). Habitats: stone embankments, sidewalk cracks, green spaces in front of residences. Population size: 1 on the scale.

***Phacelia tanacetifolia* Benth.:** Bălănoaia (43.962298°N, 25.919653°E, Bălănoaia Lake). Habitats: grasslands. Population size: 1 on the scale.

***Phytolacca acinosa* Roxb (*Phytolacca esculenta* Van Houtte):** Călugăreni (44.183289°N, 26.01833°E, the green area by the side of the road, CNP), Bolintin-Vale (ruderal place). Habitats: vacant lots. Population size: 1 on the scale.

***Phytolacca americana* L.:** Bolintin-Vale, Braniștea, Căscioarele, Crivina, Falaștoaca (CNP), Giurgiu (the train station, Giurgiu port, the area of the Central Markets, Groapa cu Cenușă Lake and its surroundings), Obedeni, Oncești, Stoenеști, Tântava. Habitats: railways, waterside, green spaces in front of residential areas, vacant lots. Population size: 1-4 on the scale.

***Portulaca oleracea* L.:** Adunații-Copăceni, Băneasa, Bolintin-Vale, Comana (CNP), Crivina, Dărăști-Vlașca, DJ401A between Stoenеști and Găiseni, Frătești, Ghimpați, Giurgiu (Giurgiu Port, train station, Port Road, shopping area with supermarkets, Central Square, Plantelor Canal, Bizetz Bridge, Groapa cu Cenușă Lake and surroundings), Gostinu, Izvoarele, Joița, Mihai Bravu (CNP), Mihai Vodă, Oinacu, Oncești, Pietrele (CNP), Pietrișu, Săbăreni, Slobozia, Stoenеști, Vieru. Habitats: concrete embankments, railways, cemeteries, sandy beach on the Danube, garbage deposits. Population size: 1-4 on the scale.

***Prunus cerasifera* Ehrh.:** Băcu, Brăniștari (CNP), Colibași, Cosoba, Crucea de Piatră (CNP), Frătești, Ghimpați, Giurgiu, Letca Nouă, Mihai Bravu (CNP), Mihăilești, Plopșoru, Remuș, Stâlpu, Uzun (CNP), Valea Plopilor. Habitats: railway embankments, vacant lots, forests, roadside, agricultural land. Population size: 1-2 on the scale.

***Reynoutria japonica* Houtt.:** Bolintin-Vale, Colibași, Crivina, Giurgiu (railway embankment, Cărămidarii vechi Street), 401A, between Stoenеști and Găiseni (44.49408°N, 25.677843°E, the shore of Argeș River), Mihăilești. Habitats: railway embankments, garbage deposits, green spaces in front of residential areas. Population size: 1-3 on the scale.

***Robinia pseudoacacia* L.:** Adunații-Copăceni, Băcu, Bălanu, Băneasa, Bălănoaia, Bolintin-Deal, Brăniștari (CNP), Braniștea, Călugăreni (CNP), Cămineasca, Cetatea, Comana (CNP), Comasca, Cosoba, Crucea de Piatră (CNP), Daia, Dărăști-Vlașca, Drăgăneasca, Găiseni, Ghimpați, Ghizdaru, Giurgiu, Gogoșari, Gorneni, Gostinu, Hotarele, Falaștoaca (CNP), Frătești, Izvoarele, Joița, Letca Nouă, Malu Spart, Mihai Bravu (CNP), Mihăilești, Milcovățu, Mironești, Mogoșești, Novaci, Obedeni, Oinacu, Oncești, Pietrele, Prundu (CNP), Plopșoru, Popești, Remuș, Săbăreni, Schitu, Stâlpu, Stoenеști, Uzun (CNP), Valea Bujorului, Valea Dragului, Valea Plopilor, Varlaam, Vieru, Vlașin. Habitats: roadside, railway embankments, cracks in concrete slabs, sandy beach on the Danube, riverbank, plantations, forests, green spaces in front of residential areas. Population size: 1-5 on the scale.

***Rudbeckia laciniata* L.:** Frătești, Ghimpați, Popești, Valea Dragului. Habitats: cemeteries, vacant lots, green spaces in front of residential areas. Population size: 1-2 on the scale.

***Rudbeckia triloba* L.:** Frătești (the edge of the cemetery), Mihai Vodă, Popești, Valea Dragului, Vlad Țepeș (the edge of the cemetery, CNP). Habitats: vacant lots, roadside. Population size: 1-2 on the scale.

***Sicyos angulatus* L.:** Giurgiu (Plantelor Canal, in the pontoon area, Bizetz Bridge, Ciobanu Island, Bridge over the Danube to Ruse, the old customs house),

Gostinu (43.990978°N, 26.159966°E, in the forest on the banks of the Danube River, 43.992184°N, 26.113289°E, the edge of the road at the exit of the village, the bank of the irrigation channel and the fence of the gardens). Habitats: gravel-covered embankment, roadside, canals, meadow on the Danube bank. Population size: 1-4 on the scale.

***Solanum lycopersicum* L.:** Cămineasca (the area at the edge of the village, where the garbage is stored), Frătești, Giurgiu (near the Bizetz Bridge, vacant place between the warehouses in Giurgiu Port, the sandy bank of the Danube River), Gostinu, Stoenesti (the banks of the Sabar River and a vacant lot where household garbage is thrown). Population size: 1 on the scale.

***Solidago canadensis* L.:** Comana (44.173843°N, 26.133209°E, CNP), Frătești (the cemetery), Popești. Habitats: lawns, vacant lots, green spaces in front of residential areas. Population size: 1-2 on the scale.

***Sorghum halepense* (L.) Pers.:** Adunații-Copăceni, Bălănoaia, Bălanu, Băneasa, Băcu, Bolintin-Deal, Bolintin-Vale, Brăniștari (CNP), Braniștea, Călugăreni (CNP), Cămineasca, Cetatea, Comana (CNP), Comasca, Cosoba, Crevedia Mare, Crivina, Crucea de Piatră (CNP), Daia, Dărăști-Vlașca, Dealu, Drăgăneasca, Ghimpați, Giurgiu (Giurgiu Port, the embankment of the railway and the surrounding areas, Plantelor Canal, commercial area with supermarkets, Groapa cu Cenușă Lake and its surroundings, the Bridge over the Danube to Ruse, the old customs house), Gorneni, Gostinu, Hotarele, Izvoarele, Joița, Frasinu, Frătești, Malu Spart, Mihai Bravu (CNP), Mihai Vodă, Mihăilești, Novaci, Obedeni, Oinacu, Oncești, Palanca, Pietrele (CNP), Pietrișu, Podu Popa Nae, Prundu (CNP), Plopșoru, Popești, Puieni (CNP), Radu Vodă, Remuș, Săbăreni, Schitu, Slobozia, Stâlpu, Stoenesti, Tântava, Uzun (CNP), Vadu Lat, Valea Bujorului, Valea Dragului, Valea Plopilor, Vărăști, Vedea, Vieru, Vlad Țepeș (CNP), Vlașin. Habitats: riverbank, railways, gravel-covered dikes, agricultural land, forest edges, garbage deposits, green spaces in front of residential areas. Population size: 1-5 on the scale.

***Symphotrichum lanceolatum* (Willd.):** Giurgiu (Plantelor Canal, Giurgiu Port area), Gostinu (43.990486°N, 26.109335°E, the bed and banks of a dry irrigation channel, the edge of the forest and the bank of the Danube River). Population size: 1 on the scale.

***Symphotrichum squamatum* (Spreng.) G.L.Nesom:** Giurgiu (43.883653°N, 25.963503°E, the embankment near the Bizetz Bridge, 43.888427°N, 25.975777°E, the banks of the Plantelor Canal in the area of the pontoons, 43.895207°N, 25.958554°E, Gării Street), Slobozia (43.840363°N, 25.896361°E, the ruderal area on the banks of a water channel). Habitats: gravel-covered embankment, sandy beach on the Danube, vacant lots, canals. Population size: 1, 2, 4 on the scale.

***Xanthium orientale* L. subsp. *italicum* (Moretti) Greuter:** Adunații-Copăceni, Bălănoaia, Băneasa, Bălanu, Bolintin-Deal, Bolintin-Vale, Braniștea, Călugăreni (CNP), Cămineasca, Căscioarele, Cetatea, Clejani, Comana (CNP), Comasca, Cosoba, Crivina, Crucea de Piatră (CNP), Daia, Dărăști-Vlașca, Gostinu, 401A between Stoenesti and Găiseni, 603 between Comana and Mihai Bravu (CNP), Falaștoaca (CNP), Frasinu, Frătești, Ghimpați, Ghizdaru, Giurgiu (Giurgiu Port, Plantelor Canal, commercial area with supermarkets, Groapa cu Cenușă Lake and its surroundings, Bridge over the Danube River to Ruse, the old customs house), Gorneni, Gostinu, Izvoarele, Izvoru, Malu Spart, Mihai Bravu (CNP), Mihai Vodă, Mihăilești, Milcovătu,

Novaci, Obedeni, Oinacu, Oncești, Palanca, Pietrele (CNP), Plopșoru, Podu Popa Nae, Popești, Puieni (CNP), Radu Vodă, Schitu, Slobozia, Stoenesti, Tântava, Uzun (CNP), Valea Bujorului, Valea Dragului, Varlaam, Vedea, Vieru, Vlad Țepeș (CNP), Vlașin, E85 between Uzun and Daia, 504A between Gogoșari and Vieru, E70 between Stâlpu and Valea Plopilor. Habitats: riverbanks, sidewalks, gravel-covered dikes, sandy beach on the Danube, roadside, lakes, green spaces in front of residential areas. Population size: 1-4 on the scale.

***Xanthium spinosum* L.:** Cămineasca, Frătești, Ghimpați, Gostinu, Slobozia, Vlad Țepeș (44.136093°N, 26.121971°E, CNP). Habitats: waterside, roadside, canals, vacant lots, garbage deposits. Population size: 1-2 on the scale.

***Yucca filamentosa* L.:** Bolintin-Vale (44.434784°N, 25.766123°E, garbage storage area). Population size: 1 on the scale..

***Zea mays* L.:** Crivina (44.434784°N, 25.766123°E, waste storage area on land), Oinacu, Schitu, 507 between Braniștea and Gostinu, Giurgiu (43.865925°N, 25.956667°E, Giurgiu Port, ruderal places between warehouses, cranes). Habitats: roadside, vacant lots, sandy beach on the Danube, garbage deposits. Population size: 1 on the scale.

### Discussions

During our field study in Giurgiu County, we identified 89 alien plant taxa (see Appendix 1). The literature data preceding our study had reported 65 alien plant species (see Appendix 2), of which 34 eluded our observations. This variance could be attributed to differences in transects or observation points compared to ours, as well as an unspecified vegetation period in the literature. In contrast to the literature-reported data, our research includes 58 taxons of alien plants newly reported at the county level of Giurgiu (see Appendix 1). Some of these may have been inadvertently overlooked in previous publications, potentially due to their widespread presence.

The taxa we identified are distributed across 32 botanical families (Fig. 2). Among these families, the most well-represented are Asteraceae (23 taxa – 25.84%), Amaranthaceae (9 taxa – 10.11%), Solanaceae (6 taxa – 6.74%), Poaceae (6 taxa – 6.74%), Fabaceae (4 taxa – 4.49%), Euphorbiaceae (3 taxa – 3.37%), Moraceae (3 taxa – 3.37%), Onagraceae (3 taxa – 3.37%). The remaining 24 families are each represented by two taxa (9 families) or one taxon (15 families) (Fig. 2).

The pattern of the families is mostly like national pattern corresponding with temperate climate (Anastasiu & Negrean 2009) and of other vicinity countries such as Bulgaria (Zahariev *et al.* 2021), Bosnia and Herzegovina (Barudanović *et al.* 2021).

*Amaranthus* with 8 species is the genus with the highest number of alien taxa. The rest of the genera are represented by four species (*Erigeron*), by three species (*Euphorbia*, *Oenothera*), by two species (8 genera) or by a single species (53 genera).

The analysis of life span shows a predominance of annuals with 49 species (55.05%), while perennials are represented by 37 species (41.57%) and biennials by 3 species (3.37%) (Fig. 3).

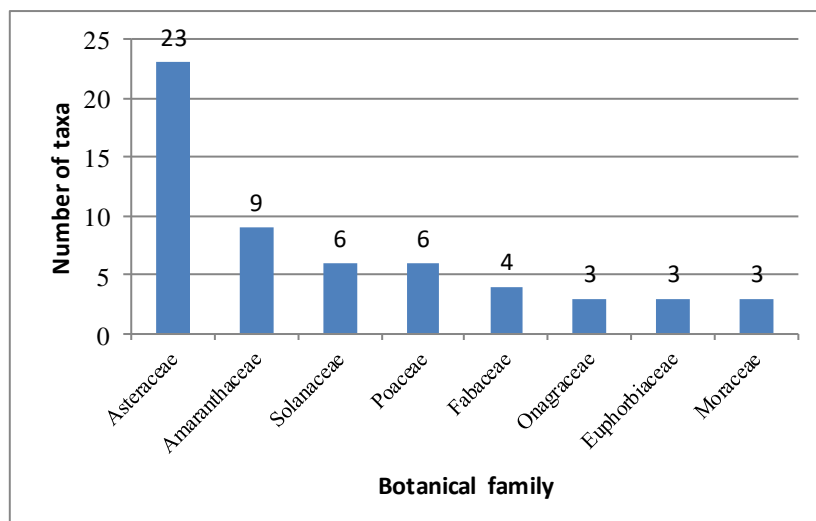


Fig. 2. Spectrum of the families (with three taxa and more) of alien plant species from Giurgiu County

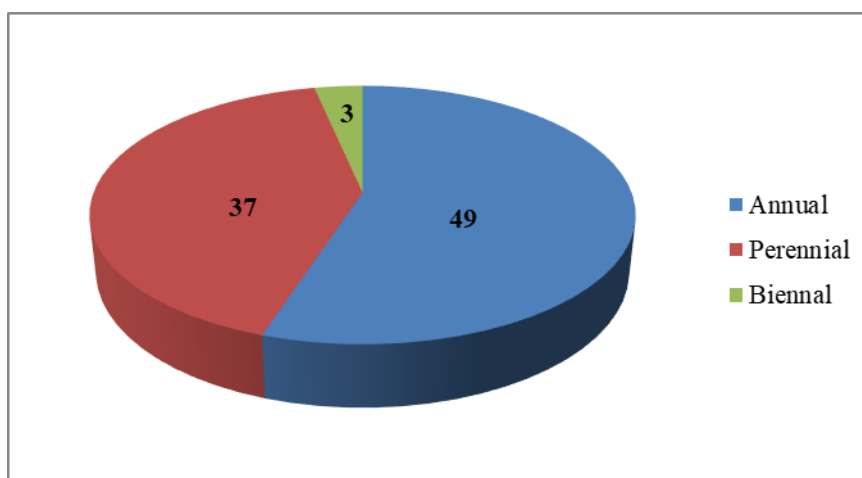


Fig. 3. Spectrum of life span of alien plants from Giurgiu County

In terms of life form, the majority of annual alien plants are terophytes (46 species), thriving in habitats closely linked to human activity. These habitats include areas along roadsides and railways (e.g., *Amaranthus albus*, *Ambrosia artemisiifolia*, *Erigeron canadensis*, *Portulaca oleracea*), ruderal lands (e.g., *Abutilon theophrasti*, *Amaranthus retroflexus*, *Erigeron annuus*, *Ipomoea purpurea*), locations where garbage is dumped (e.g., *Cannabis sativa*, *Artemisia annua*, *Solanum lycopersicum*), cultivated fields or their peripheries (e.g., *Amaranthus retroflexus*, *Ambrosia artemisiifolia*, *Datura stramonium*, *Galinsoga parviflora*, *Xanthium orientale* subsp. *italicum*), areas in

front of courtyards or in cemeteries (e.g., *Calendula officinalis*, *Cosmos bipinnatus*, *Datura wrightii*, *Mirabilis jalapa*, *Nicotiana alata*). Additionally, some are found along the banks of the Danube or the edges of water channels (e.g., *Eclipta prostrata*, *Eleusine indica*, *Euphorbia maculata*, *Lindernia dubia*, *Panicum capillare*, *Panicum dichotomiflorum*).

Within the annual species, we note the novel observation of the climbing plant *Sicyos angulatus*, exhibiting significant abundance along the Danube riverbanks, including proliferation within the vegetation on Ciobanu Island in Giurgiu. Additionally, a newly reported species in Giurgiu County is the hydrophyte *Lemna minuta*, thriving in ponds and channels near the Danube River.

Among the perennials, phanerophytes (17 taxa) dominate, followed by hemicryptophytes (11 taxa), geophytes (5 taxa), and lianas (4 taxa). Chamaephytes and hydrophytes each have only one representative (Fig. 4, Appendix 1).

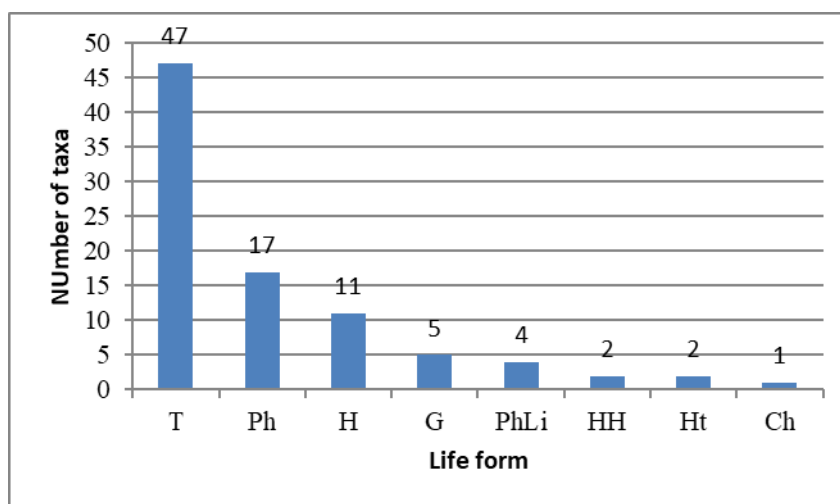


Fig. 4. Life form spectrum of alien plant species from Giurgiu County (see abbreviations in Material and methods)

Several perennial plants introduced for ornamental purposes have escaped cultivation and become abundant, resulting in damage to native vegetation (*Amorpha fruticosa*, *Gleditsia triacanthos*, *Helianthus tuberosus*, *Lycium barbarum*, *Phytolacca americana*, *Reynoutria japonica*, *Solidago canadensis*). Other perennials plants are spontaneously in the Danube (*Elodea nuttallii*) or on its banks (*Paspalum distichum*, *Sorghum halepense*).

In Giurgiu County, approximately 70% of alien plant species originate from the Americas (Fig. 5), predominantly North America, accounting for 46 taxa out of the total 62 (69.66%). South America contributes 10 taxa, and 6 taxa have a dual origin from both Americas. Asia represents the second most significant area of origin, contributing to 16 taxa. A minority of species have a Mediterranean origin (3 taxa), one has an African origin, while others have a combined origin, specifically from Europe & Asia (3 taxa), Africa & Asia (2 taxa), and North America & Asia (2 taxa) (Fig. 5). Regarding



the native range pattern, the list of alien plants in Giurgiu County aligns with the data published by Anastasiu *et al.* (2005).

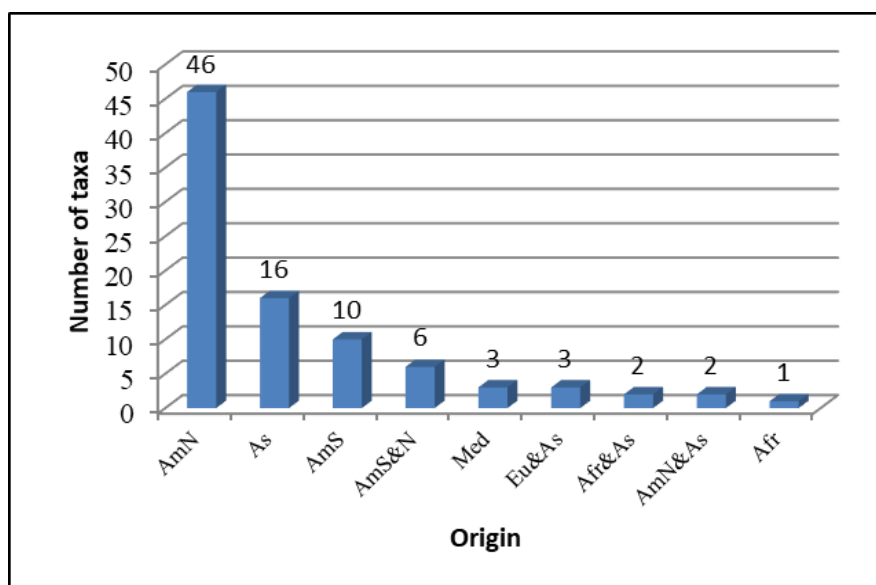


Fig. 5. Origin spectrum of alien plant species from Giurgiu County (see abbreviations in Material and methods)

In terms of introduction way, among the taxa observed in Giurgiu County, 56 taxa (62.92%) have been deliberately introduced, while 33 taxa (37.07%) were introduced accidentally in our country (see Appendix 1). Ornamental uses stand out as the primary cause of introducing invasive flora, whether herbaceous or woody species. Through our field observations, we note that certain introductions are linked to the use of plants as food sources (such as *Amaranthus blitum*, *Armoracia rusticana*, *Citrullus lanatus*, *Helianthus annuus*, *Helianthus tuberosus*, *Solanum lycopersicum*), as melliferous plants, for bank stabilization, erosion control, or for creating protective wind curtains (including *Amorpha fruticosa*, *Elaeagnus angustifolia*, *Lycium barbarum*).

In our study, we considered archaeophytes (aliens introduced before 1500 AD), neophytes, and cryptogenic taxa (taxa for which the period of introduction is not known or not well documented). Concerning residence time, the majority of species are neophytes (82 taxa – 92.13%), while only 5 taxa (5.61%) fall under the category of archaeophytes (*Amaranthus blitum*, *Calendula officinalis*, *Cannabis sativa*, *Portulaca oleracea*, *Prunus cerasifera*). *Abutilon theophrasti* and *Armoracia rusticana* are species with uncertain status, classified as cryptogenic.

Concerning invasiveness, more than half of the taxa in Giurgiu County, totaling 46 species, are considered invasive, while 30 are categorized as casual aliens, and 13 are deemed naturalized. (Fig. 6). Notably, two species are of concern to the European Union (EU). Specifically, *Elodea nuttallii* is listed in Regulation no. 1263/2017 as a species of EU concern. It is prevalent in significant numbers in water holes and channels flowing into the Danube from Gura Vedei - Șaica – Slobozia SCI, as well as in

the Argeş River (Gostinari). *Ailanthus altissima*, also identified as an EU concern in Regulation no. 1262/2019, is present in over 33 localities in Giurgiu County, exhibiting large populations in all phenological stages, from juveniles to fruit-bearing adults. The species demonstrates adaptability to a wide range of natural and anthropogenic habitats (Anastasiu *et al.* 2019) and unfortunately, it is also present in the Comana Natural Park, Gura Vedei - Şaica – Slobozia, and Pădurea Oloaga – Grădinari protected areas causing damage to indigenous plant.

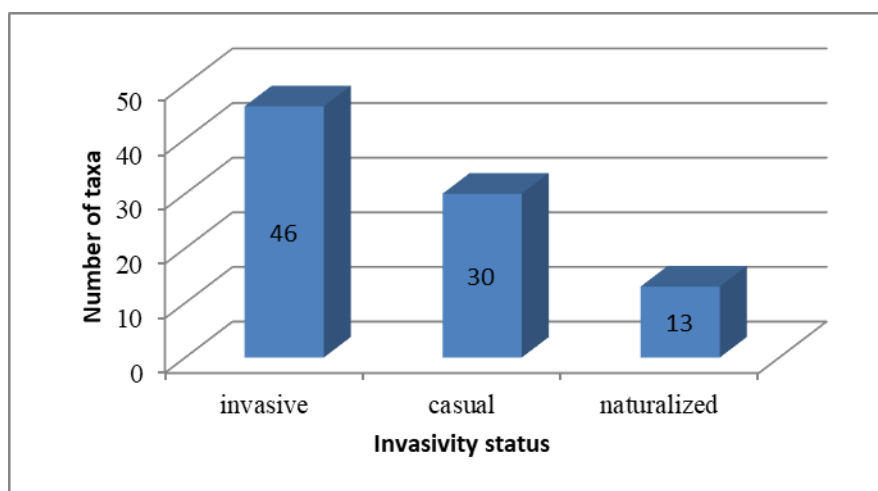


Fig. 6. Spectrum of invasivity of alien plants from Giurgiu County

More than half of the alien plant species, specifically 59 taxa (66.29%), are also found within the mentioned protected areas, with the majority located in the territory of Comana Natural Park (52.80%), spanning across 13 localities (Brăniştari, Budeni, Călugăreni, Comana, Crucea de Piatră, Falaştoaca, Hulubeşti, Mihai Bravu, Pietrele, Puieni, Prundu, Vlad Ţepeş, and Uzun). The most widely distributed alien species in this protected areas are *Sorghum halepense* and *Xanthium orientale* subsp. *italicum*, found in 10 localities, followed by *Amaranthus retroflexus* present in 9 localities. The species *Erigeron canadensis*, *Gleditsia triacanthos*, *Morus alba*, and *Robinia pseudoacacia* are reported from 8 localities, while *Amorpha fruticosa* is found in 7 localities, and *Acer negundo* and *Erigeron canadensis* were identified in 6 localities within the Comana Natural Park. An additional 23 alien species were identified in a single locality; however, many of these have the potential to spread further, as they are ornamental species that have escaped from cultivation. Examples include *Albizia julibrissin*, *Calendula officinalis*, *Coreopsis tinctoria*, *Oenothera glazioviana*, *Oenothera speciosa*, *Petunia integrifolia*, *Rudbeckia triloba*, *Solidago canadensis*, and others. Also, *Lemna minuta*, reported by us for the first time in Giurgiu County in Comana, is an aquatic species with the potential to expand through the Neajlov River into the Argeş River and beyond.

### Conclusions

During our field investigation, we identified a total of 89 alien plant species within Giurgiu County, among which two, *Ailanthus altissima* and *Elodea nuttallii*, are of European Union concern.

Some species, such as *Eclipta prostrata*, *Erigeron bonariensis*, *Lemna minuta*, *Lindernia dubia*, *Sicyos angulatus*, *Symphyotrichum squamatum* are reported for the first time in Giurgiu, while others extend to new locations.

Literature prior to our study reported 65 species, with 34 not observed by us, possibly due to differences in transects and an unspecified vegetation period.

In contrast to literature, our findings report 58 newly alien plant taxa in Giurgiu County.

Of the approximately 130 taxa in Romania's invasive plant list (POIM, 2020), 38.46% are found in Giurgiu County, mostly terophytes thriving in habitats linked to human activity.

Over half of the alien plant species (66.29%) are found within the natural protected areas, with the majority located in the territory of Comana Natural Park (52.80%).

Our study provides essential information for initiatives aimed at conserving biodiversity, particularly within protected areas in Giurgiu County. Future efforts include continuous monitoring and strategies to manage invasive plant species, with a specific focus on preventing their further proliferation in natural habitats.

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Appendix 1. List of alien plants from Giurgiu County identified during our field study

No. crt.	Taxa	Family	Life span	Life form	Origin	Way of introduction	Residence time	Invasivity	First reported
1.	<i>Abutilon theophrasti</i> Medik.	Malvaceae	Annual	T	As	a	ery	i	Panju, 1910
2.	<i>Acer negundo</i> L.	Sapindaceae	Perennial	Ph	AmN	d	neo	i	New reported
3.	<i>Alibertia alitissima</i> (Mill.) Swingle	Simaroubaceae	Perennial	Ph	AsE	d	neo	i	New reported
4.	<i>Albizia julibrissin</i> Durazz.	Fabaceae	Perennial	Ph	As	d	neo	n	New reported
5.	<i>Amaranthus albus</i> L.	Amaranthaceae	Annual	T	AmN&C	a	neo	i	Savulescu, 1952
6.	<i>Amaranthus blitum</i> L.	Amaranthaceae	Annual	T	AmS	d	arh	i	Grecescu, 1898
7.	<i>Amaranthus cruentus</i> L.	Amaranthaceae	Annual	T	AmN	d	neo	c	Morariu, in Savulescu, 1952
8.	<i>Amaranthus deflexus</i> L.	Amaranthaceae	Annual	T	AmS	a	neo	i	Morariu, 1943
9.	<i>Amaranthus hybridus</i> L., s.l.	Amaranthaceae	Annual	T	AmN	a	neo	i	Borza, 1968
10.	<i>Amaranthus pulvereri</i> S. Watson	Amaranthaceae	Annual	T	AmN	a	neo	c	New reported
11.	<i>Amaranthus powellii</i> S. Watson	Amaranthaceae	Annual	T	AmN	a	neo	i	Morariu, 1943
12.	<i>Amaranthus retrofractus</i> L.	Amaranthaceae	Annual	T	AmN	a	neo	i	Grecescu, 1898
13.	<i>Ambrosia artemisiifolia</i> L.	Asteraceae	Annual	T	AmN	a	neo	i	Ianovici, 2011
14.	<i>Amorpha fruticosa</i> L.	Fabaceae	Perennial	Ph	AmN	d	neo	i	Paușă-Comănescu et al, 2000-2001



No. crt.	Taxa	Family	Life span	Life form	Origin	Way of introduction	Residence time	Invasivity	First reported
15.	<i>Armoracia rusticana</i> G.Gaertn., B.Mey. & Scherb.	Brassicaceae	Perennial	H	EuSE, AsW	d	ery	i	New reported
16.	<i>Artemisia annua</i> L.	Asteraceae	Annual	T	AsC&SW	d	neo	i	Brândza, 1879-1883
17.	<i>Bassia scoparia</i> (L.) A.J.Scott	Amaranthaceae	Annual	T	AsTemp	d	neo	i	Borza, 1968
18.	<i>Bidens frondosa</i> L.	Asteraceae	Annual	T	AmN	a	neo	i	Ciocărlan, 2000
19.	<i>Calendula officinalis</i> L.	Asteraceae	Annual	T	Med	d	arh	c	New reported
20.	<i>Campsis radicans</i> (L.) Bureau	Bignoniaceae	Perennial	PhLi	AmN	d	neo	c	New reported
21.	<i>Cannabis sativa</i> L.	Cannabaceae	Annual	T	AsSW	d	arh	n	New reported
22.	<i>Catalpa bignonioides</i> Walter	Bignoniaceae	Perennial	Ph	AmN	d	neo	n	New reported
23.	<i>Celtis occidentalis</i> L.	Cannabaceae	Perennial	Ph	AmN	d	neo	c	Pașcovschi & Domija, 1967
24.	<i>Citrullus lanatus</i> (Thunb.) Matsum. & Nakai	Cucurbitaceae	Annual	T	AfrSW	d	neo	c	New reported
25.	<i>Coreopsis tinctoria</i> Nutt.	Asteraceae	Annual	T	AmN	d	neo	c	New reported
26.	<i>Cosmos bipinnatus</i> Cav.	Asteraceae	Annual	T	AmN	d	neo	c	New reported
27.	<i>Cosmos bipinnatus</i> Yuncck.	Convolvulaceae	Annual	T	AmN	a	neo	i	Buiu, 1938
28.	<i>Datura stramonium</i> L.	Solanaceae	Annual	T	AmN	a	neo	i	Popescu, 1971
29.	<i>Datura wrightii</i> Regel	Solanaceae	Annual	T	AmN	d	neo	c	New reported
30.	<i>Eclipta prostrata</i> (L.) L.	Asteraceae	Annual	T	AmN&S	a	neo	i	New reported

No. crt.	Taxa	Family	Life span	Life form	Origin	Way of introduction	Residence time	Invasivity	First reported
31.	<i>Elaeagnus angustifolia</i> L.	Elaeagnaceae	Perennial	Ph	EuE&As	d	nco	i	New reported
32.	<i>Elaeagne indica</i> (L.) Gaertn.	Posaceae	Annual	T	Am&As	a	nco	n	Oprea et al. 2004
33.	<i>Elaeodea nuttallii</i> (Planch.) H.St.John	Hydrocharitaceae	Perennial	HH	AmN	a	nco	i	Oprea et al. 2004
34.	<i>Erigeron annuus</i> (L.) Desf	Asteraceae	Annual	T	AmN	a	nco	i	Popescu, 1971
35.	<i>Erigeron bonariensis</i> L.	Asteraceae	Annual	T	AmS	a	nco	c	New reported
36.	<i>Erigeron canadensis</i> L.	Asteraceae	Annual	T	AmN	a	nco	i	Grecescu, 1898
37.	<i>Erigeron sumatrensis</i> Retz.	Asteraceae	Annual	T	AmS	a	nco	c	New reported
38.	<i>Euphorbia maculata</i> L.	Euphorbiaceae	Annual	T	AmN	a	nco	i	New reported
39.	<i>Euphorbia marginata</i> Pursh	Euphorbiaceae	Annual	T	AmN	d	nco	c	Popescu, 1971
40.	<i>Euphorbia prostrata</i> Aiton	Euphorbiaceae	Annual	T	AmN&S	a	nco	c	New reported
41.	<i>Fallopia aubertii</i> (L.Henry) Holub	Polygonaceae	Perennial	PhLi	As	d	nco	c	New reported
42.	<i>Ficus carica</i> L.	Moraceae	Perennial	Ph	AsSW	d	nco	c	New reported
43.	<i>Fraxinus pennsylvanica</i> Marshall	Oleaceae	Perennial	Ph	AmN	d	nco	c	New reported
44.	<i>Gaillardia panchella</i> Foug.	Asteraceae	Perennial	H	AmN	d	nco	c	New reported
45.	<i>Gaivisoga parviflora</i> Cav.	Asteraceae	Annual	T	AmS	a	nco	i	Panju, 1912
46.	<i>Glechitsia tricanthos</i> L.	Fabaceae	Perennial	Ph	AmN-C&E	d	nco	i	New reported
47.	<i>Helianthus annuus</i> L.	Asteraceae	Annual	T	AmN	d	nco	c	New reported

No. crt.	Taxa	Family	Life span	Life form	Origin	Way of introduction	Residence time	Invasivity	First reported
48.	<i>Helianthus tuberosus</i> L.	Asteraceae	Perennial	H	AmN	d	neo	i	New reported
49.	<i>Ipomoea purpurea</i> (L.) Roth	Convolvulaceae	Annual	T	AmN&S	d	neo	n	New reported
50.	<i>Koeberlinia paniculata</i> Laxm.	Sapindaceae	Perennial	Ph	AsE	d	neo	c	New reported
51.	<i>Lenusa minima</i> Kunth	Araceae	Annual	HH	AmN&S	a	neo	n	New reported
52.	<i>Lindernia dubia</i> (L.) Pennell	Linderniaceae	Annual	T	AmN&S	a	neo	i	New reported
53.	<i>Lycium barbarum</i> L.	Solanaceae	Perennial	Ph	As(China)	d	neo	i	Panju, 1912
54.	<i>Matricaria discoidea</i> DC.	Asteraceae	Annual	T	AmN,AsNE	a	neo	n	Borza, 1968
55.	<i>Mirabilis jalapa</i> L.	Nyctaginaceae	Perennial	H	AmN	d	neo	c	New reported
56.	<i>Morus alba</i> L.	Moraceae	Perennial	Ph	As(China)	d	neo	i	Borza, 1966
57.	<i>Morus nigra</i> L.	Moraceae	Perennial	Ph	AsC	d	neo	n	New reported
58.	<i>Nicotiana glauca</i> Link & Otto	Solanaceae	Annual	T	AmS	d	neo	c	New reported
59.	<i>Oenothera biennis</i> L.	Onagraceae	Biennial	Ht	AmN	d	neo	i	Brândză, 1879-1883
60.	<i>Oenothera glazioviana</i> Micheli	Onagraceae	Biennial	Ht	AmN	d	neo	i	New reported
61.	<i>Oenothera speciosa</i> Nutt.	Onagraceae	Perennial	G	AmN	d	neo	c	New reported
62.	<i>Oxalis corniculata</i> L.	Oxalidaceae	Perennial	H	Med	d	neo	i	Oprea, 2005
63.	<i>Oxalis stricta</i> L.	Oxalidaceae	Annual/P erennial	T-H	AmN,AsE	a	neo	i	New reported
64.	<i>Panicum capillare</i> L.	Poaceae	Annual	T	AmN	a	neo	i	New reported

No. crt.	Taxa	Family	Life span	Life form	Origin	Way of introduction	Residence time	Invasivity	First reported
65.	<i>Panicum dichotomiflorum</i> Michx.	Poaceae	Annual	T	AmN	a	nco	n	Negrean, 2012
66.	<i>Parthenocissus inserta</i> (A.Kern.) Fritsch.	Vitaceae	Perennial	PhLi	AmN	d	nco	i	New reported
67.	<i>Paspalum distichum</i> L.	Poaceae	Perennial	G	AmN&S	a	nco	i	New reported
68.	<i>Pambolonia tomentosa</i> (Thunb.) Steud.	Paulowniaceae	Perennial	Ph	AsE	d	nco	c	New reported
69.	<i>Petroselinum ochroleucum</i> (Chaix) Niederle	Crassulaceae	Perennial	Ch	Med	d	nco	c	New reported
70.	<i>Pennisia integrifolia</i> (Hook.) Schinz & Thell.	Solanaceae	Annual	T	AmS	d	nco	c	New reported
71.	<i>Phacelia tanacetifolia</i> Benth.	Boraginaceae	Annual	T	AmNW	d	nco	c	New reported
72.	<i>Phytolacca acinosa</i> Roxb.	Phytolaccaceae	Perennial	H	AsE	d	nco	n	New reported
73.	<i>Phytolacca americana</i> L.	Phytolaccaceae	Perennial	H	AmN	d	nco	i	New reported
74.	<i>Portulacca oleracea</i> L.	Portulaccaceae	Annual	T	As	d	arh	n	New reported
75.	<i>Prunus cerasifera</i> Ehrh.	Rosaceae	Perennial	Ph	AsW, EuSE	d	arh	n	Pascovschi & Doniță, 1967
76.	<i>Reynouaria japonica</i> Houtt.	Polygonaceae	Perennial	G	As	d	nco	i	New reported
77.	<i>Robinia pseudoacacia</i> L.	Fabaceae	Perennial	Ph	AmN-E,C	d	nco	i	New reported
78.	<i>Rudbeckia laciniata</i> L.	Asteraceae	Perennial	H	AmN	d	nco	i	New reported

No. crt.	Taxa	Family	Life span	Life form	Origin	Way of introduction	Residence time	Invasivity	First reported
79.	<i>Rudbeckia triloba</i> L.	Asteraceae	Biennial	H	AmN	d	neo	c	New reported
80.	<i>Sicyos angulatus</i> L.	Cucurbitaceae	Annual	PhLi	AmN	d	neo	i	New reported
81.	<i>Solanum lycopersicum</i> L.	Solanaceae	Annual	T	AmS	d	neo	c	New reported
82.	<i>Solidago canadensis</i> L.	Asteraceae	Perennial	H	AmN	d	neo	i	New reported
83.	<i>Sorghum halepense</i> (L.) Pers.	Poaceae	Perennial	G	AfN,AsSW	a	neo	i	Brândza, 1879-1883
84.	<i>Symphoricarpon lanceolatum</i> (Willd.)	Asteraceae	Perennial	H	AmN	d	neo	i	New reported
85.	<i>Symphoricarpon squarrosum</i> (Spreng.) G.L.Nesom	Asteraceae	Annual	T	AmS	a	neo	n	New reported
86.	<i>Xanthium orientale</i> subsp. <i>italicum</i> (Moretti) Greuter	Asteraceae	Annual	T	AmN	a	neo	i	Nyarady, in Săvulescu, 1964
87.	<i>Xanthium spinosum</i> L.	Asteraceae	Annual	T	AmS	a	neo	i	Pamtu, 1912
88.	<i>Yucca filamentosa</i> L.	Asparagaceae	Perennial	G	AmN	a	neo	c	New reported
89.	<i>Zea mays</i> L.	Poaceae	Annual	T	AmN	d	neo	c	New reported

Appendix 2. List of alien plants from Giurgiu County identified in the literature

No.	Taxa	Locality and bibliographic source
1.	<i>Abitilon theophrasti</i> Medik.*	Băneasa (Morariu, in Săvulescu 1958); Arcuța (Pantju 1910)
2.	<i>Amaranthus albus</i> L.*	Giurgiu (Costea 1998); Giurgiu; Ghimpați; Mahu; Mihai Bravu (Morariu, in Săvulescu 1952); Comana (Pantju 1909); Greaca (Popescu 1971)
3.	<i>Amaranthus blitoides</i> S. Watson var. <i>blitoides</i>	Comana (Costea 1998); Copaciu; Mihai Bravu (Morariu, in Săvulescu 1952); Greaca (Popescu 1971)
4.	<i>Amaranthus blitum</i> L., subsp. <i>blinum</i> *	Călugăreni; Giurgiu (Costea 1998); Comana (as <i>A. sylvestris</i> Desf.) (Grecescu 1909); between Zimnicea and Călărăși (Oprea et al. 2004); Fântânele-Comana Forest (Paucă-Comănescu et al. 2000-2001)
5.	<i>Amaranthus crispus</i> (Lesp. et Thievenau) N. Terracc.	Hotarele (Borza 1968); Giurgiu (Morariu 1943)
6.	<i>Amaranthus cruentus</i> L.*	Najpu (Morariu, in Săvulescu 1952)
7.	<i>Amaranthus deflexus</i> L.*	Giurgiu (Morariu 1943)
8.	<i>Amaranthus emarginatus</i> Moq. ex Uline et Bray	Giurgiu on the bank of Danube River (Costea 1998)
9.	<i>Amaranthus graecizans</i> L., subsp. <i>graecizans</i>	Ghimpați (as <i>A. angustifolius</i> Lam.) (Morariu, in Săvulescu 1952); Ghimpați (Costea 1998)
10.	<i>Amaranthus hybridus</i> L.*	Budeni (Borza 1968)
11.	<i>Amaranthus powellii</i> S. Watson*	Călugăreni; Călugăreni; Crânguri; Giurgiu; Iepurești; Gâștești Forest; Pădureni; Vadu Lat (Costea 1998); Crevedia Mare (Morariu 1943); Greaca (Popescu 1971)
12.	<i>Amaranthus retroflexus</i> L.*	Comana; Gălișeni; Giurgiu; Gura Vadu Lat; Slișoara Forest; Vlad Tepeș (Costea 1998); Comana (Grecescu 1898); Crevedia Mare (Morariu 1943); Ghimpați ; Mihai Bravu (Morariu, in Săvulescu 1952); Călugăreni; Crucea-de-Patră (Pantju 1909); Greaca (Popescu 1971)
13.	<i>Ambrosia artemisiifolia</i> L.*	Bolintin-Vale; Crivina; Mahu Spart; Mihai Vodă; Suseni (Iancovici 2011)
14.	<i>Amorpha fruticosa</i> L.*	Călugăreni; Comana; Mihai Bravu; Uzunu (Dumitrașcu et al. 2011); Fântânele-Comana Forest (Paucă-Comănescu et al. 2001)

No.	Taxa	Locality and bibliographic source
15.	<i>Anthriscus coreifolium</i> (L.) Hoffm. subsp. <i>coreifolium</i>	Comana (Grecescu 1898)
16.	<i>Artemisia annua</i> L.*	Comana (Brândză 1879-1883); Malu (Nyárády, in Săvulescu 1964)
17.	<i>Azolla filiculoides</i> Lam.	Padina cu Nue Pond (Dihoru & Negrean 2009); Comana (Nedelevu 1967); Comana (as <i>A. mexicana</i> C. Presl.) (Tarnavsschi et al. 1974); Fundeni Lake (as <i>A. caroliniana</i> Willd.) (Șerbănescu 1954-1955 cited by Oprea 2005 )
18.	<i>Bidens aurea</i> (Aiton) Sherff	Grădinari, Argeș River meadow (Negrean 2012)
19.	<i>Bidens frondosa</i> L.*	Giurgiu (Ciocărlan 2000, 2009); Călugăreni, Mosteni (Negrean 2012)
20.	<i>Bidens virgata</i> E. L. Greene	Călugăreni; Vlad Tepeș (Negrean 2012)
21.	<i>Boerhaavia bladhii</i> (Retz.) S. F. Blake	Călugăreni; Călniștea River meadow (Negrean 2011)
22.	<i>Brassica juncea</i> (L.) Czern. (B. nigra = rapa)	Greaca (Popescu 1971)
23.	<i>Camelina sativa</i> (L.) Crantz	Greaca (Popescu 1971)
24.	<i>Chamaemilla suaveolens</i> (Pursh) Rydb.*	Comana (Borza 1968)
25.	<i>Chenopodium ambrosioides</i> L.	Comana (Tarnavsschi et al. 1974)
26.	<i>Chenopodium botrys</i> L.	Comana (Panju 1909)
27.	<i>Coryza canadensis</i> (L.) Cronq.*	Comana (Grecescu 1898); Crevedia Mare (Morariu 1943); Giurgiu (Săndulescu & Pădure 2003)
28.	<i>Cuscuta campestris</i> Yunck.*	Railway between București and Giurgiu (Morariu 1943); Băneasa (Buia 1938)
29.	<i>Cyperus difformis</i> L.	Comana (Tarnavsschi et al. 1974)
30.	<i>Datura stramonium</i> L.*	Greaca (Popescu 1971)
31.	<i>Echinochloa oryzicola</i> (Vasing.) Vasing.	Ștejarul (Mihăilești area) (as <i>E. phyllospogon</i> !) (Zahariași 1955)
32.	<i>Eleusine indica</i> (L.) Gaertn.*	Giurgiu (Oprea et al. 2004)
33.	<i>Elodea nuttallii</i> (Planch.) H. St John*	Giurgiu-Călărăși (Chicșu) (Dunărea River) (Lifescu et al. 2004); between Zărnicea and Oltenița (Oprea et al. 2004)
34.	<i>Erigeron annuus</i> (L.) Pers. subsp. <i>annuus</i> *	Fântânele-Comana Forest (Paușă-Comănescu et al. 2001); Greaca (Popescu 1971)

No.	Taxa	Locality and bibliographic source
35.	<i>Euphorbia marginata</i> Pursh*	Greaca (Popescu 1971)
36.	<i>Fimbristylis bisumbellata</i> (Forssk.)	Grădișten (Dolhu et al.1984)
37.	<i>Galiassoga parviflora</i> Cav.*	Comana (Borza 1968); Comana (Panțu 1912); Greaca (Popescu 1971)
38.	<i>Hordeum marinum</i> Huuds.	Giurpaj (Borza 1947)
39.	<i>Hordeum secalinum</i> Schreb.	Călugăreni (Șerbanescu 1961)
40.	<i>Impatiens balfoarii</i> Hooker	Brăniștari; Moșteni (Negrean 2011)
41.	<i>Kochia scoparia</i> (L.) Schrad.*	Colibași (Borza 1968); Greaca (Popescu 1971)
42.	<i>Lathyrus aphaca</i> L.	Comana (Tarnavsschi et al. 1974, cited by Oprea 2005); Greaca (Popescu 1971, cited by Oprea 2005)
43.	<i>Lycium barbarum</i> L.*	Comana (Panțu 1912); Greaca (Popescu 1971)
44.	<i>Medicago sativa</i> L.	Giurgiu (Grecescu 1898)
45.	<i>Morus alba</i> L.*	Subar River meadow (Borza 1966); Comana; Dăja; Lileci; Mihai Bravu; Turbatu (Pașcovschi & Domiș 1967)
46.	<i>Oenothera biennis</i> L.*	Herăști (Borza 1968); Comana, Mihăilești (Brândză 1879-1883)
47.	<i>Oxalis corniculata</i> L.*	Comana (Tarnavsschi et al.1974)
48.	<i>Panicum dichotomiflorum</i> Michx.*	Călugăreni; Călnișten River meadow; Neajlov River Meadow; Moșteni; Călugăreni Forest (Negrean 2012).
49.	<i>Polygonum rivivagum</i> Jord. ex Boreau	Crevedia Mare; Grădinari; Argeș River meadow (sandy places) (Negrean 2011)
50.	<i>Prunus cerasifera</i> Ehrh.*	Comana; Dăja; Dimitrie; Drăgănești; Giurgiu; Moșteni; Petru Rareș; Pueni; Putinciu; Toporu; Turbatu; Valea Bujorului; Vlașin (Pașcovschi & Domiș 1967); Comana, Fântânele Forest (Paucă-Comănescu et al. 2000-2001)
51.	<i>Prunus cerasus</i> L.	Bălceasa (Pașcovschi & Domiș 1967)
52.	<i>Sagittaria latifolia</i> Willd.	Comana (Borza 1968)
53.	<i>Sigesbeckia orientalis</i> L.	Herăști (Dolhu et al. 1984)
54.	<i>Solanum citrullifolium</i> A. Br.	Valea Gurbumului (Negrean 2011); Comana; Vlad Tepeș (as <i>S. heterodoxum</i> Dumal) (Tarnavsschi et al.1974)



No.	Taxa	Locality and bibliographic source
55.	<i>Sorghum halepense</i> (L.) Pers.*	frequency throughout the County (Anghel et al. 1984); Crivina (Brândză 1879-1883); Băneasa (Ghişa, in Săvulescu 1972); Comana (Grecescu 1898)
56.	<i>Trifolium incarnatum</i> L. subsp. <i>incarnatum</i>	Comana (Tarnavschi et al. 1974); Ghimpați (Moraria 1946); Greaca (Popescu 1971)
57.	<i>Trigonella caerulea</i> (L.) Set.	Comana, on the banks of Călmîșta River (Brândză 1879-1883); Comana (Kanitz 1879-1881; Grimjescu, in Săvulescu 1957)
58.	<i>Trigonella foenum-graecum</i> L.	Ghimpați (Grimjescu, in Săvulescu 1957)
59.	<i>Valeriana spiralis</i> L.	Greaca (Boza 1947)
60.	<i>Veronica peregrina</i> L.	Giurgiu (Negrean 1968)
61.	<i>Veronica persica</i> Poit.	Comana (Grecescu 1898); Greaca (Popescu 1971)
62.	<i>Vicia articulata</i> Hornem.	Comana (Tarnavschi et al. 1974)
63.	<i>Vicia sativa</i> L.	Comana (Brândză 1879-1883; Kanitz 1879-1881 add; Grecescu 1898)
64.	<i>Xanthium orientale</i> L. subsp. <i>italicum</i> (Moeretti) Greuter*	Without any specific location in Giurgiu County (as <i>X. sacccharatum</i> Wallr.) (Ciocărlan 2004); Comana (Paucă-Comănescu et al. 2000-2001); Băneasa (X. riparium Itzigs. et Hertsch) (Nyárády, in Săvulescu 1964)
65.	<i>Xanthium spinosum</i> L.*	Crevedia Mare (Moraria 1943); Călugăreni (Pantu 1912); Comana (Paucă-Comănescu et al. 2000-2001); Greaca (Popescu 1971)

\*Plant taxa confirmed in the field