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FROM GLASS TO THE POND: FIRST RECORD OF *HYDROCHARIS LAEVIGATA* IN ROMANIA

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Abstract: We report for the first time in Romania the presence of a new neophyte taxon – *Hydrocharis laevigata* (syn.: *Limnobium laevigatum*). Specimens of the plant were identified in an artificial aquatic basin in Cişmigiu Park (Bucharest). The taxon is native to North (only South Mexico), Central and South America and introduced to North America, Europe, Africa, the Far East and Australia. Along with *H. laevigata*, specimens of the taxa *Lemna minuta*, *Nelumbo nucifera* and *Ceratophyllum demersum* were also recorded.
Keywords: alien invasive, aquarium escape, urban environment

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Introduction

Aquatic habitats have been identified as the most vulnerable to invasions by allochtonous plants (Richardson et al. 2007), which can act on native habitats and species, leading to important changes in native local biodiversity (Schooler et al. 2006).

A recent global study of naturalized and invasive plants in aquatic habitats indicates 183 naturalized plant taxa, of which 52 are classified as invasive (Kortz et al. 2025). The most widespread invasive taxa are *Pontederia crassipes*, *Pistia stratiotes*, *Elodea canadensis*, *Azolla filiculoides*, *Elodea densa,* and *Myriophyllum aquaticum* (Kortz et al. 2025).

Among the families with the largest number of invasive species in aquatic habitats is the Hydrocharitaceae (Kortz et al. 2025), and many of these are still available on the market as ornamental plants aquariums and ponds (Christenhusz et al. 2017, Yang et al. 2023).

The genus *Hydrocharis* has five species globally: *Hydrocharis chevalieri* (De Willd.) Dandy, *Hydrocharis morsus-ranae* L., *Hydrocharis spongia* Bosc, *Hydrocharis dubia* (Blume) Backer) and *Hydrocharis laevigata* (Humb. & Bonpl. ex Willd.) Byng and Christenh. (GBIF 2026, POWO 2026). The last two species have been synonymized from two species of the genus *Limnobium*: *Limnobium dubium* (Blume) Shäffer-Fehre and, respectively, *Limnobium laevigatum* (Humb. & Bonpl. ex Willd.) Heine.

Hydrocharis laevigata is a species with native distribution to North (Central and Southern Mexico), Central and South America and introduced to North America (California), Europe, Africa, Asia, Asutralia (POWO 2026). In Europe, the first report was from Hungary in 2018 (Riezing 2019). This was followed by reports from Spain (Del Corro et al. 2019, Martínez-Sagarra et al. 2021, García-Murillo et al. 2021). These are considered to be the only ones to date that refer to naturalized populations of the species *Hydrocharis laevigata* (García-Murillo 2023). Other reports from Belgium, Sweden, the

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Netherlands, Germany, according to García-Murillo (2023) and Poland (Pliszko & Górecki 2021), refer to sporadic presences of the species. Recently, in 2024, two populations of *Hydrocharis laevigata* were reported from the Czech Republic (Vávra 2026).

From Romania, five alien species of Hydrocharitaceae have so far been reported: *Elodea canadensis* (Prodan 1939), *Elodea nuttallii* (Ciocârlan et al. 1997), *Najas graminea* (Zahariadi 1962), *Najas guadalupensis* (Negrean 2011) and *Vallisneria spiralis* (Heuffel 1858). Regarding *Hydrocharis laevigata*, there are no reports of the plant as escape or casual so far. In a morpho-anatomical study from 2023, carried out on *Hydrocharis laevigata* material purchased from the aquarium ornamental plants market, attention is drawn to the danger posed by the release into nature of species used in aquatics (Săndulescu & Stavrescu-Bedivan 2023).

This paper offers data about the first record of the species *Hydrocharis laevigata* in Romania.

Material and methods

A field survey aimed to update the plant inventory in the historical parks from Bucharest has been conducted in October 2026, in Cișmigiu Park (Fig. 1). This is located in the centre of Bucharest, on an area of about 16 ha, of which about 3 ha are occupied by the main lake. Altitude varies between 70-80 m. The park was opened to the public in 1854, so it is the oldest public park in Bucharest (Bălăcenoiu et al. 2020). The climate of Bucharest is temperate-continental. The average annual temperature was 11°C between 1901 and 2000 and 14.7°C in 2024. The minimum monthly temperature was recorded in January 1942 and was -30°C. The maximum monthly temperature was recorded in July 2000 and was 42.4°C. Annual rainfall was 567.7 mm in 1901-2000 and 460.7 mm in 2024 (Andrei 2025).

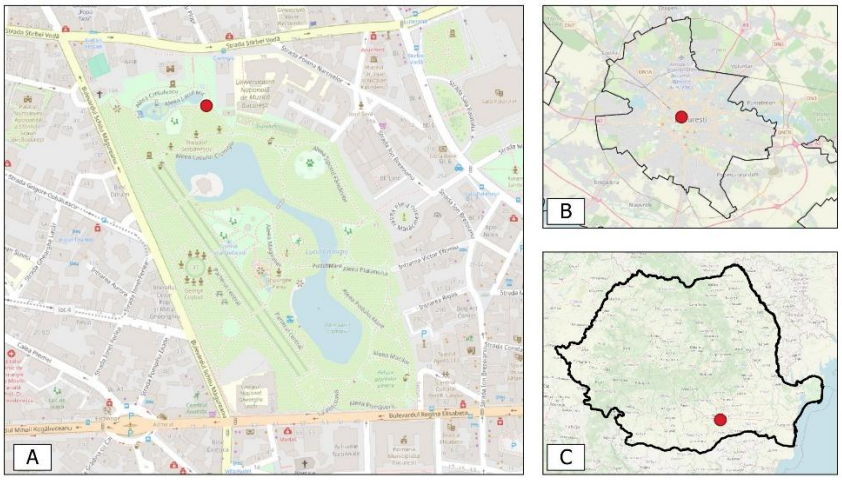


Fig. 1 Location of the study area: Cișmigiu Park (A), Bucharest (B), Romania (C) (source: compiled by Alexandra-Maria Chelu)

The identification of the species was carried out based on the habitus and morphological characters presented by the vegetative organs. García-Murillo (2023)

provides a complete description of the species, which helped us to accurately identify the observed plants.

The identified population was photographed, and biological material was collected for conservation. A herbarium specimen was deposited in the Herbarium of the "D. Brandza" Botanical Garden of the University of Bucharest (BUC413144) (Fig. 2).

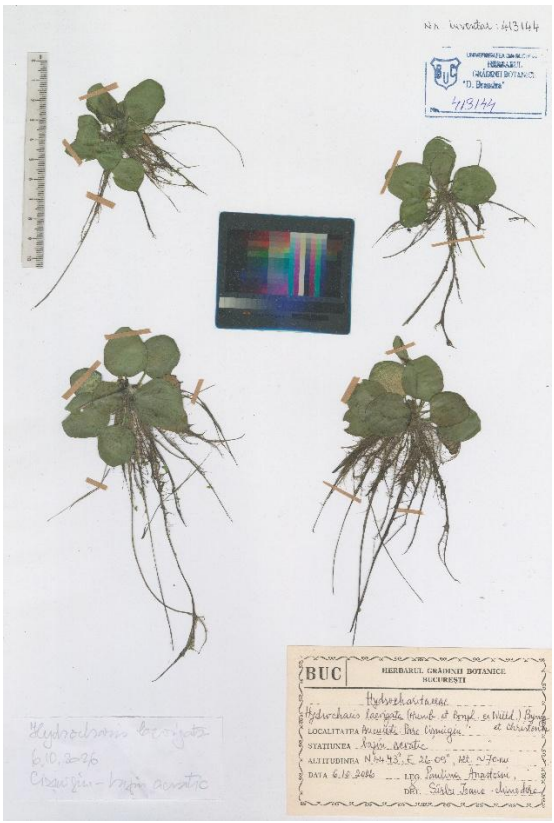


Fig. 2 Voucher specimen with plants of *Hydrocharis laevigata* collected from an aquatic basin in Cişmigiu Park (Bucharest, Romania) deposited in the Herbarium collection of the "D. Brandza" Botanic Garden of the University of Bucharest (BUC)

Taxonomy and nomenclature comply with the recommendations and content of the Global Biodiversity Information Facility – GBIF (2026) and Plant of the world online – POWO (2026).

Results and discussion

Hydrocharis laevigata (Humb. & Bonpl. ex Willd.) Byng and Christenh. is reported for first time from Romania, as a casual alien plant.

A small population covering an area of about 15 m^2 has been identified in Cișmigiu Park (N44.43°, E26.09°), Bucharest, Romania, Europe, on October 6, 2026 (Fig. 1, 3).

Hydrocharis laevigata usually has a wide range of suitable habitat areas in the world and are prone to invasion risk (Yang et al. 2023). In Bucharest, the habitat in which the plant was identified is an artificial one, a small water basin located in the northern part of the Cișmigiu Park, very closed of Eminescu Spring, without connection to the main lake. The depth of the water is 90-100 cm in the place where *Hydrocharis laevigata* occurs. During the observation in October, along with the individuals of *H. laevigata*, we also noted rare specimens belonging to the species *Nelumbo nucifera*, *Persicaria maculosa*, *Lemna minuta*, and in the water mass *Ceratophyllum demersum* (Fig. 3).

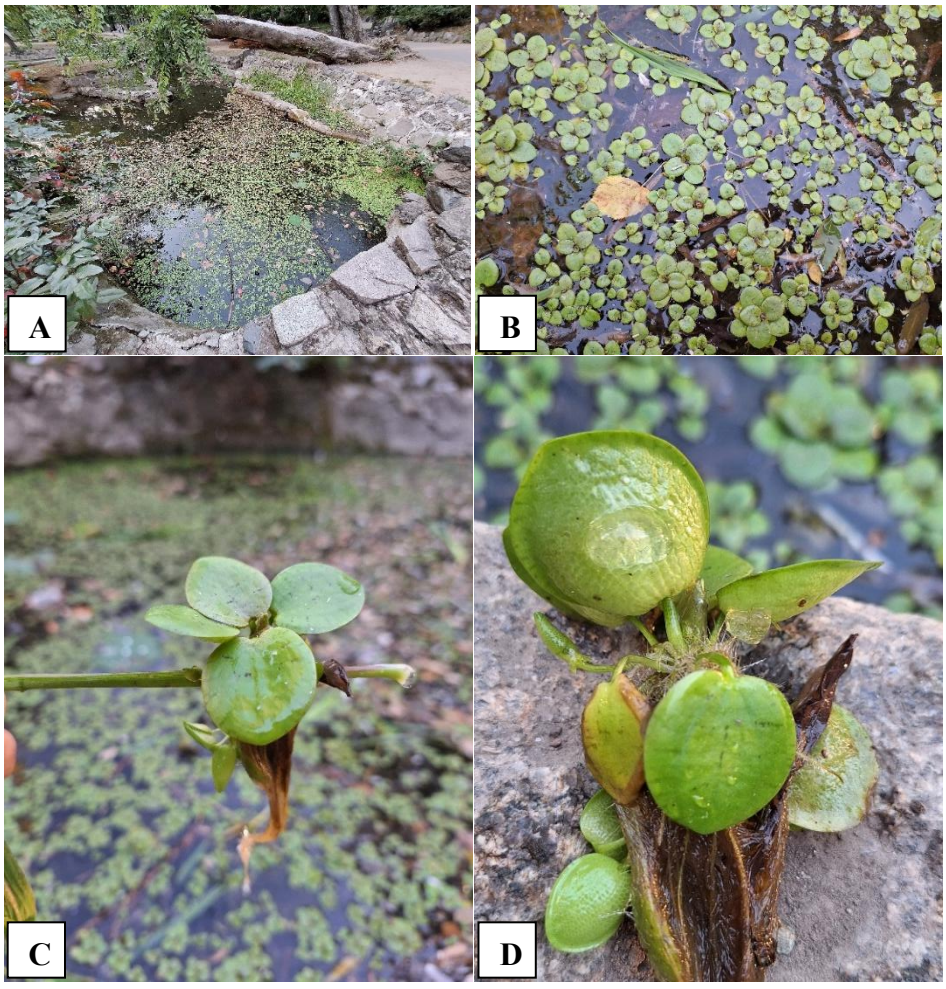


Fig. 3. *Hydrocharis laevigata* at the recording site – Cişmigiu Park (aquatic basin) general view (A) and detail on the identified population (B), mature specimens – details on the vegetative organs (C, D)

The identified population is apparently stable, consisting of individuals of different sizes and ages, being unevenly distributed on the water surface. No flowers or fruits were observed.

It is not known how the plant reached the aquatic basin of Cişmigiu Park, but we consider that it is a recent escape from aquarium culture. We mention that the inventory of plant species in Cişmigiu Park (Anastasiu et al. 2025) includes 240 taxa, but none of them is aquatic.

In Romania, the plant can be easily purchased from the online market (endler.ro, emag.ro, nonvertebrate.ro), where it is recommended for aquarium decoration due to its highly decorative appearance marked by its floating leaves and developed root system. This is a real concern, as numerous other species, used in this very difficult-to-control sector of activity, can be purchased [for example *Lilaeopsis brasiliensis* (Glaz.) Affolter (syn.: *Lilaeopsis minor* (A.W.Hill) Pérez-Mor.), *Salvinia minima* Baker – a species already recorded as introduced in Europe in the United Kingdom, France and Spain (POWO 2026), *Lysimachia parvifolia* Franch., *Hygrophila pinnatifida* (Dalzell) Sreem., *H. lancea* Miq. (syn.: *Hygrophila ringens* subsp. *ringens*), *H. difformis* (L.f.) Blume, *Phyllanthus fluitans* Benth. ex Müll.Arg. şi *Anubias gracilis* A.Chev. ex Hutch. etc.].

The risk of *Hydrocharis laevigata* reaching some natural aquatic basins is high considering that the main lake in Cișmigiu Park is connected to the Dâmbovița River. The spread may also be favoured by waterfowl (Lacoul & Freedman 2006). The risk of invasion of *Hydrocharis* species is likely to increase with the intensification of climate warming (Yang et al. 2023). Furthermore, the European and Mediterranean Plant Protection Organization has highlighted the potential risks posed by this species and the need for surveillance in areas where it has been recorded (EPPO 2021). A risk assessment has also been prepared for the European Union (Kudrnovsky & Williams 2024), and the conclusion of the study was that the species has a potential for establishment, rapid spread, and adverse effects on aquatic ecosystems. Although uncertainties remain regarding the extent of its ecological impacts under European environmental and climatic conditions, these should not diminish the importance of early preventive action.

Conclusions

Hydrocharis laevigata is reported here as a new addition to the alien vascular flora of Romania. Although the species has not yet been recorded in natural aquatic habitats in the country, its potential spread from ornamental water bodies into natural ecosystems raises concerns. Moreover, its documented invasive potential (García-Murillo 2023, EPPO 2021) warrants precautionary management measures to prevent its establishment and further spread. We therefore recommend the prompt removal and appropriate disposal of all recorded individuals and vegetative fragments, followed by regular monitoring of the site during subsequent growing seasons. Such measures are consistent with the principles of prevention, early detection, and rapid response emphasized in the European regulatory framework for invasive alien species.

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