ROMÂNIA
UNIVERSITATEA DIN BUCUREŞTI
GRĂDINA BOTANICĂ „D. BRANDZA”

ACTA HORTI BOTANICI BUCURESTIENSIS 50

2024

Publisher: Editura Universităţii din Bucureşti – Buchares University Press

Acta Horti Botanici Bucurestiensis (text and summaries in English) is published once a year by the Botanic Garden "D. Brandza", University of Bucharest (Şoseaua Cotroceni 32, 060114, Bucureşti, România) and it is available for exchange. The current volume is also available online at: http://ahbb.unibuc.ro

ISSN 2359-7089 (online)
ISSN –L 1453-8830

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Scientific and data papers

Acta Horti Bot. Bucurest. 2024, **50**: 5-21
DOI: 10.62229/ahbb.2024.50/1

CURRENT STATE OF INVASIVE *ASCLEPIAS SYRIACA* IN ROMANIA: MORPHOLOGICAL AND ANATOMICAL INSIGHTS

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Abstract: Numerous ornamental plant species introduced to Europe have become invasive. *Asclepias syriaca* L. is a notable example and the focal point of our research. Native to North America, it was introduced to Europe in 1629 and is currently listed as an invasive species of concern under EU Regulation 1143/2014. In Romania, the species was first reported in 1836. *Asclepias syriaca* demonstrates a high capacity to adapt to various climatic and edaphic conditions. In Europe, it primarily inhabits abandoned agricultural lands, wet and dry meadows, road edges, and tree plantations, negatively impacting agriculture. The species exhibits competitive traits such as height, shade tolerance, vegetative propagation, drought resistance, and allelopathic potential. The aim of this study was to investigate the ecological and anatomical characteristics contributing to the invasive potential of *Asclepias syriaca* in Romania. The analyses of the current state of the species' populations highlighted the environmental conditions that support its establishment and spread. Additionally, anatomical investigations revealed structural traits that further emphasize its adaptability to diverse environmental conditions. This study enhances our understanding of the ecology and adaptive capacity of *Asclepias syriaca*, with significant implications for managing ecosystems affected by this invasive species in Romania.
Keywords: alien plants, anatomy, ornamental plants, structural adaptations.

Received: 14 October 2024 / Accepted: 3 November 2024

Introduction

Ornamental horticulture, through the cultivation and deliberate introduction of non-native species, has significantly contributed to the proliferation of alien plant species across diverse ecosystems (Nelufule et al. 2024). The introduction and spread of these non-native species pose serious threats to native biodiversity and disrupt ecosystem functioning (Vilá & Hulme 2017, Pyšek et al. 2020). Many ornamental species that were cultivated in the past now exhibit high invasive potential (Rouget et al. 2016). With climate change accelerating environmental shifts, the spread of invasive species is expected to continue far into the future (Beaury et al. 2023).

Asclepias syriaca belongs to the Apocynaceae family (https://gd.eppo.int/taxon/ASCSY) and is native to North America (Sîrbu & Oprea 2011).

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The species was first documented in Europe in 1629 when seeds of *Asclepias syriaca* have been sent to the pharmacyst Philip Cornut in Paris (France) to be studied and cultivated (Gaertner 1979).

Currently, the species is both naturalized and cultivated across several regions of Europe (Roşu et al. 2011, Gazoulis et al. 2022).

According to the Royal Botanic Gardens Kew, *Asclepias syriaca* is native to 45 countries globally, and has been introduced to 27 countries in Europe, including Romania (https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:319076-2). The species is also listed on the EU's List of Invasive Alien Species of Union Concern (European Commision 2017, Ștef et al. 2022).

In Romania, it was first recorded in the Moldova region by Czihack in 1836, and later in Transylvania by Schur in 1866 (Sîrbu & Oprea 2011). Currently, it is widely distributed across Banat (Goia et al. 2014, Negrean & Ciortan 2014, Otves et al. 2014, Danciu et al. 2017), Crişana (Neacşu et al. 2017), Maramureş (Ţurca 1996, Marian et al. 2008, Szatmari 2012), Moldova (Sîrbu 2007), Oltenia (Răduţoiu & Stan 2013, Răduţoiu & Popescu 2020, Răduţoiu & Băloniu 2021, Răduţoiu et al. 2023), the Danube Delta (Anastasiu et al. 2014), and Transylvania (Drăgulescu 2007, Vrânceanu et al. 2010, Turcuș & Dărăban 2012, Sărăţeanu et al. 2019, Oroian et al. 2022, Sămărghiţan et al. 2022), being classified as an invasive species in Romania (Sîrbu & Oprea 2011, Urziceanu et al. 2021, Ștef et al. 2022). In addition to its broad distribution across various regions, *Asclepias syriaca* has been identified in several protected natural areas from Romania, such as the Carei Plain Natural Protected Area (Szatmari 2012), Lunca Mureşului Natural Park (Turcuș & Dărăban 2012, Sărăţeanu et al. 2019), Porțile de Fier Natural Park (Goia et al. 2014, Danciu et al. 2017), Mehedinţi Plateau Geopark (Negrean & Ciortan 2014), and the Danube Delta Biosphere Reserve (Anastasiu et al. 2014).

Asclepias syriaca is an allogamous (Mulligan & Kevan 1973), self-sterile species (Moore 1947) that reproduces both via seeds and vegetatively through adventitious buds on its underground roots, contributing to its rapid spread (Evetts & Burnside 1973, Bhowmik & Bandeen 1976, Kelemen et al. 2016, Gazoulis et al. 2022).

The species grows in a range of disturbed habitats, including pastures, cultivated fields, wastelands (Gerhardt 1928), meadows, roadsides, railway edges (Woodson 1954, Baskin & Baskin 1977), river basin, fodder crops (Bhowmik & Bandeen 1976). It is also found along lakeshores, ponds, waterways, prairies, and forest edges (Gudźinskas et al. 2021). When it reaches maturity, it is particularly resilient to drought conditions (Berkman 1949, Bhowmik & Bandeen 1976). The species predominantly grows on well-drained loamy soils (Bhowmik & Bandeen 1976, Gudźinskas et al. 2021) but can also establish itself on sandy soils and on soils rich in organic matter, phosphorus and nitrate-nitrogen (Bagi 2008). *Asclepias syriaca* has also been observed in Romania in several protected and priority habitats, including the priority habitat 91EO* Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) (Drăgulescu 2007, Răduţoiu et al. 2023), in habitat 92A0 *Salix alba* and *Populus alba* galleries (Răduţoiu et al. 2023), and habitat 8230 Siliceous rock with pioneer vegetation of the *Sedo-Scleranthion* or of the *Sedo albi-Veronicion dillenii* (Danciu et al. 2017).

In Romania, a series of studies have focused on various aspects of *Asclepias syriaca*, including the control of this species in relation to temperature and seed depth in soil (Ștef et al.2023), the potential for obtaining carotenoid pigments through the

cultivation of *Rhodotorula* spp. in the presence of *Asclepias syriaca* extract (Hainal et al. 2012), its development on soils rich in copper (Vrânceanu et al. 2010), and the potential role of *Asclepias syriaca* extracts in enhancing plant growth and cadmium uptake in oat plants (*Avena sativa*) (Stingu et al. 2012). However, no comprehensive morpho-anatomical studies have yet been conducted on *Asclepias syriaca* in Romania. Additionally, there is a need for an updated evaluation of its current population status.

The aim of this study is to assess the current state of the invasive *Asclepias syriaca* in Romania by analyzing the habitats it occupies and the environmental conditions that support its survival and spread. Additionally, we provide new insights into the species' morpho-anatomical traits that may contribute to its invasive potential and inform future management strategies.

Material and methods

Study species. *Asclepias syriaca* L. (Apocynaceae) commonly known as beeswax, is a perennial herbaceous plant (Tiţă 2003). Its root system initially grows horizontally in the first 20 cm, after which adventitious buds begin to form (Kiltz 1930, Evetts & Burnside 1973, Bagi 2008).

The stem is tall, robust, and typically unbranched, with fine hairs and can reach heights up to 2.5 meters (Tiţă 2003, Pioarcă-Ciocanea et al. 2020, Gazoulis et al. 2022, Ştef et al. 2022). In some cases, the plant has been reported to reach up to 6 m in height (Gerhardt 1938).

The leaves are large, simple, elliptic, broad, and arranged oppositely. The upper surface of the leaf is nearly smooth, while the lower surface is covered with hairs. Leaves can grow up to 20 cm long and 10 cm wide (Tiţă, 2003, Bagi 2008, Pioarcă-Ciocanea et al. 2020, Gazoulis et al. 2022).

The flowers are large with shades of pink and purple. Inflorescences consists of 20 to 130 small flowers (Tiţă 2003, Pioarcă-Ciocanea et al. 2020), which grow in the axils of the upper leaves and are known for their pleasant fragrance (Howard 2018, Tiţă 2003, Gazoulis et al. 2022). The fruit are represented by pods, which turn brown upon ripening. The seeds have tufts of 4-5 cm long silky hairs at the top, aiding in wind dispersal (Tiţă 2003, Pioarcă-Ciocanea et al. 2020). Each plant produces, on average, 4-6 pods containing 150-425 seeds. At densities of 1-6 stems per square meter, *Asclepias syriaca* can yield up to 87 million seeds per hectare (Gazoulis et al. 2022).

Asclepias syriaca also produces latex, a characteristic feature of the genus (Gazoulis et al. 2022).

Methodology. Occurrences of *Asclepias syriaca* in Romania were extracted from the following published materials: Sărăţeanu et al. (2020), Ştef et al. (2022), Anastasiu et al. (2022), Anastasiu et al. (2023a, b, c), Anastasiu et al. (2024), and analyzed using ArcMap v.10.4. The analysis incorporated pedological, hydrological, and human impact-related raster data. When available, population size data were also extracted. Population size was categorized according to the scale proposed in the *Protocol de inventariere a speciilor de plante invazive și potențial invazive*, developed within the Project *Managementul adecvat al speciilor invazive din România, în conformitate cu Regulamentul UE 1143/2014 referitor la prevenirea și gestionarea introducerii și răspândirii speciilor alogene invazive* (Project code: POIM2014+ 120008). The population size categories used were: 1 (1-10 individuals), 2 (11-50 individuals), 3 (51-100 individuals), 4 (101-500 individuals), 5 (>500 individuals).

For spatial analysis, various vector data sets were incorporated, including roads, rivers, lakes, land use classes, soil classes, and soil texture. These datasets were sourced from Open Street Map Contributors (OSM) at a scale of 1:1000, Corine Land Cover 2018 at a scale of 1:100,000, and the European Soil Data Centre (ESDAC) (Atlas of Romania Soils Map 1:1,000,000). The Corine Land Cover dataset was reclassified to create categories more suitable for the environmental preferences of *Asclepias syriaca*. Distance variables from linear elements (roads and water) were generated and adjusted for elevation variations using a digital elevation model (DEM) in ArcGIS v.10.4. The DEM was sourced from EU-DEM v1.1 Copernicus (European Environment Agency – EEA).

The Human Impact Index (HII) was obtained from the Center for International Earth Science Information Network (CIESIN) - Wildlife Conservation Society (Last of the Wild Data v2-2005 LTW2 Global Human Footprint Data set), at a resolution of 1 km^2.

For the anatomical studies, plant material was collected from the Botanical Garden "D. Brandza" in Bucharest in June 2024 (Fig. 1). Specimens, approximately 1.5 meters in height, were preserved in 70% ethyl alcohol.

Structural analysis was performed by preparing manual cross-sections of the stem (in the upper, median, and lower third) and leaf. The sections were stained using a double coloration technique with Iodine Green and Carmin Alaun. Starch was highlighted by soaking the sections in IIK solution (Șerbănescu-Jitariu et al. 1983). The resulting cross-sections were examined and photographed using an optical microscope.

Fig. 1. *Asclepias syriaca* in Botanical Garden "D. Brandza" in Bucharest (habitus)

Results and discussions

We analyzed 306 verified occurrences of *Asclepias syriaca* from Romania. The species is currently distributed across all major geographical regions, including Banat, Oltenia, Transylvania, Moldova, Maramureș, Crișana, and Dobrogea (Danube Delta) (Fig. 2). The highest concentration of occurrences was recorded in the western (Crișana, Banat), northwestern (Maramureș), central (Transylvania), and southwestern Romania (Oltenia), accounting for over 90% of the total occurrences (Fig. 2). Population size data were available for 243 occurrences, with the largest populations (categories 4: 101-400 individuals and 5: >500 individuals) primarily located in these same regions (Fig. 2).

A significant concern is the invasion of *Asclepias syriaca* into Protected Areas across Romania, particularly in Sites of Community Importance (SCIs) within the Natura 2000 Network and several Natural Parks (Fig. 2). Our analysis identified 110 populations within SCIs, with 15 populations exceeding 100 individuals. Additionally, 15 populations were found within Natural Parks. Notably, no populations were found within National Parks.

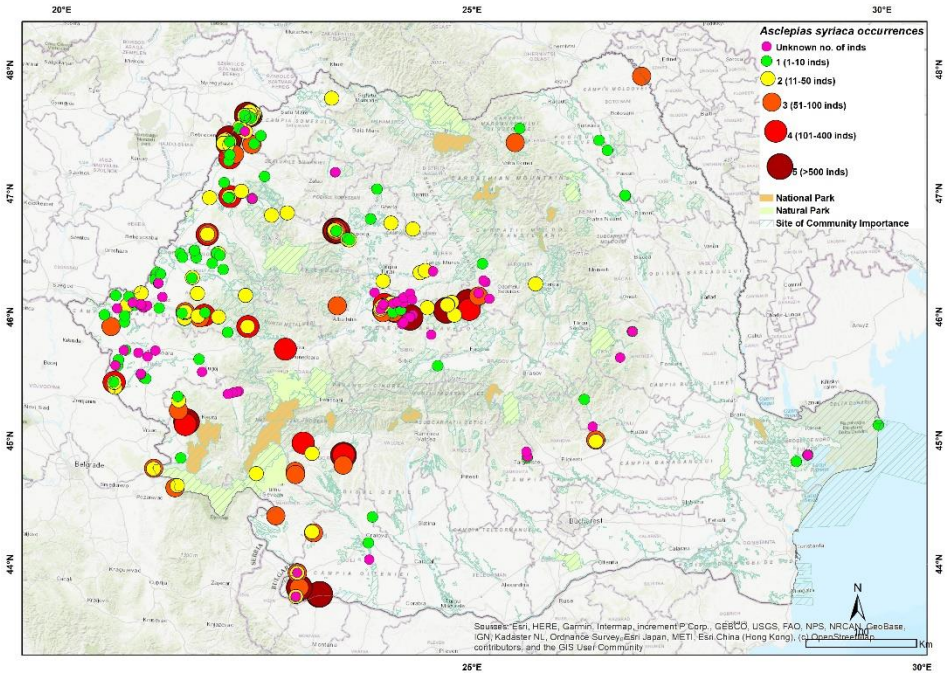

Fig. 2. Updated distribution of *Asclepias syriaca* in Romania, based on occurrences and population size data sourced from https://zenodo.org/records/6577809, https://zenodo.org/records/10396235, https://zenodo.org/records/10396155, https://zenodo.org/records/10396292

The environmental conditions that seem to favor *Asclepias syriaca* in Romania align with the species' documented habitat preferences, while also highlighting regional variations that reflect the local landscape characteristics and land-use practices.

Our findings showed that nearly 50% of *Asclepias syriaca* occurrences were found on truncated soils (Fig. 3), a soil class typically characterized by significant

erosion or anthropogenic modifications (Blaga et al. 2005). Notably, more than 50% of the largest populations were established on these truncated soils, indicating they provide an advantageous environment for the species, likely due to their disturbance which creates favorable conditions for colonization and growth.

Approximately 30% of *Asclepias syriaca* occurrences were located on mollisols and hydromorphic soils (Fig. 3). These results align with its known ability to also establish on soils rich in organic matter, phosphorus and nitrate-nitrogen (Bagi 2008).

In terms of soil texture, the species exhibited a preference for heterogeneous soils in Romania, with almost 30% of occurrences recorded on such soils (Fig. 3). This reflects its adaptability to a variety of substrate conditions. Additionally, the species is found on sandy silty and silty clay loam textures, which indicates its ability to establish on both well-drained and moisture-retentive soils. Notably, large populations (exceeding 100 individuals) were most commonly associated with heterogeneous soil textures (almost 40%), suggesting that these conditions are particularly favorable for supporting large populations.

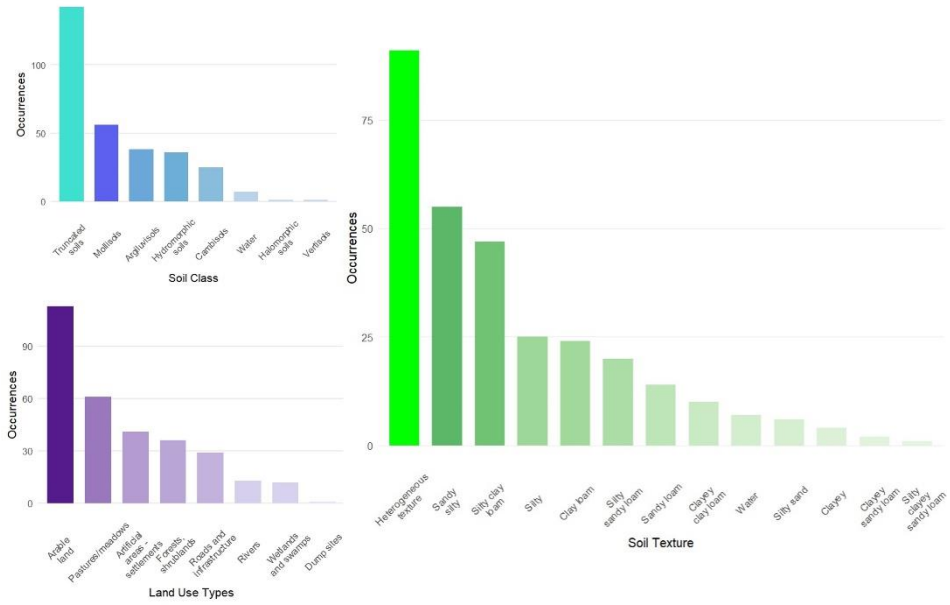

Fig. 3. Distribution of *Asclepias syriaca* occurrences across soil classes, land use types, and soil textures in Romania

As previously noted, *Asclepias syriaca* thrives in disturbed habitats such as cultivated fields, pastures, roadsides, and waterways (Gerhardt 1928, Woodson 1954, Bhowmik & Bandeen 1976, Baskin & Baskin 1977, Gudźinskas et al. 2021). In Romania, this pattern is consistent, with agricultural land supporting approximately 37% of the recorded occurrences (Fig. 3). The species also establishes in pastures/ meadows and in artificial environments such as settlements (Fig. 3).

When considering the largest populations (categories 4 and 5), arable land was found to host over 40% of these occurrences, followed by pastures/meadows, as well as

forests, shrublands, each contributing approximately 15% of the largest populations. In contrast, heavily urbanized or disturbed areas, such as settlements, supported only 3 occurrences in categories 4 and 5 (9.37%), suggesting that urban areas may not provide optimal conditions for large populations of the species.

Another notable aspect of *Asclepias syriaca* distribution in Romania is its frequent proximity to water bodies and roads (Fig. 4). The species' higher density along roadsides and waterways aligns with findings from other regions where it thrives in similarly disturbed environments (Woodson 1954, Bhowmik & Bandeen 1976, Gudźinskas et al. 2021).

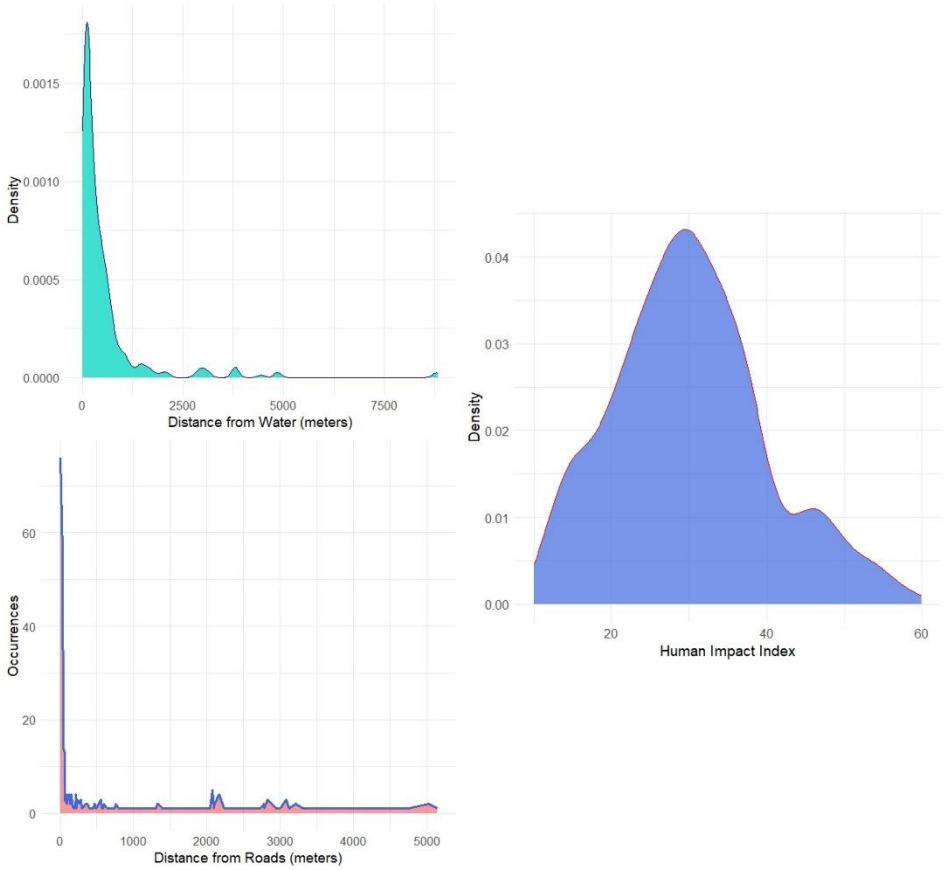

Fig. 4. Relationship between *Asclepias syriaca* distribution and anthropogenic factors in Romania: occurrence density relative to distance from water bodies, and Human Impact Index (HII), and occurrences relative to distance from roads

Regarding anthropogenic influence, *Asclepias syriaca* appears to reach its highest density in areas with a Human Impact Index (HII) of 25-35 (Fig. 4), which corresponds to moderate levels of human disturbance. This finding aligns with the species' ecological strategy of thriving in environments that experience regular

disturbances, such as agricultural activities or infrastructure development, but are not entirely degraded.

The anatomical investigations, revealed that the **stem** cross-sectioned at the three levels: lower, median and upper third, showed a circular outline in the lower and median and a slightly ridged shape with a prominent lateral ridge in the upper third (Fig. 5 A, C, E). The stem of *Asclepias syriaca* presents a secondary structure across the entire stem, resulting from the vascular cambium activity (Fig. 5 A - F). The structure displays the following anatomical areas: epidermis, cortex and vascular cylinder with a medullary lacuna in the center (Fig. 5 C, E).

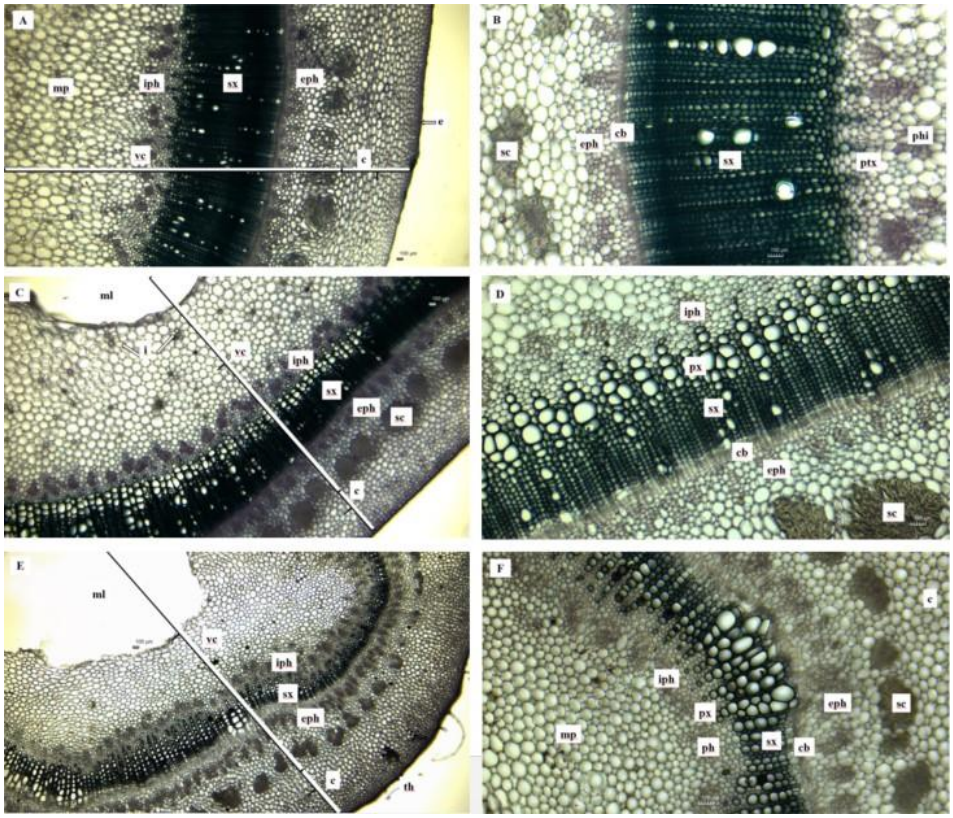

Fig. 5. Cross-sections of *Asclepias syriaca* stem, highlighting the different anatomical areas (A, B - lower third, C, D - median third, E, F - upper third), (colorants: Iodine Green, Carmine Alum, IIK): c - cortex, cb - vascular cambium, e - epidermis, eph - external phloem, id - idioblast, iph - internal phloem, ml - medullary lacuna, mp - medullary parenchyma, px - primary xylem, ptx - protoxylem, sc - sclerenchymatous caps, sx - secondary xylem, th - trichomes, vc - vascular cylinder

The epidermis consists of a single layer of isodiametric cells, with thicker cell walls inwards. In the upper third, among the epidermis cells, pluricellular mineralized trichomes were noticed (Fig. 5 E).

The cortex is composed of parenchyma cells with intercellular spaces. The first 1-2 layers presents thick cellulosic walls.

The vascular cylinder is outlined by a ring of sclerenchymatous caps formed by sclerenchymatous fibers which sustain the vascular bundles (Fig. 5 A - F). The vascular tissue is organized in open bicollateral vascular bundles, concentrically arranged, with a prominent vascular cambium between the outer phloem and xylem (Fig. 5 A - F). In the secondary xylem, the woody vessels have a radial arrangement. The area of the secondary xylem decreases from the base to the top of the stem (Fig. 5 A, C, E). The bundles of primary xylem are extended towards the inner phloem (Fig. 5 B, D, F).

The vascular cylinder is filled with a fundamental parenchyma of different sizes of parenchymatic cells with intercellular spaces, which became disorganized in the central part, resulting in a medullary lacuna. Additionally, both areas, cortex and vascular cylinder contain frequent secretory idioblasts (Fig. 5 C).

The **lamina** of *Asclepias syriaca* presents a bifacial dorsiventral structure. In cross section, the leaf exhibits a flattened shape on both faces: adaxial and abaxial, excepting the midrib, which has a semicircular outline with a rounded abaxial face (Fig. 6 A).

Both epidermis are single-layered, consisting of isodiametric cells with thick cell walls, interspaced with long pluricellular mineralized trichomes (Fig. 6 A - C). The epidermis is covered by a thin cuticle which displays cuticular ridges (Fig. 6 C). The leaf is amphystomatic, with stomata located at the same level with the epidermal cells. Paradermal sections displayed the anomocytic type of stomata, identified on the adaxial surface (Fig. 6 D).

The mesophyll is differentiated into 1-2 layers of palisade cells located beneath the upper epidermis and a large spongy parenchyma with large gaps, above the lower epidermis (Fig. 6 A - B).

The vascular tissues are organized into bicollateral vascular bundles with a primary structure. In the midrid, the xylem and phloem are larger with a semi-circular arangement, exposing the phloem towards the both faces. Various secretory idioblasts were observed between xylem and phloem and at the periphery of the phloem (Fig. 6 A). Few layers of angular collenchyma, located under both the upper and lower epidermis, supports the midrib (Fig. 6 A, C). The minor vascular bundles are enclosed by parenchymatous perifascicular sheaths (Fig. 5 B). The internal phloem is bounded by an amyliferous sheath (Fig. 6 A).

The potential risk of invasion of *A. syriaca*, considered one of the most dangerous invasive species (Bakacsy & Bagi 2020), is attributed to a fast-growing rate associated with a tall habitus, the vegetative spread by rhizome propagation, drought tolerance, and a high resistance to herbivory (Bhowmik & Bandeen 1976, Agrawal 2004, Bagi 2008, Tao et al. 2016).

Our observations on the vegetative organs anatomy revealed a vigurous secondary structure of the stem. The presence of the rhizome supports the vegetative spread and fragmentation facilitating the adaptation to various environmental conditions, contributing to its high competitivity (Bhowmik 1994, Dvirna 2018, Follak et al. 2021). *Asclepias syriaca* clonal's activity is an important strategy for colonization of new ecological niches and succesful invasion (Anderson 1999, Nowiński & Latowski 2003, Podbielkowski & Sudnik-Wójcikowska 2003, Rowe & Speck 2005, Borders & Lee-Mäder 2015).

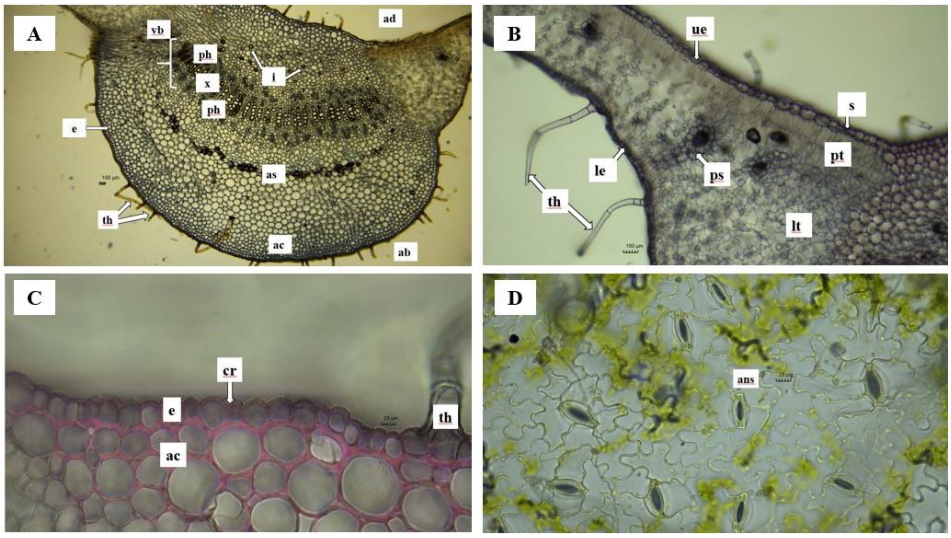

Fig. 6. Cross-sections of *Asclepias syriaca* leaf, highlighting the different anatomical areas (A, C - midrid, B - mesophyll, D - paradermal section of adaxial epidermis), (colorants: Iodine Green, Carmine Alum, IIK): ab - abaxial face, ad - adaxial face, ac - angular collenchyma, ans - anomocytic stomata, as - amyliferous sheath, cr - cuticular ridges, e - epidermis, id - idioblast, le - lower epidermis, lt - lacunose tissue, ph - phloem, ps - perifascicular sheaths, pt - palisade tissue, s - stomata, th - trichomes, ue - upper epidermis, vb - vascular bundle, x - xylem

Agrawal et al. (2012) have shown that when competing for light, *Asclepias syriaca* exhibits significant shoot elongation. The long trichomes and ridged and thick cuticles enables the resistance of this species in full sun (Xiao et al. 2017).

The orthotropic stem exhibits a strong stem structure with a large area of secondary xylem which sustains the leaves and reproductive organs promoting thus the settlement and resilience of this invasive species (Sârbu & Smarandache 2015, Wang et al. 2022, Dumitrașcu et al. 2023, Mihai et al. 2024).

The calcium oxallat druses, substances noticed in the stem and leaves, and also by leaf trichomes serve as a defense mechanism against the herbivores (Agrawal 2004). The leaf structure pointed once again the high rate of specialization of this species.

Conclusions

In Romania, *Asclepias syriaca* is primarily found in disturbed habitats, highlighting its adaptability to human-modified environments. Large populations are often associated with regions featuring truncated soils, heterogeneous soil textures, and other anthropogenic habitats, which seem to facilitate its successful establishment and spread.

A concerning finding is that significant populations of *Asclepias syriaca* are present within Protected Areas. Given the potential ecological risks posed by this invasive species, it is essential to implement mitigation measures to control its spread in these sensitive areas.

Anatomical investigation of *Asclepias syriaca* vegetative structures provides further insight into its invasive potential. The species possesses versatile traits that contribute to its ability to withstand environmental stress and outcompete native species for resources in diverse ecological environments.

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Acta Horti Bot. Bucurest. 2024, **50**: 23-39
DOI: 10.62229/ahbb.2024.50/2

COLCHICUM SOBOLIFERUM, MARSILEA QUADRIFOLIA AND *TRAPA NATANS* VAR. *NATANS* IN THE DANUBE DELTA BIOSPHERE RESERVE

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Abstract: Rare plant species are more sensitive to anthropogenic disturbances, their effects causing a decrease in populations and the fragmentation of their habitats. Their unclear population structure often impedes conservation planning. The purpose of the study is to update the distribution and population size, identify habitat preferences, investigate limiting factors, and assess the current conservation status of three threatened taxa – *Colchicum soboliferum, Marsilea quadrifolia,* and *Trapa natans* var. *natans* from the Danube Delta Biosphere Reserve (DDBR). The study took place between 2019-2023. The study results showed that the taxa are rare in DDBR, and they have affinities to specific plant communities. *C. soboliferum* occurs frequently in *Artemisio santonici-Juncetum maritimi* and *Agrostio maeoticae-Scirpoidetum holoschoeni* subass. *aperetosum maritimae, M. quadrifolia* is mainly found in *Typhetum angustifoliae* and *Artemisio santonici-Juncetum maritimi*, while *Trapa natans* var. *natans*, is found in *Trapo-Nymphoidetum* association. The threats to the three species are overgrazing and soil compaction for *C. soboliferum*; water pollution, invasion of *Elodea nuttallii* and habitat change due to trampling for *M. quadrifolia*; wetland drainage, boating and silting for *Trapa natans* var. *natans*. Therefore, for all three species, changing the conservation status to endangered, protecting and restoring the actual habitats, and transplanting individuals to safer areas with similar habitats are part of the conservation plan within the DDBR area.

Keywords: rare taxa, habitat preferences, population status, phytocoenotic affinity

Received: 23 February 2024 / Accepted: 21 October 2024

Introduction

Biodiversity conservation represents an important challenge in an era of unprecedented global change, with rare plant species often at the forefront of conservation efforts (Farooqi et al. 2022). Rare taxa are those with low abundance and small ranges (Gaston 1994a). The significance of biodiversity conservation cannot be overstated given the critical roles plants play in ecosystems, including carbon sequestration, nutrient cycling, etc. (Chapin et al. 2000). Rare taxa, defined by their limited geographic distribution (Leitão et al. 2016) small population sizes (Rodrigues et al. 2019), or both, are particularly vulnerable to anthropogenic pressures such as habitat fragmentation, climate change, invasive species (Rabinowitz 1981, Gaston 1994b). Therefore, a significant challenge for ecologists is determining how species respond to climate change (Vincent et al. 2020). The study of rare taxa contributes to

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understanding biodiversity and ecosystem function and provides essential insights for conservation strategies to prevent biodiversity loss (Frankham et al. 2010).

Endemic and relict plants and marginal species (alpha diversity – species level) residing at the edge of their habitats are acknowledged as rare plants (Namzalov et al. 2019). This rarity extends to vegetation communities (beta diversity – amount of differentiation between species communities; Andermann et al. 2022) and landscape complexes, including phytocoenoses from the region (gamma diversity – ecosystem level; Namzalov et al. 2019). Alpha diversity must be conserved as it underpins ecosystem services and human well-being (Sandifer et al. 2015, Ong et al. 2022). Nonetheless, associated beta and gamma diversities are rapidly declining globally (Ong et al. 2022). Although a few dominant species can adequately maintain ecosystem functions, rare species are indispensable for supporting various ecosystem services (Leitão et al. 2016, Ives et al. 2016). In this scenario, rare species, which are on the brink of extinction, may be particularly susceptible to climatic shifts (Schwartz et al. 2006). Therefore, it is imperative to devise conservation strategies for rare species by assessing their responses to climate change (Vincent et al. 2020). In addition to these considerations, it is important to note the role of genetic diversity within species (intraspecific diversity) in the resilience and adaptability of populations to environmental changes (Hughes et al. 2008). Conservation efforts must also include preserving the genetic variability that underlies adaptive potential, especially for rare and endemic species that may have limited genetic diversity due to small population sizes (Frankham et al. 2010). Furthermore, landscape connectivity should be enhanced to facilitate gene flow and species migration, thereby counteracting the fragmentation that can exacerbate the vulnerability of rare species (Crooks et al. 2011).

The study aims to expand the current knowledge regarding some rare taxa in the DDBR by presenting new locations where they are found and by analyzing their habitat preferences and limiting factors. This study aims to contribute to the study area by providing data for protecting and sustaining threatened plant species in the face of ecological and anthropogenic changes. The objectives are: (i) identification of new locations, (ii) identification of preferred habitat types, and (iii) investigation of limiting factors of the analyzed plant species.

This study presents a detailed description of each species, information on distribution, plant associations, limiting factors, threat categories, and conservation status.

Material and methods

The study was divided into three steps: preliminary work, fieldwork, and assembly work. The field research was conducted in the Danube Delta Biosphere Reserve (DDBR; Fig. 1) between March 2019 and July 2023. The methodology used for phytosociological surveys was based on Braun-Blanquet (1964). In each relevé, the following data were recorded: species composition, total coverage (%), plant species abundance-dominance (AD), and the number of taxa. The area covered by the taxon ranges from + (sparse and covering a small area) to 5 (covering more than 75% of the area). Abundance and range size was taken into account to measure rarity at the site level, the degree of presence of the individuals is scaled as follows: 5 – abundant (80-100%); 4 – frequent (60 – 80%); 3 – constantly present (40 – 60%); 2 – rare (20 – 40%); 1 – sparsely (1 – 20%) of the areas. The range size is considered the area within which species occurs. Plant species were identified using a field identification key for the

Romanian flora (Ciocârlan 2009), while the nomenclature followed Plants of the World Online (2024). The identification of plant associations followed Coldea et al. (2012, 2017), and the classification of habitats according to the EUNIS system was adopted after Chytrý et al. (2020). To estimate the species rarity at the plant associations level in which they are found, we recorded individuals' total abundance and range distribution as 1 m^2 plots at each site where a species was present. To identify new areas for possible individual transplanting, we have analyzed the species' potential range based on plant association distribution at the site level in which the species occur. The compilation of the protected plants list was based on various sources, including the Red List of extinct, endangered, vulnerable, and rare vascular plants of Romania's flora (Boşcaiu et al. 1994), the Red List of rare, vulnerable, and endemic plants of Romania's flora (Dihoru & Dihoru 1994), the Red List of vascular plants of Romania's flora (Oltean et al. 1994), the Critical list of vascular plants in Romania (Oprea 2005), and the Red Book of vascular plants in Romania (Dihoru & Negrean 2009). Despite being present in high numbers in a specific quadrat, the studied species were still labeled as rare if their abundance was inconsistent across multiple relevés within areas. The maps were made using the QGIS program version 3.34.3 (QGIS Development Team 2024).

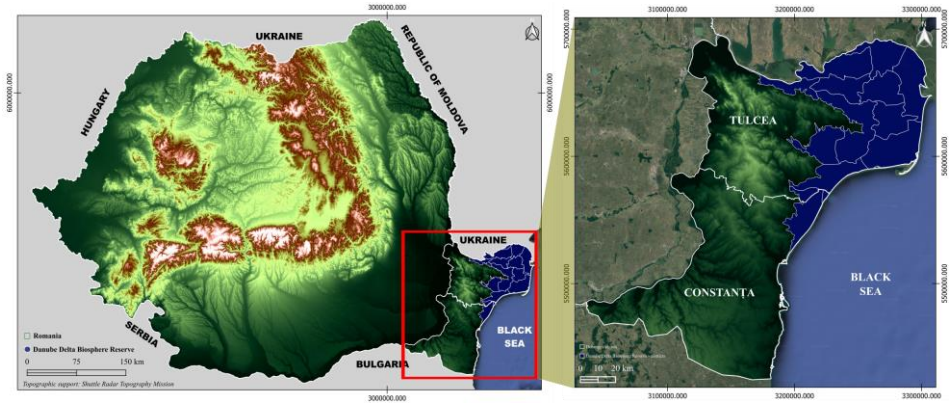

Fig. 1. Maps of the study area: a) at the national level; b) at the regional level

Results and discussion

***Colchicum soboliferum* (C. A. Mey.) Stef.** – Colchicaceae DC. [Syn. *Bulbocodium soboliferum* (C. A. Mey.) Heynh., *B. hastulatum* Friv., *Merendera sobolifera* C. A. Mey., *M. hastulata* (Friv.) Baker]

Description. *C. soboliferum* is a perennial plant (Ciocârlan 2009) with a height between 8 and 20 cm (Grințescu et al. 1966, Ciocârlan 2009). This plant has bulbotuber and underground stolons (soboli; Dihoru & Negrean 2009). The bulbotuber resulting from the previous vegetative cycle is small, obtuse, and trigonal, with a diameter between 10-15 mm, located at the base of the flower structure. It is covered in a brown tunic, present during the flowering period, with three stoloniform extensions. Two extensions are lateral and shorter (3-8 mm long), and one is medial and longer (15-30 mm long). The flowering plant is fixed subapically on the median extension, and on the lateral extensions, the sterile stems are born (Grințescu et al. 1966). In the fruiting

phase, the bulbotuber develops, generating a new generation of stoloniferous extensions. In this case, the lateral extensions bear the reserve buds, and the median extension bears subapically the renewal buds (Grințescu et al. 1966). The plant has three glabrous leaves, which appear simultaneously with the flower. These leaves are erect, have a linear-lanceolate shape, and are pointed at the tip. Their length varies between 6 and 15 cm, and the width is between 3 and 5(7) mm (Grințescu et al. 1966, Apostolova & Petrova 1997). The flowers, which can be solitary or grouped in groups of 2-3, have a shade of lilac pink. Perigonal leaflets are free, oblong-lanceolate, measuring 17 to 25 mm long. At the base, they are arrowed, having two linear auricles of 2 mm in length, placed on some thin pedicles with lengths between 3.5 and 5 cm (Grințescu et al. 1966). The stamens are 10-15 mm long, twice as short as the petals. Anthers, oblong-elliptical in shape, vary in length between 2 and 4 mm. The ovary is 2-3 mm long and has three free filamentous stylodes. The stigmas are extremely short, decurrent, almost capitate. The fruit capsule is elongated-cylindrical, having a length of 15-20 mm and a diameter of 8-10 mm. The seeds are subglobose (Grințescu et al. 1966). The species reproduce by myrmecochory (Apostolova & Petrova 1997). Myrmecochory, a form of ant-mediated seed dispersal, constitutes an essential ecological interaction for the distribution of the species. This fact and the specificity of the underground system for vegetative spread ultimately lead to the observed uneven population structure (Apostolova & Petrova 1997). Soboli, representing underground stolons of the plant, contributes to vegetative propagation and spatial dissemination over short distances, forming a network of above-ground vegetative and generative shoots. This vegetative reproduction strategy allows new individuals (clones) to form rapidly, facilitating an efficient spread in its habitat. The long-distance dispersal of seeds could be explained by epizoochory (Apostolova & Petrova 1997), the seeds carried by waterfowl. Individuals are frequently found at elevations from 800 to 2400 m in Armenia (Oganezova 2014). In Romania, the elevation is specified from 1 to 10 m.

Distribution, conservation status, ecology, and coenology. The distribution area of this species extends from the Balkan Peninsula, in South-West Asia, the Caucasus to Central Asia (Dihoru & Negrean 2009, Oganezova 2014), with the western limits located in Greece and North Macedonia. In Romania, the species was recorded in the Dobrogea region (Grințescu et al. 1966). In this region, the distribution of the species has been documented in various localities in Tulcea and Constanța counties. In Tulcea County, the species was recorded in Perișor (Ciocârlan & Sârbu 1998, Ciocârlan 2009), between the locality of Cardon and Letea Forest (Roman 1992). In Constanța County, the species was identified in Vadu (Făgăraș & Gomoiu 2002), in the area of the Cetatea Histria (Dihoru & Negrean 2009), on the grindul Lupilor (Roman 1992, Ciocârlan & Sârbu 1998, Sârbu et al. 2000), grindul Saele (Ciocârlan & Sârbu 1998, Făgăraș et al. 2000), grindul Chituc (Roman 1992, Ștefan et al. 2001), as well as in the localities of Năvodari, Corbu (Făgăraș & Gomoiu 2002) and Mamaia (Răvăruț et al. 1961). Also, the species was recorded between Tuzla Lake and Sinoe Lake (Dolțu et al. 1983), reflecting an extensive and varied distribution within the ecosystems of Dobrogea. In the DDBR, *C. soboliferum* was identified in Vadu (Constanța County), Letea, and Caraorman (Tulcea County).

The species is not evaluated at global and European levels (EEA 2024a). In Romania, the species was classified into the following categories: "Vulnerable" (Oltean et al. 1994, Boșcaiu et al. 1994) or "Endangered" (Dihoru & Dihoru 1994, Dihoru &

Negrean 2009). For the DDBR territory, the species was evaluated as "Vulnerable" (Oțel 2000). It is a toxic plant with decorative value (Dihoru & Negrean 2009). The species was recorded in the *Artemisietum santonici* (Sârbu et al. 2000), *Aperetum maritimae*, and *Limonio bellidifolii-Puccinellietum convolutae parapholietosum incurvae* associations (Ștefan et al. 2001). The main limiting factors for populations of this species are overgrazing and soil compaction. These anthropogenic actions represent significant stress sources, contributing to this species's observed global decline (Apostolova & Petrova 1997).

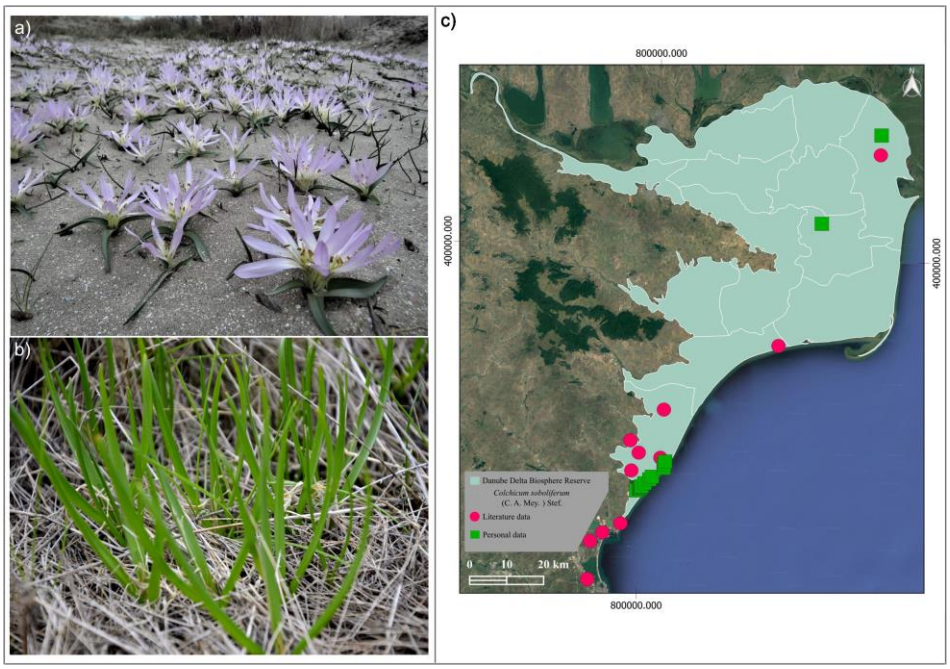

Fig. 2. *Colchicum soboliferum*: a) in the flowering stage (©Mihai Doroftei); b) in the vegetative stage (©Simona Chirilă); c) the distribution of the species in the DDBR (©Simona Chirilă).

In Vadu, the species was identified in the following associations: *Secali sylvestris-Alyssetum borzeani* (Borza 1931 n.n.) Morariu 1959, *Artemisio santonici-Juncetum maritimi* Šeljag-Sosonko et al. 2000, *Puccinellietum limosae* Magyar ex Soó 1933 subass. *elymetosum elongati* (Șerbănescu 1965) Coldea et al. 2012, *Limonio bellidifolii-Halocnemetum strobilacei* (Țopa 1939) Coldea et al. 2012, *Ephedro-Caricetum colchicae* Morariu 1959, *Agrostio maeoticae-Scirpoidetum holoschoeni* Coldea et al. 2012 subass. *aperetosum maritimae* Coldea et al. 2012. The habitat is represented by temporary wet meadows, where the soil is sandy, sometimes slightly saline. Moderate grazing or trampling the land at a reduced frequency stimulates vegetative reproduction; under these conditions, it can compete with other species. The high density of individuals in small areas can indicate stimulated vegetative reproduction. Compared with a previous monitoring period (2008-2011), on the same

sites, we observed that the population declined; overgrazing may be the leading cause since the species composition is modified. Dispersal of the species is thought to have occurred predominantly along the coasts and secondarily to inland wetlands by epizoochory – the transport of seeds via mud adhering to birds' feet.

At the site level, *C. soboliferum* was encountered in six plant communities, being framed in four Natura 2000 habitats as follows:

- 2110 Embryonic shifting dunes within the phytocoenoses of the plant ass. *Secali sylvestris-Alyssetum borzeani* (Borza 1931 n.n.) Morariu 1959 – 7 out of 33 relevés (21% of the relevés at the DDBR level and henceforward), the species is considered rare;
- 1410 Mediterranean salt meadows (*Juncetalia maritimi*) within the phytocoenoses of the plant ass. *Artemisio santonici-Juncetum maritimi* Šeljag-Sosonko et al. 2000 – 18 out of 29 relevés (62%), the species is considered frequent;
- 1530* Pannonic salt-steppes and salt-marshes within the phytocoenoses of the plant ass. *Puccinellietum limosae* Magyar ex Soó 1933 subass. *elymetosum elongati* (Șerbănescu 1965) Coldea et al. 2012 – 11 out of 35 relevés (31%), the species is considered rare, and within the phytocoenoses of the plant ass. *Limonio bellidifolii-Halocnemetum strobilacei* (Ţopa 1939) Coldea et al. 2012 – 4 out of 27 relevés (14%), the species is considered sparsely;
- 2130* Fixed coastal dunes with herbaceous vegetation (grey dunes) with *Ephedro-Caricetum colchicae* Morariu 1959 – 8 out of 34 relevés (23%), the species is considered rare and *Agrostio maeoticae-Scirpoidetum holoschoeni* Coldea et al. 2012 subass. *aperetosum maritimae* Coldea et al. 2012 – 21 out of 37 relevés (56%), the species is considered frequent.

***Marsilea quadrifolia* L.** – Marsileaceae Mirb. [Syn: *Lemma quadrifolia* (L.) Desr., *Marsilea coromandelica* Burm.f., *M. europaea* Desv., *Zaluzianskia quadrifolia* (L.) Kuntze]

Description. The species *M. quadrifolia* is an aquatic, perennial plant with a height from 5 to 20 cm. The rhizome has a length between 0.5 m and 1 m, with a fixing root. The leaves are long petiolate with four leaflets. Sporocarps, formed on secondary pedicels, are elliptical, laterally flattened, and initially hairy, later becoming glabrous, horizontally oriented, and provided with two small teeth (Ţopa et al. 1952, Ciocârlan 2009). This aquatic plant has two types of leaves (Ţopa et al. 1952, Janiak et al. 2014): aquatic plants, with floating leaves, with a petiole; and terrestrial plants, with erect (aerial) leaves. Reproduction occurs either sexually, i.e., through sporocarps and the release of micro and megaspores (Schneider & Pryer 2002), or vegetative reproduction, i.e., through rhizomes (Schmidt 1978, Corli et al. 2021a).

Distribution, conservation status, ecology, and coenology. *M. quadrifolia* is native to Eurasia, distributed in south-central Europe, and extends from Eurasia to tropical and temperate areas of eastern Asia and North America (Benson et al. 2004, Corli et al. 2021a). In Romania, the species was mentioned in different localities (Ţopa et al. 1952) from Crișana, Oltenia, Banat, Muntenia, Transylvania, and Dobrogea (Schneider-Binder 2014). In Dobrogea, the species was recorded in Tulcea County, at Sulina (Panțu et al. 1935), Rusca channel (Sârbu 2003), and Obretin. In DBRR, the species was identified at Mila 28 in the Rusca channel, Sf. Gheorghe, Vulturu, Mila 26, and Sulina (Tulcea County).

Globally, the species is included in the "Least Concern" category (Gupta 2011). At the European level, it is included in the "Vulnerable" category (Christenhusz et al. 2017), and at the European Union level, the species is included in the "Near Threatened" category (EEA 2024b). In Romania, the species is considered "Vulnerable" (Oltean et al. 1994, Dihoru & Dihoru 1994, Witkowski et al. 2003, Oprea 2005) or "Endangered" (Boșcaiu et al. 1994). For the DDBR territory, the species was considered "Vulnerable" (Oțel 2000). *M. qudrifolia* grows in various natural and artificial habitats (Hulina 1993). These habitats include the edges of ponds, lakes or rivers (Johnson 1986), standing water (Strat 2012), temporary ponds (Corli et al. 2021b) with fish (Schneider-Binder 2014), freshwater (Bolqvadze et al. 2016), artificial lakes (Conti et al. 1992), rivers (Corli et al. 2021b), marshes (Ciocârlan 2009), etc. The critical low-temperature threshold for its growth is -30 °C (Janiak et al. 2014). The soils in which the species grows are muddy, clay-sandy, or sandy (Oberdorfer 2001), but they also grow in marshy soils, rich in organic matter (Dehondt et al. 2005), etc. The decline of the species *M. qudrifolia* was caused by human activities (Corli et al. 2021a). These activities determine the loss and degradation of habitats (Schneider-Binder 2014). The systematic use of herbicides has led to a dramatic decline of *M. quadrifolia* in European Mediterranean countries (Corli et al. 2021b). Eutrophication and water pollution are other causes of the decline of the species' populations (Schneider-Binder 2014, Corli et al. 2021a). In the Rusca area, specifically at Mila 28, the population ceased to exist due to the weedicide used on site. However, we managed to transplant individuals to various sites near the current ones (Litcov channel, Sulina, Maliuc, Letea); in the same plant communities, a much lower number of specimens were found, and the number of individuals was stable. The sites are under five-year observation. At Vai de Ei, Mila 26, the species covered a large part of the area where the species was found. Also, various temporary constructions were set up at Sulina, where the species is present, thus destroying 40% of the surface. *M. quadrifolia* was identified in Vulturu, Sf. Gheorghe, and Sulina (Tulcea County). It was observed that the taxon is rare in terms of phytocoenotic affinity and was identified in the following associations: *Artemisio santonici-Juncetum maritimi* Šeljag-Sosonko et al. 2000, *Typhetum angustifoliae* Pign. 1953, *Pulicario vulgaris-Menthetum pulegii* Slavnić 1951, *Scirpo-Phragmitetum* W. Koch 1926, *Limosello-Eleocharitetum acicularis* Wendelberg-Zelinka 1952. At local level, the invasive species *Elodea nuttallii* (Planch.) H. St. John and *Paspalum distichum* L. replace *M. quadrifolia*. Limiting factors for the species' survival include the application of agricultural chemicals. These chemicals can adversely affect the growth and development of the species. Also, the unclogging operations contribute to modifying the *M. quadrifolia* habitat. The soil material resulting from these processes is often deposited on the banks, including where this species is found, which can disturb the natural balance of the area and the availability of living space for plants. Another important limiting factor is the desiccation of the habitat by lowering the water table, a condition that directly affects *M. quadrifolia*, a species adapted to humid environments. Falling water levels can significantly reduce the area available for this fern to grow, thus limiting its ability to reproduce and survive.

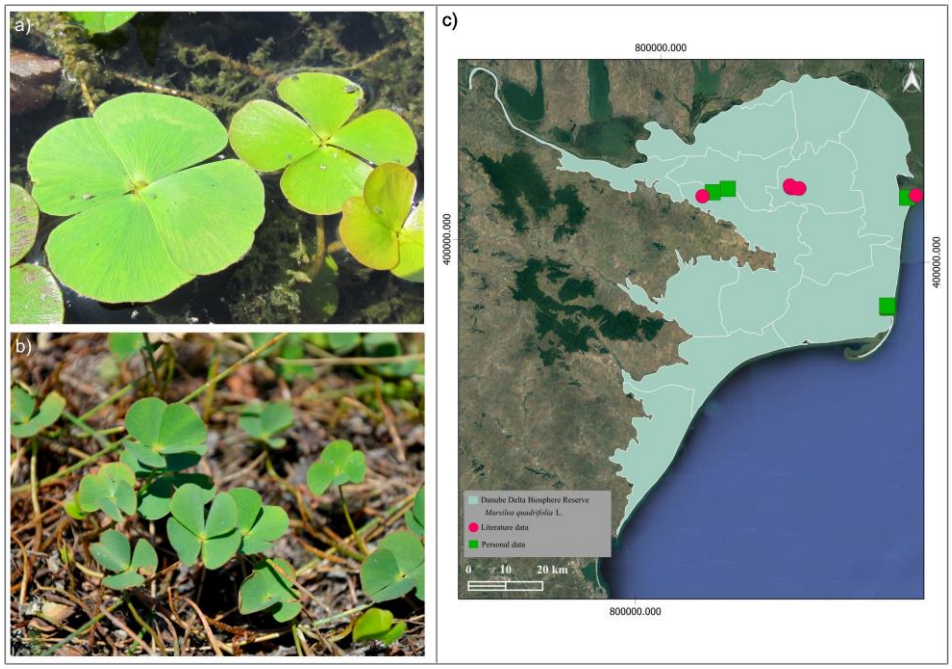

Fig. 3. *Marsilea quadrifolia*: a) leaves – detail (©Mihai Doroftei); b) leaves – habitus (©Simona Chirilă); c) the distribution of the species in the DDBR (©Simona Chirilă).

At the site level, *M. quadrifolia* was encountered in two plant communities, being framed in two Natura 2000 habitats as follows:

- 1410 Mediterranean salt meadows (*Juncetalia maritimi*) with *Artemisio santonici-Juncetum maritimi* Šeljag-Sosonko et al. 2000 – 22 out of 30 relevés (73%), the species is considered frequent;
- 3130 Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or *Isoëto-Nanojuncetea* with *Limosello-Eleocharitetum acicularis* Wendelberg-Zelinka 1952 – 8 out of 21 relevés (38%) the species is considered rare.

Other plant communities that do not correspond to a Natura 2000 habitat are *Typhetum angustifoliae* Pign. 1953 – 10 out of 38 relevés (26%), *Pulicario vulgaris-Menthetum pulegii* Slavnić 1951 – 4 out of 16 relevés (25%) and *Scirpo-Phragmitetum* W. Koch 1926 – 9 out of 41 relevés (21%), the species is considered rare.

***Trapa natans* var. *natans* L.** – Lythraceae J. St.-Hil. [Syn: *Trapa muzzanensis* Jäggi]

Description. *T. natans* var. *natans* is an annual aquatic species with a length from 0.5 to 1 m. The flowers are white, and the sepals thicken after flowering and turn into thorns. Two types of leaves can be distinguished on the submerged stem: petiolate floating leaves with rhombic lamina and swollen petiole, arranged in a rosette, and submerged, sessile, opposite, pectinate-sectate leaves. In the axils of emerging leaves, bisexual, solitary flowers with white petals develop (Ţopa et al. 1957, Ciocârlan 2009). The fruit shows between the 4 horns and 4 prominent tubercules (Ciocârlan 2009,

Sinjushin 2018). The crown of the fruit is well developed, deep, and has an obvious neck (Sârbu et al. 2013).

Distribution, conservation status, ecology, and coenology. Globally, the species is distributed in Eastern Europe (Ciocârlan 2011) and South Asia (Frey et al. 2017). In Romania, the species was recorded in Dobrogea, Tulcea County (Sârbu et al. 2013). For the DDBR territory, the species was recorded at Mila 36 (Ciocârlan 2001) and Mila 23 (Fig. 4). Among the factors restricting its distribution, the dredging activities stand out prominently. The material generated from dredging is frequently deposited along the banks where this species exists. Such actions can adversely impact the plant's natural habitat, leading to disturbances in the ecological equilibrium of the area. It was observed that the taxon is rare in terms of phytocoenotic affinity and was identified in the following associations: *Nymphaeetum albo-candidae* (Hejny 1950) Passarge 1957 subass. *nymphaeetosum candidae* Ștefan et al. 1997, *Trapo-Nymphoidetum* Oberd. 1957 and *Trapetum natantis* V. Kárpáti 1963.

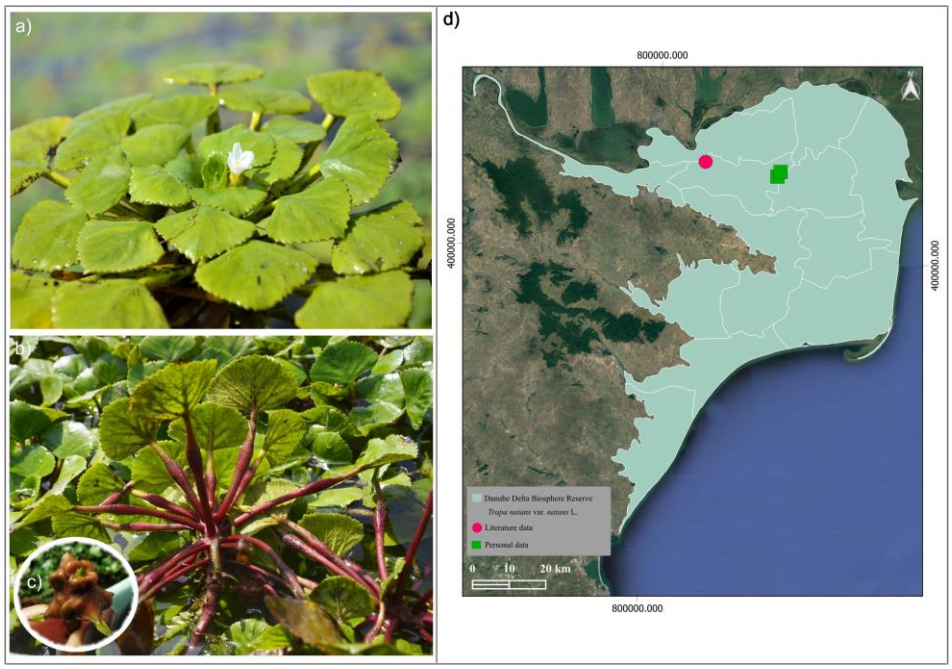

Fig. 4. *Trapa natans* var. *natans*: a) in the flowering stage; b) leaves and petiole; c) fruit – spiny horns and prominent tubercules in them; d) the distribution of the species in the DDBR (©Simona Chirilă).

At the site level, *T. natans* var. *natans* occurs in three plant communities belonging to Natura 2000 habitat 3160 Natural dystrophic lakes and ponds: *Nymphaeetum albo-candidae* (Hejny 1950) Passarge 1957 subass. *nymphaeetosum candidae* Ștefan et al. 1997 plant community – 12 out of 29 relevés (41%), the species is constantly present; *Trapo-Nymphoidetum* Oberd. 1957 – 19 out of 36 relevés (52%), the

species is considered frequent; *Trapetum natantis* V. Kárpáti 1963 – 6 out of 28 relevés (21%), the species is considered rare.

Conclusions

The analyzed taxa are rare for the Danube Delta Biosphere Reserve territory. These species demonstrate remarkable adaptability to their specific environments. Dispersal mechanisms such as myrmecochory and epizoochory are essential in their geographic distribution. Human activities, including tourism development, intensive agriculture, grazing, soil compaction, and non-native species, pose significant threats to the survival of the species. Conservation of the species requires concrete actions, such as protecting and restoring habitats, controlling invasive species, limiting the impact of human activities, and, in specific cases, transplanting individuals to safer habitats.

C. soboliferum is considered rare in the associations *Secali sylvestris-Alyssetum borzeani*, *Limonio bellidifolii-Halocnemetum strobilacei*, and *Ephedro-Caricetum colchicae*, and *Puccinellietum limosae* subass. *elymetosum elongati*, and frequent in the associations *Artemisio santonici-Juncetum maritimi* and *Agrostio maeoticae-Scirpoidetum holoschoeni* subass. *aperetosum maritimae*.

M. quadrifolia is considered rare in the associations *Typhetum angustifoliae*, *Pulicario vulgaris-Menthetum pulegii*, and *Scirpo-Phragmitetum*, and frequent in the association *Artemisio santonici-Juncetum maritimi*.

T. natans var. *natans* is considered rare in the associations *Trapetum natantis* and *Nymphaeetum albo-candidae* subass. *nymphaetosum candidae*, and frequent in the *Trapo-Nymphoidetum* association.

Acknowledgments. This study is an outcome of the project "*Measures to ensure a favorable protection and conservation status of endangered habitats and species in the DDBR in an international context*" SMIS code 123621. Project financed by the Large Infrastructure Operational Program (POIM) /178/4/1/Increasing the protection and conservation of biodiversity and restoration of degraded ecosystems.

Table 1. Summary of the taxa phytocoenotic affinities and population status in DDBR

Natura 2000 habitats cover (%) in DDBR	Plant community	Phytocoenotic affinitiy	GPS coordinates	Average no. of individuals per m^2	Limiting factors	Population status	Sites	Habitat cover in DDBR (%)
Colchicum soboliferum								
1410 Mediterranean salt meadows (*Juncetalia maritimi*)	*Artemisio santonici-Juncetum maritimi*	62%	44.264177 28.450189	89	Overgrazing, vegetation trampling	Stable	Vadu	0.808
1530* Pannonic salt steppes and salt-marshes	*Puccinellietum limosae* subass. *elymetosum elongati*	31%	44.265462 28.451797	61	Overgrazing, vegetation trampling	Decreasing	Vadu	0.029
	Limonio bellidifolii-Halocnemetum strobilacei	14%	44.271039 28.451642	20			Caraorman	
2110 Embryonic shifting dunes	*Secali sylvestris-Alyssetum borzeani*	21%	45.015572 29.234992	42	Other plant species' competitors	Stable	Letea	0.182
			45.195354 29.301672	38				
			44.454444 28.771663	140	Overgrazing, vegetation trampling		Vadu	
			44.321274 28.454826	18			Histria	
2130* Fixed coastal dunes with herbaceous	*Ephedro-Caricetum colchicae*	23%	45.025498 29.231231	36	Other plant species' competitors		Caraorman	0.626

Natura 2000 habitats cover (%) in DDBR	Plant community	Phytocoenotic affinitiy	GPS coordinates	Average no. of individuals per m^2	Limiting factors	Population status	Sites	Habitat cover in DDBR (%)
vegetation (grey dunes)			45.231802 29.314916	28		Stable	Letea	
			44.275303 28.475321	121		Decreasing	Vadu	
	Agrostio maeoticae-Scirpoidetum holoschoeni - aperetosum maritimae	56%	44.294370 28.483090	136	Overgrazing, vegetation trampling	Stable	Vadu	
Marsilea quadrifolia								
1410 Mediterranean salt meadows (*Juncetalia maritimi*)	*Artemisio santonici-Juncetum maritimi*	73%	44.892400 29.605372	281	Drying of the area by lowering the water level where the *Marsilea quadrifolia* species grows	Stable	Sf. Gheorghe	0.808
3130 Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and *Isoëto-Nanojuncetea*	*Limosello-Eleocharitetum acicularis*	38%	45.168542 29.012608	92	Unclogging, the material from unclogging is deposited on the river bank where the species exists.	Decreasing	Vulturu	0.008

Natura 2000 habitats cover (%) in DDBR	**Plant community**	**Phytocoenotic affinitiy**	**GPS coordinates**	**Average no. of individuals per m²**	**Limiting factors**	**Populati on status**	**Sites**	**Habitat cover in DDBR (%)**
-	*Scirpo-Phragmitetum*	21%	45.100521 29.005852	88	Spraying with chemicals from agriculture		Mila 28	
-	*Typhetum angustifoliae*	26%	45.103674 29.034909	31	Replaced by the invasive species *Elodea canadensis* and *Paspalulm paspalodes*		Mila 26	
-	*Pulicario vulgaris-Menthetum pulegii*	25%	45.155667 29.668681	139	Unclogging, the material from unclogging is deposited on the river bank where the species exists.		Sulina	
Trapa natans var. *natans*								
3160 Natural dystrophic lakes and ponds	*Nymphaeetum albo-candidae* subass. *nymphaeetosum candidae*	41%	45.130704 29.135216	6	Unclogging, the material from the unclogging is deposited on the shore where the species exists	Decreasing	Mila 23	0.944
	Trapo-Nymphoidetum	52%	45.125141 29.135642	11				
	Trapetum natantis	21%	45.218047 29.229717	9				

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Acta Horti Bot. Bucurest. 2024, **50**: 41-58
DOI: 10.62229/ahbb.2024.50/3

URBAN FLORA: NEW REPORTS FOR BUCHAREST'S FLORA

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Abstract: The concept of urban flora refers to the plant life that exists within city environments, encompassing the types of plants found in urban areas and how they interact with the unique challenges and conditions here (e.g. anthropic habitats with limited and controlled space, pollution, heat, drought), which can favour some species and restrict others. The first references to the Bucharest's flora date from 1876, and since then the dynamics of the number of species registers a continuum. As a result of the implementation of "UrbFloraBuc" project during 2023-2024, we report 12 new species of which five are native and seven are allochthonous, and data on their distribution and habitats within the city. This study makes valuable contributions to the knowledge of Bucharest flora, emphasizing, on the one hand, the importance of the urban environment as a conservation space for rare (native) species, and on the other hand, raising an alarm signal on the need for an early detection of the allochthonous species, to the extent that the latter could become problematic in the urban environment.
Keywords: Romania, native plants, alien plants, biodiversity, autochthonous, allochthonous

Received: 21 October 2024 / Accepted: 30 October 2024

Introduction

The urbanization process is often associated with a low biodiversity, with a reduced number of plant and animal species, and a uniformity of them (Goddard et al. 2010). However, habitats in the urban environment can provide favourable conditions for a number of species, whether native or alien (Sánchez & Lara 2024). The allochthonous flora is mostly represented by ornamental plants (Mehraj et al. 2021), but some can pose health or economic problems (Rai & Singh 2020). The native flora of cities is more commonly represented by plants in the weed category (Aronson et al. 2014), but rarities that need to be protected can also appear (McKinney 2008). Thus, the knowledge of urban flora is of particular importance both from the perspective of biodiversity conservation and from the social one (Niemelä 1999).

Data on Bucharest's flora has been published by Brândză (1876, 1879-1883), Grecescu (1880, 1898), Panţu (1908, 1909, 1910, 1912, 1931), Morariu (1937, 1939, 1941, 1943, 1944, 1946, 1949, 1960), Săvulescu (1952-1972), Nagodă (2015). Recently, Nagodă et al. (2013) and Anastasiu et al. (2017) published data regarding flora from Natural Park Văcărești, a natural protected area located very close of the central area of Bucharest.

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As part of the project "Urban flora and its characteristics in Bucharest and surroundings (UrbFloraBuc)", funded under the ICUB GRANTS FOR YOUNG RESEARCHERS program, numerous plants, both native and alien, were inventoried in Bucharest during 2023-2024. In this paper we provide the distribution data of the species for which there have been no reports so far, as well as information on the habitats in which they have been identified. We also discuss the source of these plants, but also the survival prospects of the identified populations. We hope that our data will not only be meant to complete the floristic list of Bucharest but will also contribute to increasing awareness of the need to protect urban biodiversity.

Material and methods

During the years 2023 and 2024, we carried out an extensive process of inventorying the flora in Bucharest, with the main purpose of assessing the plant diversity of a capital city that has expanded and developed a lot in recent decades.

Bucharest, with a surface of 240 km^2, is located in the Romanian Plain and crossed by two rivers: Dâmbovița and Colentina (Fig. 1). The average altitude is 85 m. The climate is temperate – continental. The highest annual average temperature for the period 1901-2000 was 22.9ºC, recorded in July, and the average monthly minimum temperature was -2.2ºC, in January. In 2022, the average monthly maximum temperature was 25.7ºC, and the average monthly minimum temperature was 2ºC, also recorded for January. Regarding precipitation, the annual average was 502.7 mm for the period 1901-2000 and 408.1 mm for 2022 (Andrei 2024).

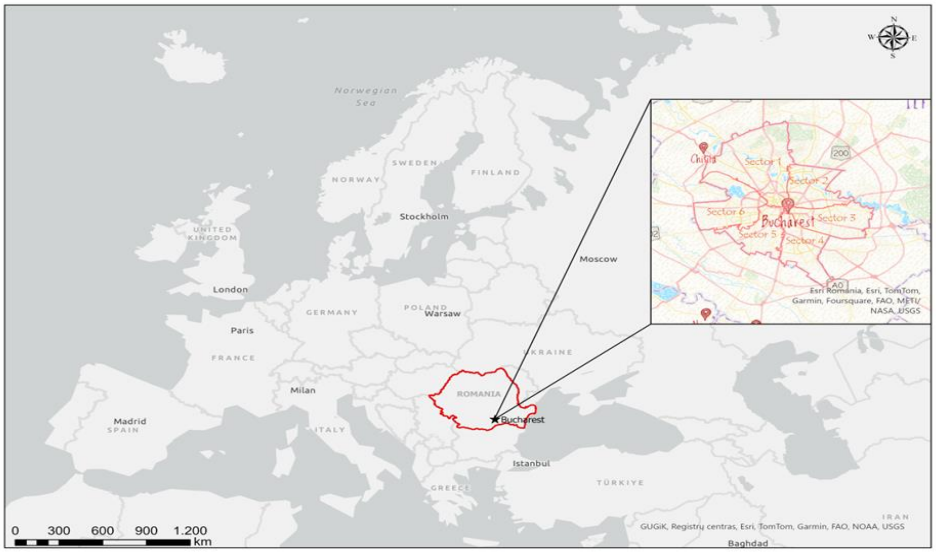

Fig. 1. Bucharest's geographical position in Europe and Romania, and its sector division

The surveys focused on different areas of Bucharest, such as the city centre, major boulevards, residential neighbourhoods, parks, Botanic Garden "D. Brandza", and university campuses. The inventory period spanned from March to October.

The nomenclature is consistent with the Plants of the World Online database (2024).

The collected vouchers are stored in the Herbarium of the Botanic Garden "D. Brandza" of the University of Bucharest (BUC).

Results and discussion

During the urban flora inventory activities in Bucharest, carried out between 2023-2024, we identified 12 spontaneous and subspontaneous taxa that have not been reported so far from this city. Of these, five are autochthonous (*Cardamine flexuosa*, *Cephalanthera damasonium*, *Orchis purpurea*, *Paeonia peregrina*, *Sagina apetala* subsp. *apetala*), and seven are allochthonous (*Claytonia perfoliata*, *Dysphania pumilio*, *Eclipta prostrata*, *Polycarpon tetraphyllum* subsp. *tetraphyllum*, *Silene pendula*, *Tulipa agenensis*, *Viola sororia*).

Autochthonous plants:

Cardamine flexuosa With. (C. *sylvatica* Link) (Brassicaceae) (Fig. 2) is an annual or biennial plant, frequently spread on moist soils, poor in limestone, from the hilly to the mountainous area (Sârbu et al. 2013). According to the distribution data provided by Oprea (2005), the plant has not been reported from Bucharest and the counties of southern and southeastern Romania. Globally, the native distribution includes Europe, Türkiye, Iran, and North Africa (POWO 2024). The species is introduced in areas of Asia, America, southern Africa, eastern Australia (POWO 2024).

Fig. 2. *Cardamine flexuosa*, detail with leaves, flowers, fruits (© Paulina Anastasiu)

Fig. 3. Recently arranged horticultural residential area, where *Cardamine flexuosa* was recorded (© Paulina Anastasiu)

During 2023, we identified the plant in several large pots in which ornamental trees and shrubs were grown, placed in a new residential area in the south of Bucharest – AFI Tech Park, Sector 5 (Progresului Str.) (Fig. 3). It seems that the species appears predominantly in new residential areas, a second place where it was present being in a residential neighbourhood in Sector 1, in landscaped green spaces. The source is most likely the soil used for growing ornamental plants. The species will be able to survive as long as it finds the necessary humidity conditions, being a wetland-loving species.

Cephalanthera damasonium (Mill.) Druce (Orchidaceae) is a perennial plant with native distribution in Europe, North Africa (Algeria), Türkiye, Palestine, Lebanon-Syria, Iran, North Caucasus, Transcaucasus, South-Central China, East Himalayas, Myanmar (POWO 2024). In Romania, it is common in forest habitats (Sârbu et al. 2013). Oltean et al. (1994) include *Cephalanthera damasonium* in the Red List with status "nt" – not threatened.

Although it was mentioned from forests near Bucharest (e.g. Pustnicu forest, according to Paucă et al. 1972), the plant was not reported for areas in the city.

Fig. 4. *Cephalanthera damasonium* in Herăstrău Park
(© Paulina Anastasiu)

Fig. 5. *Cephalanthera damasonium* in a garden of a block of flats, in Sector 6
(© Mihaela Urziceanu)

In recent years, *Cephalanthera damasonium* can be seen as spontaneous in the Botanic Garden "D. Brandza" of the University of Bucharest, where it has a subpopulation of dozens of specimens. In 2023 we found two specimens of *Cephalanthera damasonium* in Herăstrău Park (Fig. 4), in an area planted mainly with native trees (hornbeams, maples, oaks, linden). In 2024 we found numerous individuals of *Cephalanthera damasonium* in the same park. We have also observed it in the gardens of some blocks of flats in Sector 6, with a significant population of over 100

specimens (Fig. 5). The population of *Cephalanthera damasonium* in Bucharest has a real chance of survival if the care works of spaces with woody vegetation, such as those in the Botanic Garden and the Herăstrău Park, will not involve mowing or pulling plants from the herbaceous carpet.

Orchis purpurea Huds. (Orchidaceae) is a sporadic perennial plant of forest habitats from lowland and hilly areas (Sârbu et al. 2013). According to POWO (2024), the native range covers Europe and Algerie. This orchid is reported from forests near Bucharest, respectively in Ilfov County: Otopeni, Chitila, Mogoșoaia, Cernica, Pasărea, Pustnicu, Ciolpani, Buftea (Paucă et al. 1972).

Fig. 6. *Orchis purpurea* in Botanic Garden
"D. Brandza", neglected places (© Paulina Anastasiu)

In Bucharest, it was identified by our team in the following places: (1) wild, undisturbed areas of the Botanic Garden "D. Brandza" – a specimen that was first observed in 2022 and also bloomed in 2023 (Fig. 6); (2) the courtyard of the Village Museum, a specimen found by the student Bianca Tudose, during the study for her bachelor's thesis. Care work on some spaces, especially repeated mowing to keep plants at a certain height, can affect the viability of the species in the places where it has been identified. In the Botanic Garden we stopped mowing in the area where we identified *Orchis purpurea*, so that the plant could be seen blooming in 2024 as well. Unfortunately, we did not notice more than one ripe fruit.

Paeonia peregrina Mill. (Paeoniaceae) is a Balkan species, whose range extends to the Republic of Moldova and Ukraine (POWO, 2024). In Romania, the peony grows spontaneously in the forests of the south of the country (Sârbu et al. 2013), in Dobrogea and in the southern part of Moldova (Oprea 2005). It is included in the Romanian Red List as a rare, vulnerable plant (Oltean et al. 1994). At European level, it is considered to have Least Concern status (Chadburn 2014).

Paeonia peregrina has been identified in several cemeteries in Bucharest (Evangelical Cemetery, Berceni "Buna Vestire" Cemetery, Ghencea Cemetery) (Fig. 7), being planted on graves or on the edge of cemetery alleys. The mother plants, surrounded by numerous seedlings (Fig. 8), probably come either from the Comana forest or bought from street vendors who in the past brought plants from the forests in the Romanian Plain to Bucharest. *Paeonia peregrina* has a great chance of survival in Bucharest, in places undisturbed by excessive care work. In the Botanic Garden "D. Brandza", plants introduced decades ago bloom and bear fruits, and numerous seedlings can be observed annually around the mother plants.

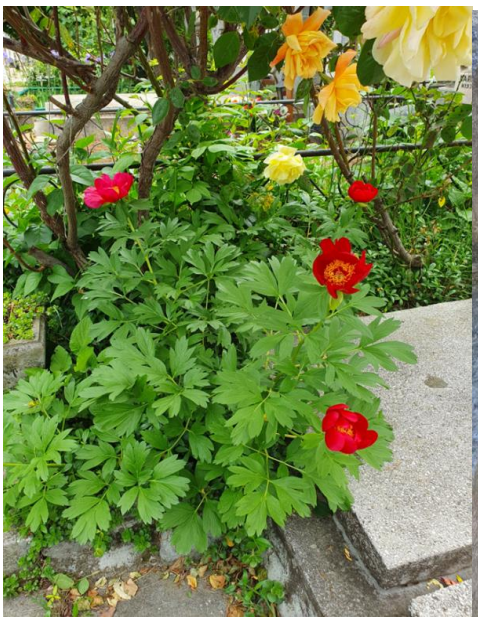

Fig. 7. *Paeonia peregrina* in "Buna Vestire" Cemetery (© Petronela Camen-Comănescu)

Fig. 8. *Paeonia peregrina* seedlings in Evangelical Cemetery (© Petronela Camen-Comănescu)

Sagina apetala Ard. subsp. ***apetala*** (Caryophyllaceae) is an annual plant that often goes unnoticed due to its small size, only 3-10 cm (Sârbu et al. 2013) (Fig. 9). The native range of this species is Europe to NW, India, Macaronesia, N. Africa to Ethiopia (POWO 2024). It is introduced in areas of America, Africa and Asia (POWO 2024).

In our country, it has been mentioned from the counties of Mehedinți, Iași, Suceava, but also from the mountains of Călimani, Maramureș, Codru-Moma (Sârbu et al. 2013). According to Sârbu et al. (2013), *Sagina apetala* subsp. *apetala* is an

Atlantic-Mediterranean species, which grows in Romania from the oak forest area to the subalpine floor. *Sagina apetala* subsp. *apetala* is included in the national red list as a rare plant (Oltean et al. 1994).

Fig. 9. *Sagina apetala* subsp. *apetala* between pavement stones in historical city centre of Bucharest – habitus (© Paulina Anastasiu)

During the research carried out in Bucharest, *S. apetala* subsp. *apetala* was recorded in the historical city centre, growing between pavement stones (Fig. 9), with a small number of flowering and fruiting specimens (Fig. 10). The species was also observed along roadsides, in sidewalk gaps, and in the Drumul Taberei neighbourhood (Sector 6) and the Vatra Luminoasă area (Sector 2). The potential source could be the soil used for the cultivation of ornamental plants, soil that does not have a controlled provenance. Considering the ecological preferences of the plant, namely high humidity and high tolerance to temperature variations (Sârbu et al. 2013), we estimate that the plant has chances of survival in the places where it has been identified.

Allochthonous plants:
Claytonia perfoliata Donn ex Willd. (Montiaceae) was observed on March 3rd, 2024 (Fig. 11), and April 15, 2024 (Fig. 12), in the cracks of a sidewalk on Căldărușani Str., Sector 1, Bucharest. In March, the plants were in the vegetative stage, and by April, they had reached the flowering and early fruiting stages, with six specimens noted. A voucher for *C. perfoliata* has been deposited at the Herbarium of the Botanic Garden "D. Brandza", University of Bucharest (BUC

Fig. 10. *Sagina apetala* subsp. *apetala* – detail with flower and fruits (© Paulina Anastasiu)

410857). *C. perfoliata* has previously been recorded in Romania only in Jibou, Sălaj County, as noted by Negrean et al. (2017) in the context of its cultivation in botanical gardens.

Claytonia perfoliata is an annual plant native to North America from where it has been introduced in several areas of Europe, in South America, New Zealand and Australia (POWO 2024). The plant is not cultivated in the collections of the Botanic Garden "D. Brandza" and does not have decorative qualities to be cultivated in parks, so we assume that the source of its presence is contaminated soil, used in horticulture.

Fig. 11. *Claytonia perfoliata* - early vegetative stage (prevernal), March 3rd, 2024 (© Mihaela Urziceanu)

Fig. 12. *Claytonia perfoliata* - flowering and fruiting stage (vernal), April 15, 2024 (© Mihaela Urziceanu)

Dysphania pumilio (R.Br.) Mosyakin & Clemants (Amaranthaceae) is an annual or perennial plant, up to 40 cm tall, with a branched and creeping habit. Unlike other species of the genus, the leaves are small (≤ 3 cm) (Ciocârlan 2009), with pronounced sinuated edges. The native distribution is in Australia and Tasmania (POWO 2024), from where it has been introduced and naturalized currently in several countries in Africa, America, Asia, and Europe (POWO 2024). Although it does not appear to be present in Romania according to the POWO database (2024), *Dysphania pumilio* was first reported in 1993 from the Danube Delta by Chytry (Sîrbu & Oprea 2011), later being mentioned both in new regions of the Danube Delta [Crișan and Partizani – on the

Sulina branch, Crapina, Maliuc-Mila 28, Sulina, Caraorman, and in Galați County (Galați, Cotul Pisicii)] (Sîrbu & Oprea 2011).

According to the recent data published within the project "Adequate Management of Invasive Species in Romania", MySmis Code 2014+120008, *Dysphania pumilio* is reported from Bucharest, historical city centre (P. Camen-Comănescu reported in 2021) (Anastasiu et al., 2023a), Danube Delta (C. Sîrbu reported in 2021) (Anastasiu et al., 2023c). According to Sîrbu et al. (2023), *Dysphania pumilio* was also found in Focșani in the year 2022, between the pavement tiles in the central zone of the city.

Fig. 13. *Dysphania pumilio* – on the pavement in the historical city centre, 2024 (© Paulina Anastasiu)

In Bucharest, it was identified in the historical old city, between pavement stones, with a small number of specimens (Fig. 13). It is quite difficult to assess the source, but most likely it is also soil used for the cultivation of ornamental plants.

Eclipta prostrata (L.) L. (Asteraceae), an annual to perennial species, native to America, is currently widespread in much of Europe, in Asia, Africa, Australia (POWO 2024). Although its range mainly comprises tropical and subtropical climatic zones, it has been distributed widely in the temperate region, which may indicate an adaptation to

increasingly evident climate change (Caković et al. 2014). For Romania, the first report was in 1998 (Dihoru & Sârbu 1998). The distribution reported so far mainly includes the Danube Delta (Anastasiu 2010), the Small Island of Brăila (Dihoru & Sârbu 1998) and the Great Pond of Brăila (Oprea 2005), the banks of the Danube in Tulcea and Galați counties (Oprea 2005).

Fig. 14. *Eclipta prostrata* observed in planters placed on the Grozăvești Bridge, Sector 6 (© Ioana-Minodora Sîrbu)

Fig. 15. *Ecipta prostrata* in the soil bale of a decorative shrub ready for planting in the Botanic Garden "D. Brandza" (© Paulina Anastasiu)

Within the project "Adequate Management of Invasive Species in Romania", MySmis Code 2014+ 120008, *Eclipta prostrata* was reported as follows: Dâmbovița County: Târgoviște (P. Camen-Comănescu reported in 2021), Călărași County: Oltenița, Borcea, Jegălia (M. Urziceanu reported in 2021), Ialomița County: Făcăieni, Bordujani, Fetești (M. Urziceanu reported in 2020, 2021), Tulcea County: Danube Delta (A. Cîșlariu reported in 2021, C. Sîrbu reported in 2022), Brăila County: Stăncuța (Camen-Comănescu & Mihai, 2022), Iași County: Iași, Palas Garden in irrigated flower beds (C. Sîrbu reported in 2022) (Anastasiu et al., 2023c, d).

In Bucharest, the plant is an unusual occurrence in the alien flora, being known in Romania in habitats from humid and sunny areas, often on the edge of watercourses. Sporadic, robust specimens in full anthesis were observed in 2023, vegetating in artificial conditions in planters on the Grozăvești Bridge (sector 6) (Fig. 14), as well as at the edge of some lawns at the intersection of Lujerului Passage and Iuliu Maniu Boulevard in Sector 6. As in the case of the mention in Iasi County, in Bucharest the source is represented by contaminated soil, used in horticulture. In this case, our

hypothesis was confirmed after receiving at the Botanic Garden "D. Brandza" a batch of shrubs grown in pots that had *Eclipta prostrata* plants at the base (Fig. 15). The source of the shrubs is a nursery in Giurgiu County, a county located on the left bank of the Danube where there are humid habitats favorable to the presence of *Eclipta prostrata*. It should be noted that *Eclipta prostrata* can reach sizes of up to 90 cm, under favourable conditions developing a rich branching with numerous fertile inflorescences between July and September. A single plant can produce between 10,000 and 17,000 achenes devoid of papus, which are spread into the environment by hydrochory and epizoochory (Sîrbu & Oprea 2011).

Polycarpon tetraphyllum (L.) L. subsp. ***tetraphyllum*** (Caryophyllaceae) is an annual, biannual or perennial (Dihoru & Negrean, 2009), psammophilous plant (Sârbu et al. 2013). The native distribution includes western and southern Europe, northern and northeastern Africa, the Arabian Peninsula, southern and southwestern Asia, but also some areas of South America (POWO 2024). In the Americas, southern Africa, southern and southeastern Asia, Australia, *Polycarpon tetraphyllum* subsp. *tetraphyllum* is considered introduced (POWO 2024). Although the plant is not included in the POWO database as being present in Romania, neither as native nor introduced, it has been reported since 1866 from Transylvania (Schur 1866, quoted by Sârbu & Oprea 2011, Răduțoiu et al. 2023), and in 1962 from Mehedinți County (Morariu 1963, quoted by Răduțoiu et al. 2023). Also, *Polycarpon tetraphyllum* subsp. *tetraphyllum* is included in the list of neophytes in Romania (Anastasiu & Negrean 2009b), and in the DAISIE database published in GBIF (GBIF Secretariat 2024). Dihoru & Negrean (2009) included *Polycarpon tetraphyllum* subsp. *tetraphyllum* in the national Red book with "critically endangered" status. Oltean et al. (1994) classified the species as rare and threatened. According to Răduțoiu et al. (2023), *Polycarpon tetraphyllum* subsp. *tetraphyllum* is reported for Romania from Mehedinți (Vârciorova, Orșova, Mraconia) and Dolj (Craiova, Calafat, Stanciului valley) counties.

Fig. 16. *Polycarpon tetraphyllum* subsp. *tetraphyllum* between pavement stones in historical city centre of Bucharest (© Paulina Anastasiu)

Fig. 17. *Polycarpon tetraphyllum* subsp. *tetraphyllum* between pavement stones in historical city centre of Bucharest (© Paulina Anastasiu)

We identified the taxon in the historical city centre of Bucharest, between pavement stones (Fig. 16, 17), with numerous specimens both in bloom and fruited. The plants have survived excellently over all seasons, not being removed by street sanitation works. We estimate the survival of the population of *Polycarpon tetraphyllum* subsp. *tetraphyllum* in the historical city centre of Bucharest and even expanding into areas offering similar conditions.

Silene pendula L. (Caryophyllaceae) is an annual plant often used as decorative. The native range of this species is limited to Italy, Bulgaria, Greece and Türkiye (POWO 2024). As naturalised species there are reports from America, Europe, Africa and Asia (POWO 2024). *Silene pendula* was observed on April 16, 2024, along Strada Clăbucet, Sector 1, Bucharest, in bloom (Fig. 18, 19). Five individuals were found in sidewalk cracks, and one in a tree pit. A voucher for *S. pendula* has been deposited at the Herbarium of Botanic Garden "D. Brandza", University of Bucharest (BUC 410.856). According to Sîrbu & Oprea (2011), *Silene pendula* has been reported in Romania from Iași (cultivated) by Fătu in 1871, and from Sibiu and Brașov by Schur in 1877, with additional mentions by Simonkai in 1886. It has been occasionally noted as subspontaneous in Lazaret-Sibiu and Brașov, typically found in fields and ruderal areas (Sîrbu & Oprea 2011). Anastasiu & Negrean (2009a) also reported its presence in Dobrogea. According to our observation in the Botanic Garden "D. Brandza", even if *Silene pendula* could be found as escaped from cultivation, it does not have the ability to form stable populations for a long time without repeated introductions.

Fig. 18. *Silene pendula* growing in tree pits along the street (© Mihaela Urziceanu)

Fig. 19. *Silene pendula* emerging from under courtyard (© Mihaela Urziceanu)

Tulipa agenensis Redouté (Liliaceae) is a species of wild tulip native to the eastern regions of the Mediterranean, especially Türkiye, Cyprus, Syria and Israel (POWO 2024). In these regions, it grows in rocky and arid habitats, adapting to harsh environmental conditions. This species of tulip has been spread through the bulb trade, due to its special beauty; is mentioned as naturalized from Bulgaria, France, Greece, Portugal, Türkiye (European part), Tunisia (POWO 2024). It has spectacular, bright red flowers with a black basal spot, with yellow borders, covering a third to a half of each tepal. It is easily recognizable due to the outer tepals of the flower, significantly longer and sharper than the inner tepals (Fig. 20). In Bucharest, the species has been identified in three cemeteries (Bellu Cemetery, Evangelical Cemetery and Berceni "Buna Vestire" Cemetery) with numerous specimens, as well as in Cișmigiu Park (Fig. 21). Being a decorative plant, we appreciate that there are chances that it will not be removed during lawn care work, so we expect the survival of the identified populations.

Fig. 20. *Tulipa agenensis* – detail of the flower (© Paulina Anastasiu)

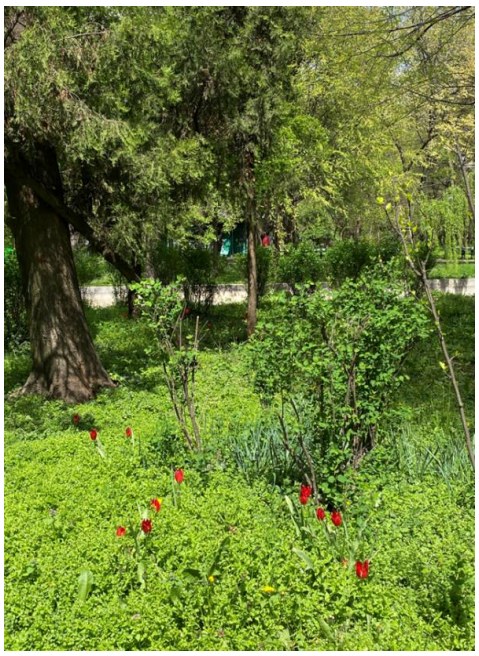

Fig. 21. *Tulipa agenensis* subspontaneous in Cișmigiu Park (© Paulina Anastasiu)

Viola sororia Willd. (Violaceae) is a perennial plant native to North America and introduced to Austria, Germany, Greece, Japan, Korea, West Siberia (POWO 2024). The three lower petals are barbed, and the neck of the corolla is white. It was cultivated as an ornamental plant in the Roman Circle of Cișmigiu Park (Sector 5) (Luca Perenne, pers. comm.), from where it became naturalised, being spread through the park in cracks in the alleys, among paving stones. For Romania, in 2020 Paul Szatmari reported *Viola sororia* var. *priceana* as subspontaneous from Pir, Satu Mare County with a population of over 500 individuals that persists for years (Anastasiu et al. 2023a).

Conclusions

The diversity of plants in the urban environment is in a continuous dynamic. Thus, following the inventories carried out between 2023 and 2024 in Bucharest, we identified several species, both native and non-native, that have settled here or that currently have the status of escaped from cultivation. Some of these species were cultivated for their ornamental qualities (e.g. *Paeonia peregrina*, *Tulipa agenensis*, *Viola sororia*), others were unintentionally introduced through the soil used for planting decorative species (e.g. *Eclipta prostrata*, *Cardamine flexuosa*). For a few other species we are not sure how they arrived in Bucharest (e.g. *Sagina apetala* subsp. *apetala*, *Polycarpon tetraphyllum* subsp. *tetraphyllum*).

Fig. 22. *Viola sororia* – habitus (© Paulina Anastasiu)

Fig. 23. *Viola sororia* among the cobblestones in Cișmigiu Park (© Paulina Anastasiu)

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Acta Horti Bot. Bucurest. 2024, **50**: 59-102
DOI: 10.62229/ahbb.2024.50/4

UNLOCKING THE ORCHIDACEAE COLLECTION OF THE "D. BRANDZA" HERBARIUM (BUC): A STUDENT-DRIVEN COLLABORATIVE EFFORT

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Abstract: This paper presents the specimens belonging to the Orchidaceae family housed in the Herbarium of the Botanic Garden "D. Brandza", University of Bucharest (BUC), in an effort to support fellow botanists and encourage new research initiatives. All specimens were digitized and the information on the labels was logged in the herbarium database, with the help of student volunteers. This collection contains 602 specimens belonging to 21 genera and 64 species, among which two species are of community interest (Natura 2000). The specimens were gathered by 74 collectors, between 1901 and 2023. The data extracted will hopefully provide valuable insights into Romania's biodiversity.
Keywords: Orchid family, Herbarium specimens, digitization, volunteers, BUC

Received: 28 October 2024 / Accepted: 04 November 2024

Introduction

This article aims to bring attention to the orchid collection within BUC Herbarium. Herbarium primarily serve as a foundation for taxonomic research, facilitating the description, identification, and classification of numerous plant species (Nualart et al. 2017, Besnard et al. 2018). Additionally, the digitization of specimens plays a crucial role in their preservation by minimizing the need for physical handling and transport (De Smedt et al. 2024). Drawing on centuries of research involving herbarium specimens collected globally over time, the digitization process marks the beginning of a new era in which discovery, synthesis, and prediction are driven by digital collection data (James et al. 2017).

The oldest herbarium can be traced back to Bologna, Italy, in the 16th century (Yadav 2020, Cristofolini 2024). Since then, herbaria not only have provided descriptive information, but also details of a spatial and temporal nature, with many contributions in other fields such as history, anthropology, ecology, and education (Nualart et al. 2017).

Nowadays, specimens are used in areas that early botanists could not have imagined: in molecular studies for DNA analysis, in phytochemistry for the protection of plants against pests, and, last but not least, they provide carbon isotope ratios for climate change studies (Funk 2003).

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As science has progressed, the need for herbaria has increased (James et al. 2017). At the moment, according to the Index Herbariorum (n.d.), no fewer than 3,567 herbaria can be identified worldwide, home to about 396 million specimens (New York Botanical Garden, n.d.).

Within the herbarium of the Botanic Garden "D. Brandza" can be found a collection of approximately 520,000 specimens of vascular plants, bryophytes, algae, lichens, and fungi (Botanic Garden "D. Brandza", n.d.). In order to enhance accessibility to the collections, not only for students or researchers, but also for the wider public, the herbarium is currently undergoing re-inventory and digitization (Botanic Garden "D. Brandza", n.d.). Similar to other small herbaria, the digitization process has been a laborious one due to a lack of staff (Harris & Marsico 2017). From handling and preparing herbarium specimens, organizing and labeling collections, verifying the authenticity of species to scanning and entering the information into a database, the help of volunteers is always welcome and sometimes necessary to the evolution of herbaria.

In our herbarium, digitization started in 2016, and to date, several specimens have been digitized, including the brown algae collection (Urziceanu et al. 2017), red algae collection (Urziceanu et al. 2018), and the threatened vascular plant collection (Camen-Comănescu et al. 2020). To these collections, we now add the Orchidaceae family, which, on a global scale, includes some of the most fascinating and diverse flowers, comprising 28,000 species and 850 genera (Gaskett & Gallagher 2018, Royal Botanic Gardens, Kew, n.d.)). Of these, 71 species in 26 genera can be identified in Romania (Panțu 1915, De Angelli & Anghelescu 2020).

The world's great herbaria house gigantic collections of orchids. Worth mentioning are the collection at Kew with over 190,000 specimens (Royal Botanic Gardens, Kew, n.d.), the Orchid Herbarium of Oakes Ames, Harvard with 131,000 specimens (Harvard University Herbaria, n.d.) and the Muséum National d'Histoire Naturelle, Paris which hosts over 92,000 specimens (Muséum National d'Histoire Naturelle, n.d.). In Romania, we have identified two other herbaria and respectively universities that published their orchid collections: "Alexandru Beldie" Herbarium (Marin Drăcea National Institute for Research-Development in Silviculture (INCDS) from Bucharest – 139 sheets, 30 species (Pleșca et al. 2021), and Herbarium of "Alexandru Ioan Cuza" University, Iași- 276 herbarium sheets, dating between 1894 and 2005 (Irimia 2012).

Material and methods

The digitization of the Orchidaceae family was carried out in 2024, over a period of two months (August and September), enabled by the first two co-authors of this article, who are student volunteers from the Faculty of Biology, University of Bucharest. This process implied organizing and logging in each herbarium sheet from the Orchidaceae family housed within the BUC Herbarium. Some sheets, due to their age, exhibited signs of deterioration and were retouched where necessary to preserve their integrity.

During the scanning process, both a ruler and a colour square were placed in vacant areas on the sheet. Specimens were scanned using the Herbscan scanner at a resolution of 600 dpi, and the resulting TIF images were transferred to external hardware for secure storage.

The data from each herbarium sheet was organized into a Microsoft Excel database, recording information directly as specified on the labels. The data, presented

in Appendix1, includes the following fields: Valid name / Taxon name / Country / Region / County / Locality / Toponym / Geographical coordinates / Altitude / Ecology / Day / Month / Year / Legit / Determinavit / Exsiccata /Herbaria / BUC Inventory number. In the database, as well as in Appendix 1, the taxon name is divided in the following fields: genus, species, author, subspecies, variety and form, separated by "/".

The valid taxonomic names were cross verified using Plants of the World Online database (POWO 2024). The valid name is listed first, followed by the name found on the label. In the case of taxon names on the herbarium sheets, no modifications were made to the label transcriptions to preserve the original data and ensure the accuracy of historical records.

The collection location details were based on the information provided on the labels. In instances where only locality data was available, additional geographic details such as region and county were researched based on the position of the respective localities. Some specimens due to their old age were labelled with county names no longer in use, in those instances, the historical name was kept. In some instances where the locality was missing but there was sufficient information in the next section to identify the location, locality was approximated. Those localities will be discussed in "Results and discussion". Toponyms were kept in the original language, while ecological descriptions were translated into English if not already written in that language or latin. For specimens where the name of the collector or identifier was missing from the label, the designation "unknown" was used. In cases where information was unreadable, it was recorded as "illegible".

The herbarium of origin was also translated into English, while the exsiccata were kept in Latin.

In cases where an inventory number was missing, a new number was assigned, and the specimen was recorded in the inventory log.

Where encountered, after the inventory number, was added the holotype and hybrid formula.

Appendix 1 lists the Orchidaceae specimens from the BUC Herbarium, with 602 specimens classified alphabetically by valid name, while Appendix 2 lists the number of specimens for each valid name (64 total). Appendix 3 depicts the number of specimens attributed to each collector, while in Appendix 4 are recorded the herbarium of provenience and exsiccata.

Lastly, Appendix 5 presents the orchid species of conservation interest in Romania based on the works of Oltean et al. (1994), Boșcaiu et al. (1994), Dihoru & Negrean (2009), Dihoru & Dihoru (1993-1994), as well IUCN Red List of Threatened Species. (n.d.) at both global and European levels, and the Habitats Directive (Mihăilescu et al. 2015). Abbreviations: Endangered (E) Vulnerable (V) Rare (R) Critically Endangered (CR) nt- not threatened V/R- vulnerable/rare LR= Lower Risk EN= Endangered LC- Least Concern NT- Near Threatened.

Results and discussion

The Orchidaceae collection housed at the BUC Herbarium comprises a total of 602 specimens, classified into 21 genera (Fig. 1) and 64 species. A notable mention is the holotype *Epipactis bucegensis* N. Anghelescu, L. Balogh et Mih. Balogh from the collection of Nora Anghelescu (Fig. 2). The genera with the greatest number of specimens are *Dactylorhiza* (102 occurrences), *Anacamptis* (98 occurrences) and *Epipactis* (65 occurrences).

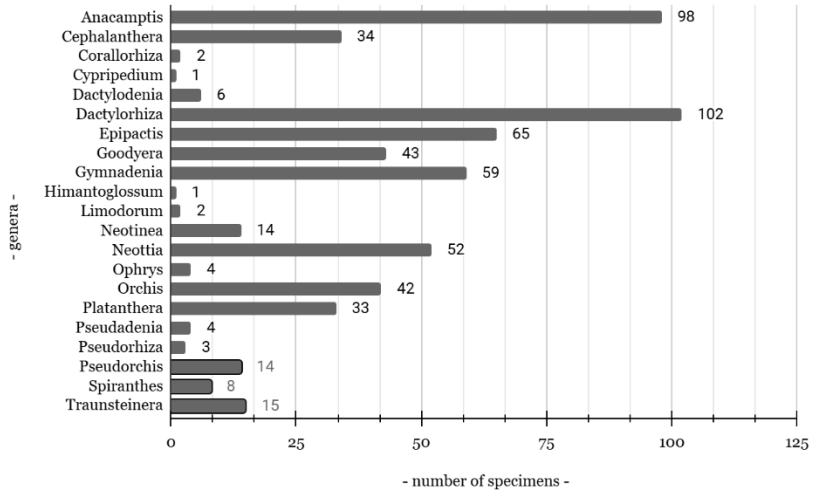

Fig. 1. The number of specimens identified in each genus

Fig. 2. Holotype – *Epipactis bucegensis*

Of the 602 specimens, 35 are lacking author identification. Additionally, several specimens were found to have been recorded under incorrect taxonomic names, including:

- "conopea" instead of *conopsea* (11 occurrences)
- "coriophorus" instead of *coriophora* (1 occurrence)
- "globosus" instead of *globosa* (2 occurrences)
- "latifolius" instead of *latifolia* (8 occurrences)
- "sambucinus" instead of *sambucina* (5 occurrences)
- "sessilifolis" instead of *sessilifolia* (1 occurrence)
- "signifier" instead of *signifera* (3 occurrences)

The three most recurent species in the collection are *Gymnadenia conopsea* (L.) R.Br. with 53 specimens, *Goodyera repens* (L.) R.Br. with 43 specimens and *Anacamptis coriophora* (L.) R.M.Bateman, Pridgeon & M.W.Chase with 37 specimens. The least common species, having been identified only once, are: *Dactylorhiza maculata* subsp. *fuchsii* (Druce) Hyl, *Dactylorhiza maculata* subsp. *saccifera* (Brongn.) Diklic, *Anacamptis palustris* (Jacq.) R.M.Bateman, Pridgeon & M.W.Chase subsp. *palustris*, *Anacamptis papilionacea* (L.) R.M.Bateman, Pridgeon & M.W.Chase, *Cypripedium calceolus* L, *Epipactis leptochila* (Godfery) Godfery subsp. *leptochila*, *Gymnadenia odoratissima* (L.) Rich., *Orchis purpurea* Huds. subsp. *purpurea*, *Orchis militaris* L. subsp. *militaris*, *Ophrys sphegodes* Mill., *Ophrys holosericea* (Burm.f.) Greuter subsp. *holosericea* and *Himantoglossum calcaratum* subsp. *rumelicum* (H.Baumann & R.Lorenz) Niketić.

We have also identified 25 hybrid specimens, all part of the collection of Nora Anghelescu, which can be studied in Appendix 1.

The collection's specimens were sourced from various countries, with the following distribution: 98.5% from Romania, 0.66% specimens from Hungary, 0.49% from the United Kingdom, 0.16% from Moldova, and 0.16% from Italy. The orchids were collected from all over Romania, distributed in all of the regions, as follows: 34.73% from Muntenia, 17.03% from Transilvania, 9.61% from Oltenia, 5.9% from Moldova, 5.56% from Crișana, 4.04% specimens from Banat, 3.7% from Maramureș, 2.69% from Dobrogea, and *0.84%* from Bucovina. The exemplars collected from regions outside of Romania are from Basarabia (Moldova), East Midlands (UK), South West England (UK) and Campania (Italy).

In many cases, the information on the labels was insufficient, therefore many specimens don't have a precise location in Romania. The region was not identified in 98 cases, whereas the county is missing from 105 sheets. The county with the most specimens in Romania is Prahova (110), with almost 3 times more than the second place (Buzău - 36 specimens). We have also determined 7 counties with names no longer in use:

- Vlașca: 5 specimens (currently Giurgiu and Teleorman)
- Turda: 3 specimens (currently Alba)
- Năsăud: 3 specimens (currently Bistrița-Năsăud)
- Trei Scaune: 2 specimens (currently Sălaj)
- Târnava Mică: 2 specimens (currently Sibiu)
- Severin: 1 specimen (currently Mehedinți)
- Făgăraș: 1 specimen (currently Sibiu and Brașov)

The locality was not written on every sheet label, therefore most of them were left empty unless there was sufficient data to be able to approximate the localities where the plant specimens were collected. The localities were approximated for the specimens

from the sheets with the following inventory numbers: BUC182612 - Greci; BUC263891 - Baia Mare; BUC344368 - Sinaia; BUC182548 & BUC182549 - Brănești; BUC310714, BUC310715, BUC310716, BUC312889, BUC310720, BUC312883, BUC312884, BUC312887, BUC312888 - Săcele; BUC315861, BUC315862 - Scropoasa; BUC180086 - Cluj; BUC176834 - Sasca Montană / Șopotu Nou; BUC182628 - Techirghiol; BUC316141 - Găiseni; BUC375359, BUC410849 - Pietroșița; BUC182639 - Mihai Bravu; BUC180052 - Bârnova; BUC410765, BUC410840, BUC410846 - Brezoi; BUC410775, BUC410790, BUC410791, BUC410803, BUC410807, BUC410813, BUC410825, BUC410826 - Scropoasa; BUC410823 - Runcu.

The temporal distribution was also analysed (Fig. 3 & Fig. 4). The peak period for orchid collection was June, accounting for 186 specimens, while the decade with the most collections (156 sheets) is 1951-1960. Based on those specimens with legible labels on which the year of collection was present, the oldest herbarium sheets date back to 1901 - *Platanthera bifolia* (L.) Rich, while the most recent ones are from 2023 - *Anacamptis* × *menosii* (Chr. Bernard et G. Fabre) H. Kretzschmar, Eccarius et H. Dietr.; × *Dactylodenia sinaiensis* N. Kigyossy, N. Anghelescu, L. Balogh et Mih. Balogh; × *Pseudadenia schweinfurthii* (Hegelm. Ex A. Kern.) P. F. Hunt (Fig. 5).

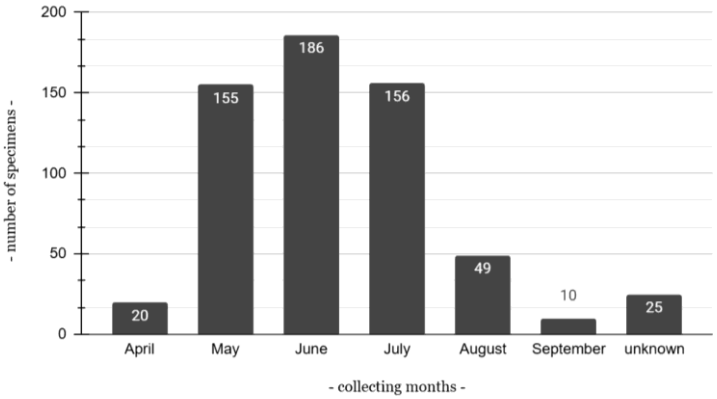

Fig. 3. Number of specimens collected each month over a period of 122 years

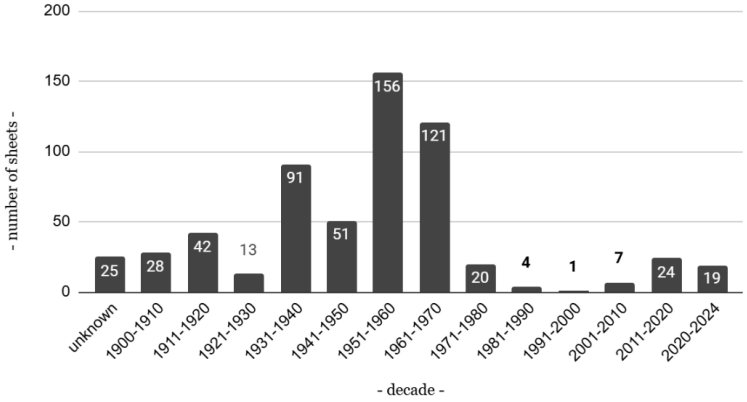

Fig. 4. Number of sheets registered every decade

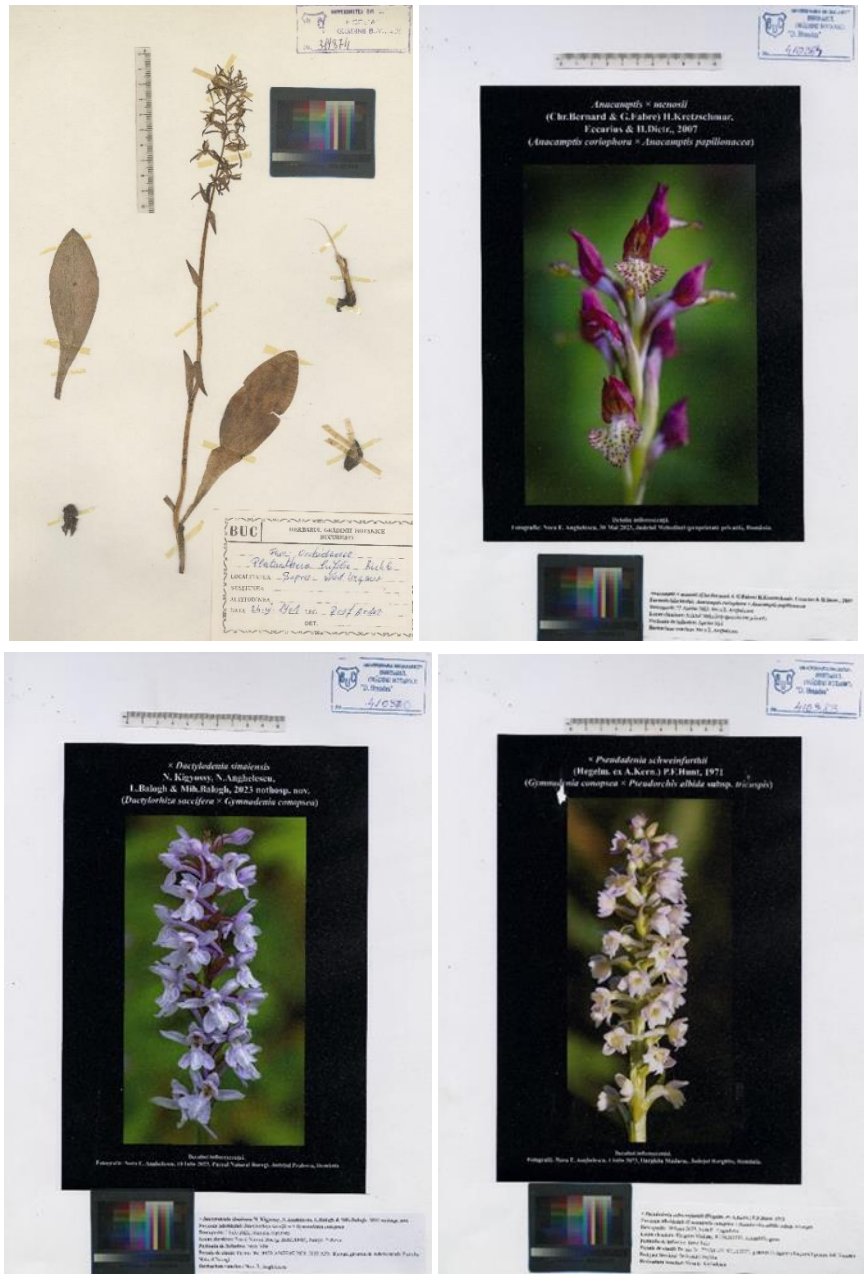

Fig. 5. The oldest and most recent herbarium sheets (top left – *Platanthera bifolia*, top right – *Anacamptis* × *menosii*, bottom left – × *Dactylodenia sinaiensis*, bottom right – × *Pseudadenia schweinfurthii*)

The five most frequent collectors, covering 41.52% of all the specimens, are P. Enculescu (114 occurrences), A. Paucă (59 occurrences), Nora Anghelescu (29 occurrences), Al. Borza (28 occurrences), M. Ruemmele (20 occurrences). Other notable collectors are I. Cristurean, D. Rădulescu, I. Morariu, G. Negrean, M. Neacșu, I.T. Tarnavschi. The complete collectors list can be studied in Appendix 3.

Botanical research often involves collaboration, as seen in the joint efforts of various scholars. Negrean frequently collaborated with other researchers, such as A. Brădeanu. Cristurean and Tr. Ștefureac (16 occurrences) both appear frequently, often working together, especially on collections involving A. Popescu and L. Lungu. Their work demonstrates the interconnectedness of researchers in advancing botanical science. L. Lungu also stands out for his work with M. Ruemmele and other contributors, indicating a robust network of scholarly exchange.

A significant portion of the contributions -103 entries- are labeled as "unknown", reflecting either unattributed work or contributions that were not clearly recorded. Additionally, 10 occurrences were listed as "illegible," meaning the names could not be deciphered from the original records. These entries point to the challenges of maintaining accurate historical records in collaborative scientific fields.

During the review of the collection, certain identification errors were corrected. These errors were corrected following a taxonomic review of BUC 319953 and BUC 182668 sheets by A. Paucă, with specimen BUC 373521 revised by I. Sârbu, and specimen BUC 182668 corrected by M. Urziceanu and P. Comănescu.

In the BUC Herbarium collection, 109 out of 602 labels (19%) include references to Exsiccata and Herbaria. There are 14 Herbaria or Exsiccata, out of which the most proeminent are Agrogeology Department Herbarium, Romanian Institute of Geology (46 entries), Flora Romaniae Exsiccata a Museo Botanico Universitatis Clusiensis Edita Cluj (16 entries) and Herbarium G. Negrean (15 entries). The entire list can be found in Appendix 4.

We have also determined the conservation status of the orchid specimens, which can be examined in greater depth in Appendix 5. Among the identified taxa, 42 are listed in the red lists, provided by Oltean et al. (1994), Boșcaiu et al. (1994), and Dihoru & Dihoru (1993-1994), and 3 taxa are included in the Red Book (Dihor & Negrean, 2009).

From the taxa listed in the red lists, the majority are considered rare, although we have also identified species classified as vulnerable and endangered. According to Boșcaiu et al. (1994), 1 taxon is vulnerable, while 6 are endangered. Based on Dihoru & Dihoru (1993-1994), 4 species are classified as vulnerable, and 4 as endangered. Additionally, 3 specimens appear in the Red Book, with specific classifications: 1 as lower risk (*Anacamptis papilionacea*), 1 as critically endangered (*Ophrys sphegodes*), and 1 as endangered (*Orchis simia* Lam.).

According to the IUCN Red List, some species in our collection have global (11 occurrences) and European (34 occurrences) conservation classifications, with varying conservation statuses. At the European level, 2 species are classified as near threatened: *Anacamptis morio* (L.) R.M.Bateman, Pridgeon & M.W.Chase and *Cypripedium calceolus*.

Under the EU Habitats Directive 2 species were classified as being of community interest: *Cypripedium calceolus* and *Himantoglossum calcaratum* subsp. rumelicum (Fig. 6).

13 taxa have no conservation status in the mentioned bibliographic sources, as they are recently discovered taxa.

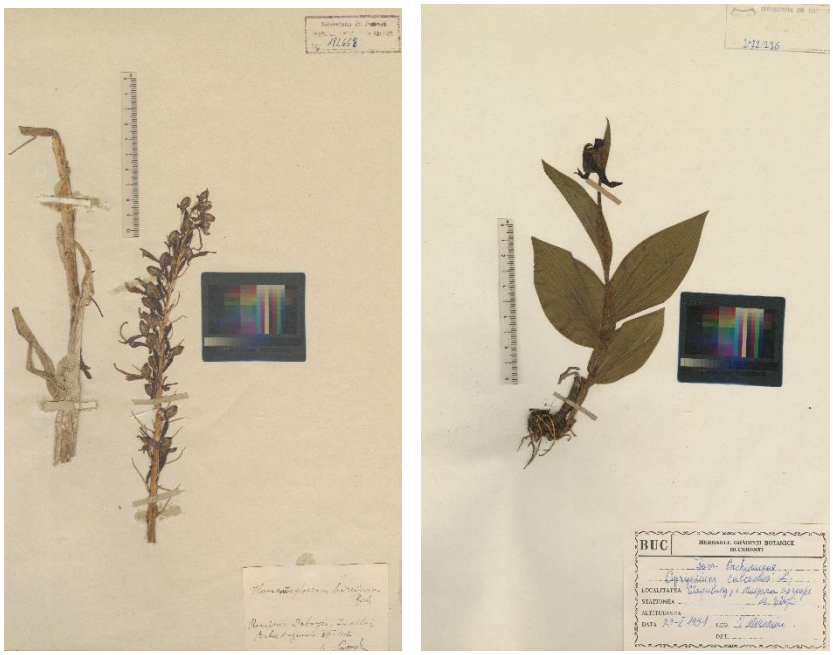

Fig. 6. The specimens of community interest (left – *Himantoglossum calcaratum* subsp. *rumelicum*; right – *Cypripedium calceolus*)

Conclusions

The orchid collection, comprising 602 specimens safely preserved in the BUC Herbarium, is an invaluable resource for Romania's biodiversity and taxonomy. With 593 specimens collected locally over more than a century, this collection highlights the country's rich botanical heritage. The digitization process, significantly supported by student volunteers from the Faculty of Biology, University of Bucharest, has enhanced the accessibility and preservation of these specimens. We hope this article contributes to furthering the conservation and appreciation of our herbarium's legacy.

Acknowledgements. This work was made possible under the guidance of Professor Paulina Anastasiu, director of the Botanic Garden "D. Brândză", University of Bucharest. We also thank biologist technician Monica Conțeanu from BUC Herbarium for supervising the scanning of the herbarium sheets.

Author Contributions. A.L.B. and B.I.A. (volunteer students) entered data into the database, scanned the sheets, and drafted the first version of the article, **contributing equally**. P.C.C. guided the digitization process and provided resources. M.U. coordinated the students' work, conceptualized the study, structured the article. Both P.C.C. and M.U. reviewed and validated the database and final manuscript.

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Appendix 1 **List of the orchid's specimens from BUC Herbarium: Valid name / Taxon name / Country / Region / County / Locality / Toponym / Geographical coordinates/ Altitude / Ecology / Day / Month / Year / Legit / Determinavit / Exsiccata / Herbaria / BUC Inventory number / HOLOTYPE / Hybrid Formula**

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / coriophora / Romania / Muntenia / Buzău / Cocârceni / meadow, Valea cu șopron / 9 / June / 2014 / Anastasiu P. / Anastasiu P. / BUC 401677

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / fragrans (Pollini) K.Richt. / Romania / Oltenia / Vâlcea / Măldărești / 10 / June / 2005 / Negrean G. / Negrean G. / Herbarium G. Negrean / BUC 400206

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Italy / Campania / Napoli / Pompeii / May / 1924 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182635

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / 30 / May / 1936 / unknown / unknown / BUC 182543

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Banat / Caraș-Severin / Sasca Montană/Șopotu Nou / Cheile Nerei-Beușnița / mesophilic grasslands / 25 / May / 1967 / illegible / illegible / Herbarium of the Natural Monuments Subcommission, Academy of the Socialist Republic of Romania, Scientific Research Base Timișoara / BUC 176834

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Maramureș / Maramureș / Fața Silvestrului / 30 / May / 1936 / Enculescu P. / Paucă A. / BUC 182540

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Maramureș / Maramureș / Fața Silvestrului / 30 / May / 1936 / Enculescu P. / Paucă A. / BUC 182541

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Moldova / Vaslui / 4 / June / 1936 / Petrescu C. et Răvăruț M. / Petrescu C. et Răvăruț M. / BUC 285198

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Moldova / Vaslui / 4 / June / 1936 / unknown / unknown / BUC 285199

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Moldova / Vaslui / Bârnova / 300 m / in foenatis prope pagum Bârnova / 4 / June / 1936 / Petrescu C. et Răvăruț M. / Petrescu C. et Răvăruț M. / Flora Romaniae Exsiccata a Museo Botanico Universitatis Clusiensis Edita (Cluj) / BUC 180050

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Muntenia / Buzău / Bălănești / forest / 31 / May / 1999 / Anastasiu P. / Anastasiu P. / BUC 410764

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Muntenia / Buzău / Gura Milii / hayfield / 16 / June / 1934 / Enculescu P. / Enculescu P. / BUC 182542

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Muntenia / Prahova / in the forest south-east of the clearing, podzol soil / 20 / May / 1913 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182633

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Muntenia / Prahova / Munții Ciucaș, Valea Berii / 28 / June / 1956 / Salmen H. / Salmen H. / BUC 315637

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Muntenia / Prahova / Sinaia / 14 / June / 1960 / M. / Popesc Popescu u M. / BUC 285197

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Muntenia / Prahova / Sinaia / 25 / June / 1959 / unknown / unknown / BUC 319778

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Muntenia / Prahova / Sinaia / Poiana Cumpătul / 29 / June / 1956 / Rădulescu D. / Rădulescu D. / BUC 273143

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Oltenia / Gorj / Tismana / hayfield / 23 / May / 1953 / Paucă A. / Paucă A. / BUC 268007

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Oltenia / Gorj / Tismana / hayfield / 23 / May / 1953 / Paucă A. / Paucă A. / BUC 268114

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Oltenia / Gorj / Tismana / hayfield / 23 / May / 1953 / Paucă A. / Paucă A. / BUC 268115

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Oltenia / Gorj / Tismana / hayfield / 23 / May / 1953 / Paucă A. / Paucă A. / BUC 268116

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Oltenia / Gorj / Tismana / hayfield / 23 / May / 1953 / Paucă A. / Paucă A. / BUC 268117

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Oltenia / Gorj / Tismana / hayfield / 23 / May / 1953 / Paucă A. / Paucă A. / BUC 268118

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Oltenia / Gorj / Tismana / hayfield / 23 / May / 1953 / Paucă A. / Paucă A. / BUC 268119

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Oltenia / Gorj / Tismana / hayfield / 25 / May / 1953 / Paucă A. / Paucă A. / BUC 268120

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Oltenia / Gorj / Tismana / hayfield / 25 / May / 1953 / Paucă A. / Paucă A. / BUC 268122

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Oltenia / Gorj / Tismana / hayfield / 25 / May / 1953 / Paucă A. / Paucă A. / BUC 268123

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Oltenia / Gorj / Tismana / hayfield / 25 / May / 1953 / Paucă A. / Paucă A. / BUC 268124

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Oltenia / Gorj / Tismana / hayfield / 25 / May / 1953 / Paucă A. / Paucă A. / BUC 268125

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Oltenia / Mehedinți / Baia de Aramă, Apa Neagră / 25 / May / 1953 / Paucă A. / Paucă A. / BUC 268008

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Oltenia / Mehedinți / Baia de Aramă, Apa Neagră / 25 / May / 1953 / Paucă A. / Paucă A. / BUC 268009

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Oltenia / Mehedinți / Comănești / in the forest east of Comănești, podzol soil / 30 / May / 1913 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182634

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Paucă A. / Paucă A. / BUC 268006

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Transilvania / Alba / Sebeș / Carpații Meridionali / 850 m / 19 / June / 1950 / Borza Al. / Borza Al. / BUC 249507

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / L. / Romania / Transilvania / Mureș / Șilea / Muntele Bokecs / 1060 m / in pratis cacuminis montis „Bokecs" / 1 / June / 1921 / Nyarady E. I. / Nyarady E. I. / Flora Romaniae Exsiccata a Museo Botanico Universitatis Clusiensis Edita (Cluj) / BUC 180051

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophora / Romania / Crișana / Satu Mare / Carei / 27 / May / 1966 / unknown / Urziceanu M. & Comănescu P. / BUC 263479

Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / coriophorus / L. / Romania / Crișana / Sălaj / Șimleul Silvaniei / in shrubs and wet meadows / Groza U. / Groza U. / BUC 375938

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / morio / Romania / Transilvania / Sălaj / Jebucu S / Dealul Riseg / 46°51'20,74"N / 23°06'22,09"E / 705 m / north-west slope, meadow / 6 / May / 2017 / Brădeanu A. et Negrean G / Brădeanu A. et Negrean G / Herbarium G. Negrean / BUC 409295

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Banat / Caraș-Severin / Anina / Margitaș farm / 20 / May / 1942 / Morariu I. / Morariu I. / BUC 209303

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Banat / Caraș-Severin / Mâtnicu Mare / Poiana Săliște / 28 / April / 1970 / Ștefănugă P. / Ștefănugă P. / BUC 271268

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Banat / Caraș-Severin / Mâtnicu Mare / Poiana Săliște / 28 / April / 1970 / Ștefănugă P. / Ștefănugă P. / BUC 271269

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Crișana / Bihor / Salonta / 7 / May / 1967 / unknown / unknown / BUC 263484

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Crișana / Bihor / Vadu Crișului / 400 m / pasture on a northern slope, pseudogleyed podzolic clay-illuvial soil / 15 / May / 1967 / Neacșu M. / Neacșu M. / BUC 260926

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Crișana / Bihor / Vadu Crișului / 400 m / pasture on a northern slope, pseudogleyed podzolic clay-illuvial soil / 15 / May / 1967 / Neacșu M. / Neacșu M. / BUC 410815

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Crișana / Sălaj / Șimleul Silvaniei / in wet meadows and hayfields / Groza U. / Groza U. / BUC 375939

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Dobrogea / Tulcea / Babadag / 24 / May / 1962 / Lungeanu I. / Lungeanu I. / BUC 374250

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Dobrogea / Tulcea / Babadag / 7 / May / 1962 / Diaconescu V. / Diaconescu V. / BUC 285193

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Dobrogea / Tulcea / Babadag / 7 / May / 1962 / Diaconescu V. / Diaconescu V. / BUC 285194

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Dobrogea / Tulcea / Babadag / 7 / May / 1962 / Diaconescu V. / Diaconescu V. / BUC 285195

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Dobrogea / Tulcea / Babadag / 7 / May / 1962 / Diaconescu V. / Diaconescu V. / BUC 285196

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Masivul Făgăraș / 1900 m / 29 / May / 1968 / Pușcariu Evd. Et Alexan M. / Pușcariu Evd. Et Alexan M. / BUC 180054

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Moldova / Iași / Bârnova / Pădurea Bârnova / 300 m / in graminosis / 13 / May / 1937 / Burduja C. et Răvăruț M. / Burduja C. et Răvăruț M. / Flora Romaniae Exsiccata a Museo Botanico Universitatis Clusiensis Edita (Cluj) / BUC 180052

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Muntenia / Argeș / Mătăsaru / 1 / May / 1959 / unknown / unknown / BUC 314440

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Muntenia / Buzău / Gura Milii / 13 / May / 1935 / Enculescu P. / Paucă A. / BUC 182608

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Muntenia / Buzău / Gura Milii / 13 / May / 1935 / Enculescu P. / Paucă A. / BUC 182609

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Muntenia / Pietroșița / Dâmbovița / 1700 m / wetland / 24 / June / 1987 / Buculei P. / Buculei P. / BUC 375359

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Muntenia / Prahova / 550m / hayfield / 25 / April / 1980 / Ouricǎ D. C. / Ouricǎ D. C. / BUC 267289

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Muntenia / Prahova / Câmpina / podzol soil / April / 1907 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182640

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Muntenia / Prahova / Săcele / Muntele Gîrbova / 9 / June / 1967 / Lungu L. et Ruemmele M. / Lungu L. et Ruemmele M. / BUC 312887

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Muntenia / Prahova / Săcele / Muntele Gîrbova / 9 / June / 1967 / Lungu L. et Ruemmele M. / Lungu L. et Ruemmele M. / BUC 312888

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Muntenia / Prahova / Sinaia / Poiana Șarînga / 14 / June / 1957 / Lungu L. / Lungu L. / BUC 171305

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Muntenia / Vlașca / Mihai Bravu / Pădurea Dadilov / east of the pond, forest soil / 19 / April / 1913 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182639

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Oltenia / Gorj / Ponoare / 600 m / in pratis / 11 / May / 1962 / Buia Al. et Cîrțu D. / Buia Al. et Cîrțu D. / „Flora Olteniae Exsiccata" Hortus Botanicus Instituti Agronomici „T. Vladimirescu" Craiova-Republica Socialistă România / BUC 176656

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Oltenia / Gorj / Ponoare / 600m / in pratis / 11 / May / 1962 / Buia Al. et Cîrțu D. / Buia Al. et Cîrțu D. / „Flora Olteniae Exsiccata" Hortus Botanicus Instituti Agronomici „T. Vladimirescu" Craiova-Republica Socialistă România / BUC 273138

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Transilvania / Năsăud / Mureșenii Bârgăului / Muntele Căsaru / 700 m / in pascuis subalpinis „Fânețele satului", solo argill / 6 / May / 1937 / Forstner S. / Forstner S. / Flora Romaniae Exsiccata a Museo Botanico Universitatis Clusiensis Edita (Cluj) / BUC 180053

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / L. / Romania / Transilvania / Năsăud / Mureșenii Bârgăului / Muntele Căsaru / 700 m / in pascuis subalpinis „Fânețele satului", solo argill / 6 / May / 1937 / Forstner S. / Forstner S. / Flora Romaniae Exsiccata a Museo Botanico Universitatis Clusiensis Edita (Cluj) / BUC 410814

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / Romania / Muntenia / Argeș / Cerbu / 5 / May / 1955 / unknown / unknown / BUC 314438

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / Romania / Muntenia / Argeș / Cerbu / 5 / May / 1955 / unknown / unknown / BUC 314439

Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / morio / Romania / unknown / unknown / BUC 284706

Anacamptis palustris (Jacq.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / laxiflora / palustris / Romania / Dobrogea / Constanța / Mamaia / humid sands / Făgăraș M. / Făgăraș M. / "Ovidius" University Constanța Herbarium / BUC 362853

Anacamptis palustris (Jacq.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / palustris / Jacq. / Romania / 4 / May / 1931 / unknown / unknown / BUC 315506

Anacamptis palustris (Jacq.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / palustris / Jacq. / Romania / Hobița / hayfield / 29 / May / 1953 / Paucă A. / Paucă A. / BUC 268854

Anacamptis palustris (Jacq.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / palustris / Jacq. / Romania / Maramureș / Maramureș / Scărișoara / swamp / 14 / May / 1966 / unknown / unknown / BUC 263480

Anacamptis palustris (Jacq.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / palustris / Jacq. / Romania / Maramureș / Maramureș / Scărișoara / swamp / 14 / May / 1966 / unknown / unknown / BUC 263481

Anacamptis palustris (Jacq.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / palustris / Jacq. / Romania / Muntenia / Buzău / Pădurea Frasinul / 9 / June / 1946 / Morariu I. / Morariu I. / BUC 344713

Anacamptis palustris (Jacq.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / palustris / Jacq. / Romania / Muntenia / Pădurea Frasinul / 25 / June / 1953 / illegible / illegible / BUC 268855

Anacamptis palustris (Jacq.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / palustris / Jacq. / Romania / Muntenia / Vlașca / Copăceni / Fluviul Argeș / 80m / in pratis humidis ad ripam fluvii Argeș, prope pagum Copăceni / 28 / May / 1920 / Grințescu G. P. / Grințescu G. P. / Flora Romaniae Exsiccata a Museo Botanico Universitatis Clusiensis Edita (Cluj) / BUC 180056

Anacamptis palustris (Jacq.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / palustris / Jacq. / Romania / Oltenia / Gorj / Țînțăreni / Lunca Gilortului / 155m / Gilort River marsh / 4 / June / 1964 / Zaharia C. I. / Zaharia C. I. / BUC 175879

Anacamptis palustris (Jacq.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / palustris / Jacq. / Romania / Oltenia / Olt / Baldovinești / 110 m / in paludosis locis prope pagum Baldovinești / 11 / July / 1963 / Păun M. / Păun M. / „Flora Olteniae Exsiccata" Hortus Botanicus Instituti Agronomici „T. Vladimirescu" Craiova-Republica Socialistă România / BUC 176657

Anacamptis palustris (Jacq.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / palustris / Jacq. / Romania / Oltenia / Olt / Baldovinești / 110 m / in paludosis locis prope pagum Baldovinești / 11 / July / 1963 / Păun M. / Păun M. / „Flora Olteniae Exsiccata" Hortus Botanicus Instituti Agronomici „T. Vladimirescu" Craiova-Republica Socialistă România / BUC 273139

Anacamptis palustris (Jacq.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / palustris / Jacq. / Romania / Oltenia / Olt / Baldovinești / 110 m / in paludosis locis prope pagum Baldovinești / 11 / July / 1963 / Păun M. / Păun M. / „Flora Olteniae Exsiccata" Hortus Botanicus Instituti Agronomici „T. Vladimirescu" Craiova-Republica Socialistă România / BUC 273140

Anacamptis palustris (Jacq.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / palustris / Jacq. / Romania / Oltenia / Olt / Baldovinești / 110 m / in paludosis locis prope pagum Baldovinești / 11 / July / 1963 / Păun M. / Păun M. / „Flora Olteniae Exsiccata" Hortus Botanicus Instituti Agronomici „T. Vladimirescu" Craiova-Republica Socialistă România / BUC 273141

Anacamptis palustris (Jacq.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / palustris / Scop. / Romania / Transilvania / Brașov / Săcele / Munții Gîrbova, Rența / 1200m / meadow / 10 / June / 1967 / Lungu L. et Ruemmele M. / Lungu L. et Ruemmele M. / BUC 312889

Anacamptis palustris subsp. elegans (Heuff.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / elegans / Heuff. / Romania / Crișana / Bihor / Borod / 380m / Shrubs at the head of the valley on the northern slope, black soil of wet meadow / 18 / June / 1968 / Neacșu M. / Neacșu M. / BUC 260930

Anacamptis palustris subsp. elegans (Heuff.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / elegans / Heuff. / Romania / Muntenia / Vlașca / Dobrotești / Lunca Neajlovului / 50 m / in the hayfield near Neajlovului floodplain, south-east of Dobrotești / 28 / May / 1920 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182613

Anacamptis palustris subsp. elegans (Heuff.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / elegans / Heuff. / Romania / Muntenia / Vlașca / Dobrotești / Lunca Neajlovului / 50 m / in the hayfield near Neajlovului floodplain, south-east of Dobrotești / 28 / May / 1920 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182614

Anacamptis palustris subsp. elegans (Heuff.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / elegans / Heuff. / Romania / Transilvania / Alba / Sebeș / 10 / June / 1950 / Borza Al. / Borza Al. / BUC 249510

Anacamptis palustris subsp. elegans (Heuff.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / elegans / Romania / Oltenia / Mehedinți / Turnu Severin / Valea Cervenița / 5 / June / 1956 / unknown / unknown / BUC 263476

Anacamptis palustris subsp. elegans (Heuff.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / laxiflora / L. / Romania / wet hayfield, in the swamp / 25 / May / 1960 / Heltmann H. / Heltmann H. / Herbarium H. Heltmann / BUC 273527

Anacamptis palustris subsp. elegans (Heuff.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / laxiflora / Lam / elegans (Heuff.) Soó / Romania / Moldova / Iași / Pârlița, Grajduri / 180 m / in vico Pârlita prope pagum Grajduri / 10 / June / 1972 / Burduja C., Diaconescu F., Rugină R., Todorescu G., Toniuc A. et Coman A. / Burduja C., Diaconescu F., Rugină R., Todorescu G., Toniuc A. et Coman A. / Flora Moldaviae et Dobrogeae Exsiccata A Horto Botanica Universitatis „Al. I. Cuza" Iassiensis Editam / BUC 320234

Anacamptis palustris subsp. elegans (Heuff.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / laxiflora / Lam / elegans (Heuff.) Soó / Romania / Muntenia / Buzău / Bălănești / marshy meadow / 8 / June / 2014 / Anastasiu P. / Anastasiu P. / BUC 401679

Anacamptis palustris subsp. elegans (Heuff.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / laxiflora / Lam / elegans (Heuff.) Soó / Romania / wet hayfield, in the swamp / 25 / May / 1960 / Heltmann H. / Heltmann H. / Herbarium H. Heltmann / BUC 273528

Anacamptis palustris subsp. elegans (Heuff.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / palustris / Jacq. / elegans (Heuff) / Romania / Transilvania / Cluj / Apahida / Valea Someşului / 305m / in pratis humidis vallis Someș, prope pagum Apahida / 2 / June / 1911 / unknown / unknown / Flora Romaniae Exsiccata a Museo Botanico Universitatis Clusiensis Edita (Cluj) / BUC 180055

Anacamptis palustris subsp. elegans (Heuff.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / palustris / Jacq. / elegans (Heuff) / Romania / Transilvania / Cluj / Apahida / Valea Someşului / 305m / in pratis humidis vallis Someș, prope pagum Apahida / 2 / June / 1911 / unknown / unknown / Flora Romaniae Exsiccata a Museo Botanico Universitatis Clusiensis Edita (Cluj) / BUC 182669

Anacamptis palustris subsp. palustris / Orchis / palustris / Jacq. / Romania / Transilvania / Făgăraș / Perșani Băi, wet hayfield / 8 / June / 1966 / Ularu P. / Ularu P. / Pedagogical Institute Brașov Herbarium / BUC 171770

Anacamptis papilionacea (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / papilionacea / L. / Romania / Mehedinți / south of Pălătești, humid podzol soil / 31 / May / 1913 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182617

Anacamptis x menosii (Chr. Bernard et G. Fabre) H. Kretzschmar, Eccarius et H. Dietr. / Anacamptis / x menosii / (Chr. Bernard et G. Fabre) H. Kretzschmar, Eccarius et H. Dietr. / Romania / Mehedinți / Private property / 27 / April / 2023 / Nora E. Anghelescu / Nora E. Anghelescu / BUC410363 / Anacamptis coriophora x Anacamptis papilionacea

Anacamptis x menosii (Chr. Bernard et G. Fabre) H. Kretzschmar, Eccarius et H. Dietr. / Anacamptis / x menosii / (Chr. Bernard et G. Fabre) H. Kretzschmar, Eccarius et H. Dietr. / Romania / Mehedinți / Private property / 27 / April / 2023 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410364 / Anacamptis coriophora xAnacamptis papilionacea

Cephalanthera damasonium (Mill.) Druce / Cephalanthera / alba / (Cr.) Simk. / Romania / Muntenia / Ilfov / Periș / forest / 22 / May / 1905 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182644

Cephalanthera damasonium (Mill.) Druce / Cephalanthera / alba / (Cr.) Simk. / Romania / Transilvania / Târnava mică / Bazna / 400 m / in fagetis mixtis prope balneas Bazna, sol-humoso / 30 / July /

1940 / Borza Al. / Borza Al. / Flora Romaniae Exsiccata a Museo Botanico Universitatis Clusiensis Edita (Cluj) / BUC 181865

Cephalanthera damasonium (Mill.) Druce / Cephalanthera / alba / (Crantz) Simonk. / Romania / Dobrogea / Tulcea / Babadag / 23-26 / May / 1962 / Popescu A.,Ionescu et Cristurean I. / Popescu A.,Ionescu et Cristurean I. / BUC 410796

Cephalanthera damasonium (Mill.) Druce / Cephalanthera / alba / (Crantz) Simonk. / Romania / Dobrogea / Tulcea / Babadag / 23-26 / May / 1962 / Popescu A.,Ionescu et Cristurean I. / Popescu A.,Ionescu et Cristurean I. / BUC 410797

Cephalanthera damasonium (Mill.) Druce / Cephalanthera / alba / Romania / Oltenia / Dolj / Craiova / illegible / brown soil / 31 / May / 1956 / unknown / unknown / BUC 319948

Cephalanthera damasonium (Mill.) Druce / Cephalanthera / damasonium / (Mill.) Druce / Romania / Transilvania / Sălaj / sat Jebucu / Dealul Riseg / 46°51'86,66"N / 26°06'09"E / 721 m / poiei in Fagetum / 6 / May / 2018 / Negrean G. / Negrean G. / Herbarium G. Negrean / BUC 408811

Cephalanthera longifolia (L.) Fritsch / Cephalanthera / longifolia / (Huds.) Fritsch / Romania / Crișana / Bihor / sat Cornițel / 500 m / beech forest, northern slope, rendzina soil / 7 / June / 1967 / Neacșu M. / Neacșu M. / BUC 260927

Cephalanthera longifolia (L.) Fritsch / Cephalanthera / longifolia / (Huds.) Fritsch / Romania / Crișana / Bihor / sat Cornițel / 500 m / beech forest, northern slope, rendzina soil / 7 / June / 1967 / Neacșu M. / Neacșu M. / BUC 410755

Cephalanthera longifolia (L.) Fritsch / Cephalanthera / longifolia / (L.) Fritsch / Romania / Banat / Caraș-Severin / 13 / June / 1943 / Borza Al. / Borza Al. / BUC 285207

Cephalanthera longifolia (L.) Fritsch / Cephalanthera / longifolia / (L.) Fritsch / Romania / Banat / Caraș-Severin / 13 / June / 1943 / Borza Al. / Borza Al. / BUC 285208

Cephalanthera longifolia (L.) Fritsch / Cephalanthera / longifolia / (L.) Fritsch / Romania / Banat / Caraș-Severin / 13 / June / 1943 / Borza Al. / Borza Al. / BUC 285209

Cephalanthera longifolia (L.) Fritsch / Cephalanthera / longifolia / (L.) Fritsch / Romania / Banat / Caraș-Severin / 13 / June / 1943 / Borza Al. / Borza Al. / BUC 285210

Cephalanthera longifolia (L.) Fritsch / Cephalanthera / longifolia / (L.) Fritsch / Romania / Banat / Caraș-Severin / Poiana Mărului / 800m / ad margines Fageti prope stationem climaticam Poiana Mărului, solo schistoso / 13 / June / 1943 / Borza Al. / Borza Al. / Flora Romaniae Exsiccata a Museo Botanico Universitatis Clusiensis (Timisoara) Edita / BUC 181866

Cephalanthera longifolia (L.) Fritsch / Cephalanthera / longifolia / (L.) Fritsch / Romania / Oltenia / Mehedinți / Greci / Pădurea Greci / 29 / July / 1950 / unknown / unknown / The Geological Committee's Herbarium / BUC 182612

Cephalanthera longifolia (L.) Fritsch / Cephalanthera / longifolia / (L.) Fritsch / Romania / Transilvania / Brașov / Timișul de Jos / 4 / June / 1955 / Lungu L. / Lungu L. / BUC 410793

Cephalanthera longifolia (L.) Fritsch / Cephalanthera / longifolia / (L.) Fritsch / Romania / Transilvania / Maramureș / Baia Mare / Valea Someșului / 24 / June / 1965 / illegible / illegible / BUC 263891

Cephalanthera longifolia (L.) Fritsch / Cephalanthera / longifolia / (L.) Fritsch / Romania / Transilvania / Sălaj / Mineu S. / 47°20'09,80"N / 23°06'24,03"E / 332 m / in silvis / 14 / July / 2016 / Negrean G. / Negrean G. / Herbarium G. Negrean / BUC 406789

Cephalanthera longifolia (L.) Fritsch / Cephalanthera / longifolia / Fritsch / Romania / Oltenia / Gorj / Tismana / limestone cliffs / 19 / May / 1953 / Paucă A. / Paucă A. / BUC 182615

Cephalanthera longifolia (L.) Fritsch / Cephalanthera / pallens / Rich / Romania / Moldova / Bacău / Valea Budului / Pădurea Dumbrava / 320 m / beech forest, podzol soil / 5 / August / 1911 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182643

Cephalanthera longifolia (L.) Fritsch / Cephalanthera / pallens / Rich / Romania / Muntenia / Vlașca / Comana / forest / 11 / May / 1905 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 321059

Cephalanthera longifolia (L.) Fritsch / Cephalanthera / pallens / Rich / Romania / Transilvania / Brașov / Iași / Pădurea Curmătura / 24 / May / 1917 / Enculescu P. / Enculescu P. / BUC 315994

Cephalanthera longifolia (L.) Fritsch / Cephalanthera / pallens / Rich / Romania / Transilvania / Brașov / Iași / Pădurea Curmătura / 24 / May / 1917 / Enculescu P. / Enculescu P. / BUC 315995

Cephalanthera longifolia (L.) Fritsch / Cephalanthera / pallens / Rich / Romania / Transilvania / Brașov / Iași / Pădurea Curmătura / 24 / May / 1917 / Enculescu P. / Enculescu P. / BUC 315996

Cephalanthera rubra (L.) Rich. / Cephalanthera / rubra / (L.) L. C. M. Rich. / Romania / Muntenia / Buzău / Gura Milii / Masivul Penteleu / Ruemmele M. / Petru Ș. / BUC 374272

Cephalanthera rubra (L.) Rich. / Cephalanthera / rubra / (L.) L. C. M. Rich. / Romania / Muntenia / Buzău / Gura Milii / Masivul Penteleu / Ruemmele M. / Petru Ș. / BUC 374273

Cephalanthera rubra (L.) Rich. / Cephalanthera / rubra / (L.) Rich. / Romania / Moldova / Neamț / 2 / July / 1960 / Lungu L. / Lungu L. / BUC 410798

Cephalanthera rubra (L.) Rich. / Cephalanthera / rubra / (L.) Rich. / Romania / Muntenia / Buzău / forest / 24 / July / 1935 / Enculescu P. / Enculescu P. / BUC 182553

Cephalanthera rubra (L.) Rich. / Cephalanthera / rubra / (L.) Rich. / Romania / Muntenia / Buzău / Gura Milii / 18 / June / 1934 / Enculescu P. / Enculescu P. / BUC 182554

Cephalanthera rubra (L.) Rich. / Cephalanthera / rubra / (L.) Rich. / Romania / Muntenia / Prahova / Malul Șipei / 17 / July / 1971 / unknown / unknown / BUC 410792

Cephalanthera rubra (L.) Rich. / Cephalanthera / rubra / (L.) Rich. / Romania / Muntenia / Prahova / Malul Șipei / 17 / July / 1971 / unknown / unknown / BUC 410834

Cephalanthera rubra (L.) Rich. / Cephalanthera / rubra / (L.) Rich. / Romania / Muntenia / Prahova / Malul Șipei / 17 / July / 1971 / unknown / unknown / BUC 410835

Cephalanthera rubra (L.) Rich. / Cephalanthera / rubra / (L.) Rich. / Romania / Muntenia / Prahova / Sinaia / illegible / by the water's edge, isolated, near spruces / 16 / July / 1971 / unknown / unknown / BUC 410836

Cephalanthera rubra (L.) Rich. / Cephalanthera / rubra / Rich. / Romania / Muntenia / Prahova / Sinaia / Valea Tufa, Munții Baiului / 8 / July / 1968 / Iordan T. / Iordan T. / BUC 374724

Cephalanthera rubra (L.) Rich. / Cephalanthera / rubra / Rich. / Romania / Muntenia / Prahova / the forest near the Șerban Voda station, podzol soil / August / 1912 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182642

Corallorhiza trifida Châtel. / Corallorhiza / trifida / Châtel. / Romania / Muntenia / Dâmbovița / Scropoasa / Lacul Scropoasa / July / 1953 / Popescu A. et Lungu L. / Popescu A. et Lungu L. / BUC 410775

Corallorhiza trifida Châtel. / Corallorhiza / trifida / Châtel. / Romania / Muntenia / Prahova / Sinaia / Piatra Arsa / July / 1959 / Cristurean I. / Cristurean I. / BUC 410778

Cypripedium calceolus L. / Cypripedium / calceolus / L. / Romania / Cîmpulung / 29 / May / 1951 / Morariu I. / Morariu I. / BUC 272236

× Dactylodenia illyrica (Hartmut Jahn et Kümpel) P.Delforge nothosubsp. siculorum L. Balogh et Mih. Balogh, N. Anghelescu, N. Kigyoss / Dactylodenia / illyrica / (Hartmut Jahn et Kümpel) P.Delforge / nothosubsp. siculorum L. Balogh et Mih. Balogh, N. Anghelescu, N. Kigyossy / Romania / Transilvania / Harghita / Mădăraș / 20 / June / 2022 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410365 / Dactylorhiza cordigerasubsp. siculorum × Gymnadenia frivaldii

× Dactylodenia illyrica (Hartmut Jahn et Kümpel) P.Delforge nothosubsp. siculorum L. Balogh et Mih. Balogh, N. Anghelescu, N. Kigyossy / Dactylodenia / illyrica / (Hartmut Jahn et Kümpel) P.Delforge / nothosubsp. siculorum L. Balogh et Mih. Balogh, N. Anghelescu, N. Kigyossy / Romania / Transilvania / Harghita / Mădăraș / 20 / June / 2022 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410366 / Dactylorhiza cordigera subsp. siculorum × Gymnadenia frivaldii

× Dactylodenia lebrunii (E. G. Camus) Peitz / Dactylodenia / lebrunii / (E. G. Camus) Peitz / Romania / Transilvania / Harghita / Vlăhița / Ținutul Secuiesc (proprietate privată) / 2 / June / 2019 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410367 / Dactylorhiza majalis × Gymnadenia conopsea

× Dactylodenia lebrunii (E. G. Camus) Peitz / Dactylodenia / lebrunii / (E. G. Camus) Peitz / Romania / Transilvania / Harghita / Vlăhița / Ținutul Secuiesc (proprietate privată) / 2 / June / 2019 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410368 / Dactylorhiza majalis × Gymnadenia conopsea

× Dactylodenia sinaiensis N. Kigyossy, N. Anghelescu, L. Balogh et Mih. Balogh / Dactylodenia / sinaiensis / N. Kigyossy, N. Anghelescu, L. Balogh et Mih. Balogh / Romania / Muntenia / Prahova / Parcul Natural Bucegi / 2 / 7 / 2023 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410369 / Dactylorhiza majalis × Gymnadenia conopsea

× Dactylodenia sinaiensis N. Kigyossy, N. Anghelescu, L. Balogh et Mih. Balogh / Dactylodenia / sinaiensis / N. Kigyossy, N. Anghelescu, L. Balogh et Mih. Balogh / Romania / Muntenia / Prahova / Parcul Natural Bucegi / 2 / 7 / 2023 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410370 / Dactylorhiza majalis × Gymnadenia conopsea

Dactylorhiza incarnata (L.) Soó / Dactylorhiza / incarnata / (L.) Soó / Romania / Munții Bucegi / June / 1946 / unknown / Urziceanu M. & Comănescu P. / BUC 319953

Dactylorhiza incarnata (L.) Soó / Orchis / incarnata / L. / Romania / Dobrogea / Constanța / Techirghiol / Lacul Techirghiol / in a small freshwater ditch near Lake Techirghiol. / 24 / May / 1908 / Enculescu P. / Enculescu P. / BUC 182628

Dactylorhiza incarnata (L.) Soó / Orchis / incarnata / L. / Romania / Transilvania / Maramureș / Hideaga / 27 / May / 1959 / unknown / unknown / BUC 314442

Dactylorhiza incarnata (L.) Soó / Orchis / incarnata / L. / Romania / Transilvania / Maramureș / Hideaga / 27 / May / 1959 / unknown / unknown / BUC 314443

Dactylorhiza incarnata subsp. incarnata / Orchis / latifolia / L. / Romania / 17 / July / 1934 / unknown / unknown / BUC 315501

Dactylorhiza incarnata subsp. incarnata / Orchis / latifolia / L. / Romania / 17 / July / 1934 / unknown / unknown / BUC 315502

Dactylorhiza incarnata subsp. incarnata / Orchis / latifolia / L. / Romania / 17 / July / 1934 / unknown / unknown / BUC 315503

Dactylorhiza incarnata subsp. incarnata / Orchis / latifolia / L. / Romania / Oltenia / Gorj / Peștișani / in the forest west of Peștișani, podzol soil / 31 / May / 1913 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182629

Dactylorhiza incarnata subsp. incarnata / Orchis / latifolius / L. / Romania / Muntenia / Prahova / Plopeni / in the forest north-west of Plopeni, podzol soil / 17 / May / 1913 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182622

Dactylorhiza incarnata subsp. incarnata / Orchis / latifolius / L. / Romania / Muntenia / Prahova / Sinaia / Poiana Cumpătul / 27 / June / 1956 / Rădulescu D. / Rădulescu D. / BUC 271266

Dactylorhiza incarnata subsp. incarnata / Orchis / latifolius / L. / Romania / Muntenia / Prahova / Sinaia / Poiana Stânei / 20 / May / 1909 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182618

Dactylorhiza incarnata subsp. incarnata / Orchis / latifolius / L. / Romania / Muntenia / Prahova / Sinaia / Poiana Stânei / 20 / May / 1909 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182623

Dactylorhiza incarnata subsp. incarnata / Orchis / latifolius / L. / Romania / Muntenia / Prahova / Sinaia / the meadow behind the resort / 27 / June / 1956 / Rădulescu D. / Rădulescu D. / BUC 273147

Dactylorhiza incarnata subsp. incarnata / Orchis / latifolius / Romania / Muntenia / Prahova / Sinaia / the meadow behind the resort / 27 / June / 1956 / Rădulescu D. / Rădulescu D. / BUC 273146

Dactylorhiza maculata (L.) Soó / Dactylorhiza / maculata / (L.) Soó / Romania / Oltenia / Mehedinți / Buseşti / Mlaștina fără fund / 44°56'54,16"N / 22°43'08,11"E / 564 m / 6 / July / 2017 / Negrean G. / Simion I. / Herbarium G. Negrean / BUC 407459

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / 1250m / high humidity hayfield / 4 / June / 1973 / unknown / unknown / BUC 342224

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / 7 / June / 1959 / unknown / unknown / BUC 319542

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Crișana / Satu Mare / Pădurea Cioace / 23 / May / 1953 / Paucă A. / Paucă A. / BUC 268011

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Crișana / Satu Mare / Pădurea Cioace / 23 / May / 1953 / Paucă A. / Paucă A. / BUC 268012

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Crișana / Satu Mare / Pădurea Cioace / 25 / May / 1953 / Paucă A. / Paucă A. / BUC 268014

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Crișana / Satu Mare / Pădurea Cioace / 25 / May / 1953 / Paucă A. / Paucă A. / BUC 268015

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Crișana / Satu Mare / Pădurea Cioace / 25 / May / 1953 / Paucă A. / Paucă A. / BUC 268016

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Moldova / Neamț / Bicaz / 5 / June / 1959 / unknown / unknown / BUC 319541

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Moldova / Neamț / Bicaz / 5 / June / 1959 / unknown / unknown / BUC 319543

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Muntenia / Argeș / Zăvoi / 16 / May / 1963 / unknown / unknown / BUC 263482

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Muntenia / Argeș / Zăvoi / 16 / May / 1963 / unknown / unknown / BUC 263483

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Muntenia / Buzău / Gura Milii / hayfield / 16 / June / 1934 / Enculescu P. / Enculescu P. / BUC 182533

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Muntenia / Giurgiu / Găiseni / Pădurea Căscioarele / 27 / June / 1971 / Brăiteanu M. / Brăiteanu M. / BUC 316141

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Muntenia / Ilfov / Bărzești / near the lake, alluvial soil / 25 / May / 1903 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182627

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Muntenia / Prahova / Buseşti / Valea Cerbului / 21 / June / 1956 / Salmen H. / Salmen H. / BUC 315638

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Muntenia / Prahova / Busești / Valea Cerbului / 21 / June / 1956 / Salmen H. / Salmen H. / BUC 315639

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Muntenia / Prahova / Munții Ciucaș, Valea Berii / left affluent of the Valea Berii / 3 / July / 1959 / Șerbănescu G. / Șerbănescu et Mitroiu N. / BUC 315930

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Muntenia / Prahova / Munții Ciucaș, Valea Berii / left affluent of the Valea Berii / 3 / July / 1959 / Șerbănescu G. / Șerbănescu et Mitroiu N. / BUC 315931

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Muntenia / Prahova / Sinaia / Poiana Republicii / 6 / June / 1957 / Rădulescu D. / Rădulescu D. / BUC 273144

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Muntenia / Prahova / Sinaia / Poiana Republicii / 6 / June / 1957 / unknown / unknown / BUC 319952

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Muntenia / Prahova / Sinaia / Poiana Șarînga / 800 m / meadow / 17 / June / 1987 / Buculei P. / Buculei P. / BUC 375358

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Oltenia / Gorj / Târgu Jiu / Pădurea Dumbrava, Valea Peștișani / 28 / May / 1953 / Paucă A. / Paucă A. / BUC 268126

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Oltenia / Gorj / Târgu Jiu / Pădurea Dumbrava, Valea Peștișani / 28 / May / 1953 / Paucă A. / Paucă A. / BUC 268127

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Oltenia / Mehedinți / illegible / podzol soil / 31 / May / 1913 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182625

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Piatra Craiului Crăpătura / 26 / May / 1968 / Heltmann H. / Heltmann H. / Herbarium H. Heltmann / BUC 273529

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Transilvania / Brașov / Piatra Craiului / meadow / 16 / June / 1967 / Ruemmele M. / Ruemmele M. / BUC 312885

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Transilvania / Brașov / Piatra Craiului / meadow / 16 / June / 1967 / Ruemmele M. / Ruemmele M. / BUC 312886

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Vârful Curse / in the shade / 30 / May / 1936 / Enculescu P. / Enculescu P. / BUC 182545

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Vârful Curse / June / 1936 / unknown / unknown / BUC 315504

Dactylorhiza maculata (L.) Soó / Orchis / maculata / L. / Romania / Vârful Curse / June / 1936 / unknown / unknown / BUC 315505

Dactylorhiza maculata (L.) Soó / Orchis / maculata / Romania / Botnariuc I. / Botnariuc I. / BUC 282481

Dactylorhiza maculata (L.) Soó / Orchis / maculata / Romania / Crișana / Satu Mare / Pădurea Cioace / 23 / May / 1953 / Paucă A. / Paucă A. / BUC 268010

Dactylorhiza maculata (L.) Soó / Orchis / maculata / Romania / Crișana / Satu Mare / Pădurea Cioace / 23 / May / 1953 / Paucă A. / Paucă A. / BUC 268013

Dactylorhiza maculata (L.) Soó / Orchis / maculata / Romania / Muntenia / Prahova / Sinaia / June / 1974 / Botnariuc I. / Botnariuc I. / BUC 282480

Dactylorhiza maculata subsp. fuchsii (Druce) Hyl. / Dactylorchis / fuchsii / (Druce) Verm. / fuchsii / United Kingdom / East Midlands / Derbyshire / Tideswell / Cressbrook Dale-Ravensdale / limestone / April / 1962 / Ball P.W., Brummitt R.K., Cook C.D.K., Gibbs P.E. / Ball P.W., Brummitt R.K., Cook C.D.K., Gibbs P.E. / Herb. Univ. Liverpol. / BUC 170758

Dactylorhiza maculata subsp. saccifera (Brongn.) Diklic / Dactylorhiza / saccifera / (Brongn.) Soó / Romania / Muntenia / Buzău / Cocârceni / wet meadow / 9 / June / 2014 / Anastasiu P. / Anastasiu P. / BUC 401678

Dactylorhiza majalis subsp. cordigera (Fr.) H.Sund. / Orchis / cordigera / Fr. / Romania / Muntenia / Buzău / Masivul Penteleu / 3 / August / 1932 / unknown / unknown / BUC 315495

Dactylorhiza majalis subsp. cordigera (Fr.) H.Sund. / Orchis / cordigera / Fr. / Romania / Muntenia / Buzău / Masivul Penteleu / 3 / August / 1932 / unknown / unknown / BUC 315496

Dactylorhiza majalis subsp. cordigera (Fr.) H.Sund. / Orchis / cordigera / Fr. / Romania / Muntenia / Buzău / Masivul Penteleu / 3 / August / 1932 / unknown / unknown / BUC 315497

Dactylorhiza majalis subsp. cordigera (Fr.) H.Sund. / Orchis / cordigera / Fr. / Romania / Muntenia / Buzău / Masivul Penteleu / 3 / August / 1932 / unknown / unknown / BUC 315498

Dactylorhiza majalis subsp. cordigera (Fr.) H.Sund. / Orchis / cordigera / Fr. / Romania / Muntenia / Buzău / Masivul Penteleu / 3 / August / 1932 / unknown / unknown / BUC 315500

Dactylorhiza majalis subsp. cordigera (Fr.) H.Sund. / Orchis / cordigera / Fr. / Romania / Muntenia / Prahova / Poiana Brașov / meadow / 9 / June / 1976 / Ularu P. / Ularu P. / Pedagogical Institute Brașov Herbarium / BUC 171816

Dactylorhiza majalis subsp. cordigera (Fr.) H.Sund. / Orchis / cordigera / Fr. / Romania / Muntenia / Prahova / Sinaia / Poiana Republicii / 6 / June / 1957 / Rădulescu D. / Rădulescu D. / BUC 273142

Dactylorhiza majalis subsp. cordigera (Fr.) H.Sund. / Orchis / cordigera / Fr. / Romania / Muntenia / Prahova / Sinaia / Poiana Republicii / 6 / June / 1957 / unknown / unknown / BUC 319950

Dactylorhiza majalis subsp. cordigera (Fr.) H.Sund. / Orchis / cordigera / Fr. / Romania / Muntenia / Prahova / Sinaia / Poiana Stânei / podzol soil / June / 1907 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182631

Dactylorhiza majalis subsp. cordigera (Fr.) H.Sund. / Orchis / cordigera / Romania / Muntenia / Buzău / Masivul Penteleu / 3 / August / 1932 / unknown / unknown / BUC 315499

Dactylorhiza x ruppertii (M. Schulze) Borsos et Soó / Dactylorhiza / ruppertii / (M. Schulze) Borsos et Soó / Romania / Transilvania / Harghita / 10 / June / 2021 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410371 / Dactylorhiza majalis × Dactylorhiza sambucina

Dactylorhiza x ruppertii (M. Schulze) Borsos et Soó / Dactylorhiza / ruppertii / (M. Schulze) Borsos et Soó / Romania / Transilvania / Harghita / 10 / June / 2021 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410372 / Dactylorhiza majalis x Dactylorhiza sambucina

Dactylorhiza x ruppertii f. rubra (M. Schulze) Borsos et Soó / Dactylorhiza / ruppertii / (M. Schulze) Borsos et Soó / rubra (M. Schulze) Borsos et Soó / Romania / Transilvania / Harghita / 10 / June / 2021 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410373 / Dactylorhiza majalis × Dactylorhiza sambucina

Dactylorhiza x ruppertii f. rubra (M. Schulze) Borsos et Soó / Dactylorhiza / ruppertii / (M. Schulze) Borsos et Soó / rubra (M. Schulze) Borsos et Soó / Romania / Transilvania / Harghita / 10 / June / 2021 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410374 / Dactylorhiza majalis × Dactylorhiza sambucina

Dactylorhiza sambucina (L.) Soó / Orchis / sambucina / L. / Romania / 1300 m / forest edge / unknown / unknown / BUC 342210

Dactylorhiza sambucina (L.) Soó / Orchis / sambucina / L. / Romania / 1300 m / forest edge / unknown / unknown / BUC 342211

Dactylorhiza sambucina (L.) Soó / Orchis / sambucina / L. / Romania / Muntenia / Buzău / Masivul Penteleu / 11 / July / 1933 / Enculescu P. / Enculescu P. / BUC 182550

Dactylorhiza sambucina (L.) Soó / Orchis / sambucina / L. / Romania / Muntenia / Prahova / Muntele Roșu, Masivul Ciucaș / 900 m / subalpine meadow / 10 / May / 1968 / Ruemmele M. et Silvia / Ruemmele M. / BUC 176146

Dactylorhiza sambucina (L.) Soó / Orchis / sambucina / L. / Romania / Muntenia / Prahova / Sinaia / Poiana Stânei / 20 / May / 1909 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182620

Dactylorhiza sambucina (L.) Soó / Orchis / sambucina / L. / Romania / Muntenia / Prahova / Sinaia / Poiana Stânei / podzol soil / 10 / May / 1907 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182641

Dactylorhiza sambucina (L.) Soó / Orchis / sambucina / L. / Romania / Oltenia / Gorj / Peștișani / in the forest west of Peștișani, podzol soil / 31 / May / 1913 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182624

Dactylorhiza sambucina (L.) Soó / Orchis / sambucina / M.Schulze / bracteata / Romania / Transilvania / Brașov / Munții Ciucaș / the hayfields from Babarunca / 17 / May / 1959 / illegible / illegible / Herbarium H. Heltmann / BUC 273530

Dactylorhiza sambucina (L.) Soó / Orchis / sambucina / Romania / Banat / Caraș-Severin / Anina / near Margitaș orchard, forest edge / unknown / unknown / Faculty of Silviculture Herbarium, Politehnica University of Bucharest / BUC 209335

Dactylorhiza sambucina (L.) Soó / Orchis / sambucinus / L. / Romania / Muntenia / Prahova / Sinaia / Izvorul Pelișorului / cohesive soil, wetland / 10 / May / 1907 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182621

Dactylorhiza sambucina (L.) Soó / Orchis / sambucinus / L. / Romania / Muntenia / Prahova / Sinaia / Poiana Republicii / 6 / June / 1957 / Rădulescu D. / Rădulescu D. / BUC 273149

Dactylorhiza sambucina (L.) Soó / Orchis / sambucinus / L. / Romania / Muntenia / Prahova / Sinaia / Poiana Republicii / 6 / June / 1957 / unknown / unknown / BUC 319951

Dactylorhiza sambucina (L.) Soó / Orchis / sambucinus / L. / Romania / Muntenia / Prahova / Sinaia / Poiana Stânei / 18 / May / 1958 / Mitroiu N. / Mitroiu N. / BUC 371832

Dactylorhiza sambucina (L.) Soó / Orchis / sambucinus / L. / Romania / Muntenia / Prahova / Sinaia / Poiana Stânei / June / 1907 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182619

Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase / Coeloglossum / viride / (L.) Hartm. / bracteatum (Richt.) / Romania / Muntenia / Buzău / Masivul Penteleu / 11 / July / 1933 / Enculescu P. / Enculescu P. / BUC 182523

Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase / Coeloglossum / viride / (L.) Hartm. / bracteatum (Richt.) / Romania / Muntenia / Dâmbovița / Viforâta / 20 / July / 1934 / unknown / unknown / BUC 182525

Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase / Coeloglossum / viride / (L.) Hartm. / bracteatum (Richt.) / Romania / Transilvania / Harghita / Deal Lacul Roșu / 14 / July / 1933 / unknown / unknown / BUC 182524

Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase / Coeloglossum / viride / (L.) Hartm. / bracteatum (Richt.) / Romania / Transilvania / Harghita / Lacul Roșu / the western hill / 13 / July / 1933 / Schuman J. / Schuman J. / BUC 182526

Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase / Coeloglossum / viride / (L.) Hartm. / bracteatum (Wild.) Richt. / Romania / Muntenia / Prahova / Munții Bucegi, Vârful Caraiman / 4 / August / 1949 / Tarnavschi I.T / Beldie / BUC 342503

Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase / Coeloglossum / viride / (L.) Hartm. / Romania / 23-31 / July / 1965 / unknown / unknown / BUC 410805

Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase / Coeloglossum / viride / (L.) Hartm. / Romania / Muntenia / Dâmbovița / Scropoasa / Lacul Scropoasa / July / 1953 / Popescu A. et Lungu L. / Popescu A. et Lungu L. / BUC 410791

Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase / Coeloglossum / viride / (L.) Hartm. / Romania / Muntenia / Dâmbovița / Scropoasa / Lacul Scropoasa / July / 1953 / Popescu A. et Lungu L. / Popescu A. et Lungu L. / BUC 410803

Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase / Coeloglossum / viride / (L.) Hartm. / Romania / Muntenia / Dâmbovița / Valea Horoabei / 8 / August / 1946 / Tarnavschi I.T / Tarnavschi I.T / BUC 283091

Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase / Coeloglossum / viride / (L.) Hartm. / Romania / Muntenia / Dâmbovița / Valea Horoabei / 8 / August / 1946 / Tarnavschi I.T / Tarnavschi I.T / BUC 283092

Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase / Coeloglossum / viride / (L.) Hartm. / Romania / Muntenia / Munții Bucegi, Vârful Caraiman / 2000 m / 21 / July / 1925 / Borza Al. / Borza Al. / BUC 249516

Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase / Coeloglossum / viride / (L.) Hartm. / Romania / Muntenia / Prahova / Munții Bucegi, Jepii Mici / 18 / August / 1963 / Popescu A. / Popescu A. / BUC 410787

Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase / Coeloglossum / viride / (L.) Hartm. / Romania / Muntenia / Prahova / Ploiești / illegible / 13 / August / 1953 / unknown / unknown / BUC 268833

Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase / Coeloglossum / viride / (L.) Hartm. / Romania / Muntenia / Prahova / Poiana Țapului, Urlătoarea / 14 / July / 1956 / unknown / unknown / BUC 410789

Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase / Coeloglossum / viride / (L.) Hartm. / Romania / Muntenia / Prahova / Sinaia / Vârful cu Dor / 21 / June / 1968 / Cristurean I. / Cristurean I. / BUC 410785

Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase / Coeloglossum / viride / (L.) Hartm. / Romania / Munții Bucegi / 16 / July / 1946 / unknown / unknown / BUC 283142

Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase / Coeloglossum / viride / (L.) Hartm. / Romania / Munții Bucegi / July / 1959 / Cristurean I. / Cristurean I. / BUC 410786

Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase / Coeloglossum / viride / (L.) Hartm. / Romania / Transilvania / Munții Sebeșului / 1 / August / 1949 / Borza Al. / Borza Al. / BUC 285211

Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase / Coeloglossum / viride / (L.) Hartm. / Romania / Transilvania / Sibiu / Lacul Iezerul Mare / 20 / July / 1960 / Ștefureac Tr. et Cristurean I. / Ștefureac Tr. et Cristurean I. / BUC 410783

Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase / Coeloglossum / viride / (L.) Hartm. / Romania / Transilvania / Sibiu / Lacul Iezerul Mare / 20 / July / 1960 / Ștefureac Tr. et Cristurean I. / Ștefureac Tr. et Cristurean I. / BUC 410804

Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase / Coeloglossum / viride / (L.) Hartm. / Romania / Transilvania / Sibiu / Lacul Iezerul Mare / 20 / July / 1960 / unknown / unknown / BUC 410788

Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase / Coeloglossum / viride / (L.) Hartm. / Romania / Transilvania / Trei Scaune / Zalău / forest / 25 / July / 1927 / Paucă A. / Paucă A. / BUC 268835

Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase / Coeloglossum / viride / (L.) Hartm. / Romania / Transilvania / Turda / Muntele Scărița-Belioara / 1200 m / 10 / June / 1950 / Trețiu Tr. / Trețiu Tr. / BUC 176662

Epipactis atrorubens (Hoffm.) Besser / Epipactis / atropurpurea / Raf. / Romania / Bucovina / Suceava / Benia / 12 / August / 1959 / Cristurean I. / Cristurean I. / BUC 410811

Epipactis atrorubens (Hoffm.) Besser / Epipactis / atropurpurea / Raf. / Romania / Moldova / Suceava / Drăgoiasa / Tinovul Mare / 30 / July / 1963 / Cristurean I. / Cristurean I. / BUC 410808

Epipactis atrorubens (Hoffm.) Besser / Epipactis / atropurpurea / Raf. / Romania / Muntenia / Ilfov / Ciolpani / 100m / in silvis / 22 / July / 1947 / Morariu I. / Morariu I. / Flora Romaniae Exsiccata A Herbario Universitatis Napocensis Edita / BUC 285206

Epipactis atrorubens (Hoffm.) Besser / Epipactis / atropurpurea / Raf. / Romania / Slătioara / 6 / August / 1958 / Ștefureac Tr. et Cristurean I. / Ștefureac Tr. et Cristurean I. / BUC 410810

Epipactis atrorubens (Hoffm.) Besser / Epipactis / atropurpurea / Raf. / Romania / Transilvania / Bistrița-Năsăud / 1600m / in sax. calc.ad „Poarta la Corongiș" / 8 / August / 1925 / Borza Al. / Borza Al. / BUC 249521

Epipactis atrorubens (Hoffm.) Besser / Epipactis / atropurpurea / Raf. / Romania / Transilvania / Carpații Meridionali, Munții Sebeșului / 780m / in Fagetis / 11 / July / 1950 / Borza Al. / Borza Al. / BUC 249522

Epipactis atrorubens (Hoffm.) Besser / Epipactis / atropurpurea / Romania / Transilvania / Brașov / Tâmpa / forest / July / 1956 / Morariu I. / Morariu I. / BUC 339919

Epipactis bucegensis N. Anghelescu, L. Balogh et Mih. Balogh / Epipactis / bucegensis / N. Anghelescu, L. Balogh et Mih. Balogh / Romania / Muntenia / Prahova / Parcul Natural Bucegi / 26 / 7 / 2009 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410375 /

Epipactis bucegensis N. Anghelescu, L. Balogh et Mih. Balogh / Epipactis / bucegensis / N. Anghelescu, L. Balogh et Mih. Balogh / Romania / Muntenia / Prahova / Parcul Natural Bucegi / 26 / 7 / 2009 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410376 /

Epipactis bucegensis N. Anghelescu, L. Balogh et Mih. Balogh / Epipactis / bucegensis / N. Anghelescu, L. Balogh et Mih. Balogh / Romania / Muntenia / Prahova / Parcul Natural Bucegi / 26 / 7 / 2009 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410377 /

Epipactis bucegensis N. Anghelescu, L. Balogh et Mih. Balogh / Epipactis / bucegensis / Romania / Muntenia / Prahova / Sinaia / Cota 1000 / meadow / 17 / June / 2022 / Nora E. Anghelescu / Nora E. Anghelescu / BUC410357 / HOLOTYPE

Epipactis helleborine subsp. helleborine / Epipactis / latifolia / (L.) All. / Romania / Crișana / Arad / Arad / Pădurea Ceala / 90m / in silvis Ciala prope oppid, solo argill / 9 / July / 1941 / Cosma C. / Cosma C. / Flora Romaniae Exsiccata a Museo Botanico Universitatis Clusiensis Edita (Cluj) / BUC 209011

Epipactis helleborine subsp. helleborine / Epipactis / latifolia / (L.) All. / Romania / Moldova / Iași / Bârnova / Dealul Repedea / 14 / July / 1958 / Ștefureac Tr. et Cristurean I. / Ștefureac Tr. et Cristurean I. / BUC 410776

Epipactis helleborine subsp. helleborine / Epipactis / latifolia / (L.) All. / Romania / Moldova / Iași / Bârnova / Dealul Repedea / 14 / July / 1958 / Ștefureac Tr. et Cristurean I. / Ștefureac Tr. et Cristurean I. / BUC 410777

Epipactis helleborine subsp. helleborine / Epipactis / latifolia / (L.) All. / Romania / Muntenia / Dâmbovița / Scropoasa / Lacul Scropoasa / July / 1953 / Cristurean I. / Cristurean I. / BUC 410813

Epipactis helleborine subsp. helleborine / Epipactis / latifolia / (L.) All. / Romania / Muntenia / Dâmbovița / Scropoasa / Lacul Scropoasa / July / 1953 / Popescu A. et Lungu L. / Popescu A. et Lungu L. / BUC 410807

Epipactis helleborine subsp. helleborine / Epipactis / latifolia / (L.) All. / Romania / Muntenia / Giurgiu / Comana / 3 / June / 1963 / Popescu A. / Popescu A. / BUC 410812

Epipactis helleborine subsp. helleborine / Epipactis / latifolia / (L.) All. / Romania / Muntenia / Ilfov / Cernica / 70 m / oak forest / 23 / June / 1957 / Cristurean I. / Cristurean I. / BUC 373011

Epipactis helleborine subsp. helleborine / Epipactis / latifolia / (L.) All. / Romania / Muntenia / Pădurea Cernica / 23 / June / 1957 / Cristurean I. / Cristurean I. / BUC 410806

Epipactis helleborine subsp. helleborine / Epipactis / latifolia / (L.) All. / Romania / Muntenia / Prahova / Sinaia / Valea Peleșului / 9 / July / 1968 / Iordan T. / Iordan T. / BUC 344368

Epipactis helleborine subsp. helleborine / Epipactis / latifolia / (L.) All. / Romania / Oltenia / Gorj / Valea Mare / 210m / near the cave / unknown / unknown / BUC 268837

Epipactis helleborine subsp. helleborine / Epipactis / latifolia / (L.) All. / Romania / Transilvania / Brașov / Timișul de Jos / 1 / August / 1955 / Tarnavschi I.T et. Tatamir N. / Tarnavschi I.T et. Tatamir N. / BUC 285026

Epipactis helleborine subsp. helleborine / Epipactis / latifolia / (L.) All. / Romania / Transilvania / Brașov / Timișul de Jos / 1 / August / 1955 / Tarnavschi I.T et. Tatamir N. / Tarnavschi I.T et. Tatamir N. / BUC 285027

Epipactis helleborine subsp. helleborine / Epipactis / latifolia / All. / Romania / Moldova / Neamț / Obcina Lacurilor / 1919 / Enculescu P. / Enculescu P. / BUC 268836

Epipactis helleborine subsp. helleborine / Epipactis / latifolia / All. / Romania / Muntenia / Ilfov / Brănești / Pădurea Pasărea / 17 / July / 1934 / Enculescu P. / Enculescu P. / BUC 182548

Epipactis helleborine subsp. helleborine / Epipactis / latifolia / All. / Romania / Muntenia / Ilfov / Brănești / Pădurea Pasărea / 17 / July / 1934 / Enculescu P. / Enculescu P. / BUC 182549

Epipactis helleborine subsp. helleborine / Epipactis / latifolia / Romania / Muntenia / Argeș / Pitești / the forest in the north of Slătioara / 1 / August / 1960 / Rema N et Șt. / Rema N et Șt. / BUC 319230

Epipactis helleborine subsp. helleborine / Epipactis / latifolia / United Kingdom / East Midlands / Derbyshire / copse beyond Perthags towards longford / 4 / August / 1906 / Linton W.R. / Linton W.R. / Herb. Univ. Liverpol. / BUC 170759

Epipactis helleborine subsp. helleborine / Epipactis / latifolius / (L.) All. / Romania / Banat / Caraș-Severin / Zăvoi / 18 / July / unknown / unknown / BUC 410799

Epipactis helleborine subsp. helleborine / Epipactis / latifolius / (L.) Druce / Romania / Muntenia / Argeș / Pitești / unknown / unknown / BUC 410809

Epipactis leptochila subsp. leptochila / Epipactis / leptochila / (Godfery) Godfery / leptochila / Romania / Transilvania / Cluj / Cheile Turzii / 46°33'50,90"N / 23°41'10,56"E / 446 m / the Hașdate creek floodplain / 12 / August / 2016 / Negrean G., Brădeanu A. / Negrean G., Brădeanu A. / Herbarium G. Negrean / BUC 406790

Epipactis microphylla (Ehrh.) Sw. / Epipactis / microphylla / (Ehrh.) Sw. / Romania / Muntenia / Prahova / Malul Șipei / 22 / July / 1971 / illegible / illegible / BUC 410828

Epipactis microphylla (Ehrh.) Sw. / Epipactis / microphylla / (Ehrh.) Sw. / Romania / Muntenia / Prahova / Sinaia / on the way to Peleș Castle / 21 / July / 1971 / unknown / unknown / BUC 410827

Epipactis microphylla (Ehrh.) Sw. / Epipactis / microphylla / Sw. / Romania / Paucă A. / Paucă A. / BUC 268832

Epipactis microphylla (Ehrh.) Sw. / Epipactis / microphylla / Sw. / Romania / Transilvania / Sălaj / Zalău / 25 / July / 1927 / Paucă A. / Paucă A. / BUC 268831

Epipactis microphylla (Ehrh.) Sw. / Epipactis / microphylla / Sw. / Romania / Transilvania / Sălaj / Zalău / 25 / July / 1927 / Paucă A. / Paucă A. / BUC 268834

Epipactis palustris (L.) Crantz / Epipactis / palustris / (L.) Crantz / Romania / Bucovina / Suceava / Bosanci / 24 / June / 1954 / Morariu I. / Morariu I. / BUC 339939

Epipactis palustris (L.) Crantz / Epipactis / palustris / (L.) Crantz / Romania / Muntenia / Buzău / Țintești / 25 / June / 1953 / Paucă A. / Paucă A. / BUC 268026

Epipactis palustris (L.) Crantz / Epipactis / palustris / (L.) Crantz / Romania / Transilvania / Brașov / Săcele / Muntele Gîrbova / 1100m / meadow / 10 / June / 1967 / Lungu L. et Ruemmele M. / Lungu L. et Ruemmele M. / BUC 310714

Epipactis palustris (L.) Crantz / Epipactis / palustris / (L.) Crantz / Romania / Transilvania / Brașov / Săcele / Muntele Gîrbova / 1100m / meadow / 10 / June / 1967 / Lungu L. et Ruemmele M. / Lungu L. et Ruemmele M. / BUC 310715

Epipactis palustris (L.) Crantz / Epipactis / palustris / (L.) Crantz / Romania / Transilvania / Brașov / Săcele / Muntele Gîrbova / 1100m / meadow / 10 / June / 1967 / Lungu L. et Ruemmele M. / Lungu L. et Ruemmele M. / BUC 310716

Epipactis palustris (L.) Crantz / Epipactis / palustris / (L.) Crantz / Romania / Transilvania / Harghita / Bilbor / 7 / July / 1961 / Ștefureac Tr. et Cristurean I. / Ștefureac Tr. et Cristurean I. / BUC 410781

Epipactis palustris (L.) Crantz / Epipactis / palustris / (L.) Crantz / Romania / Transilvania / Harghita / Bilbor / 7 / July / 1961 / Ștefureac Tr. et Cristurean I. / Ștefureac Tr. et Cristurean I. / BUC 410782

Epipactis palustris (L.) Crantz / Epipactis / palustris / (MIll.) Crantz / Romania / Muntenia / Buzău / Țintești / 25 / June / 1953 / Paucă A. / Paucă A. / BUC 268022

Epipactis palustris (L.) Crantz / Epipactis / palustris / (MIll.) Crantz / Romania / Muntenia / Buzău / Țintești / 25 / June / 1953 / Paucă A. / Paucă A. / BUC 268023

Epipactis palustris (L.) Crantz / Epipactis / palustris / (MIll.) Crantz / Romania / Muntenia / Buzău / Țintești / 25 / June / 1953 / Paucă A. / Paucă A. / BUC 268024

Epipactis palustris (L.) Crantz / Epipactis / palustris / (MIll.) Crantz / Romania / Muntenia / Buzău / Țintești / 25 / June / 1953 / Paucă A. / Paucă A. / BUC 268025

Epipactis palustris (L.) Crantz / Epipactis / palustris / (Mill.) Crantz / Romania / Muntenia / Dâmbovița / Butimanu / 12 / July / 1953 / Paucă A. / Paucă A. / BUC 268130

Epipactis palustris (L.) Crantz / Epipactis / palustris / (MIll.) Crantz / Romania / Muntenia / Vâlcea / Valea Babei / June / 1968 / Constantinescu M. / Constantinescu M. / BUC 285201

Epipactis palustris (L.) Crantz / Epipactis / palustris / (MIll.) Crantz / Romania / Muntenia / Vâlcea / Valea Babei / June / 1968 / Constantinescu M. / Constantinescu M. / BUC 285202

Epipactis palustris (L.) Crantz / Epipactis / palustris / (MIll.) Crantz / Romania / Muntenia / Vâlcea / Valea Babei / June / 1968 / Constantinescu M. / Constantinescu M. / BUC 285203

Epipactis palustris (L.) Crantz / Epipactis / palustris / (MIll.) Crantz / Romania / Muntenia / Vâlcea / Valea Babei / June / 1968 / Constantinescu M. / Constantinescu M. / BUC 285204

Epipactis palustris (L.) Crantz / Epipactis / palustris / (MIll.) Crantz / Romania / Muntenia / Vâlcea / Valea Babei / June / 1968 / Constantinescu M. / Constantinescu M. / BUC 285205

Epipactis palustris (L.) Crantz / Epipactis / palustris / (MIll.) Crantz / Romania / Paucă A. / Paucă A. / BUC 268838

Epipactis purpurata subsp. purpurata / Epipactis / sessilifolia / Peterm. / Romania / Muntenia / Pădurea Cernica / 21 / July / 1958 / Cristurean I. / Cristurean I. / BUC 410800

Epipactis purpurata subsp. purpurata / Epipactis / sessilifolis / Peterm. / Romania / Moldova / Neamț / Valea Balaurului / sub 500 m / forest / 3 / September / 1919 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182645

Epipactis purpurata subsp. Purpurata / Epipactis / varians / (Crantz) H.Fleischm. & Rech. / Romania / Oltenia / Mehedinți / Baia de Aramă / Valea Mare / 24 / July / 1952 / unknown / Paucă A. / BUC 268841

Epipactis purpurata subsp. Purpurata / Epipactis / varians / (Crantz) H.Fleischm. & Rech. / Romania / Oltenia / Mehedinți / Baia de Aramă / Valea Mare / 24 / July / 1952 / unknown / Paucă A. / BUC 268843

Epipactis purpurata subsp. Purpurata / Epipactis / varians / (Crantz) H.Fleischm. & Rech. / Romania / Transilvania / Târnava Mică / Bazna / 350 m / In fagetis et carpinetis versus N expositis prope balneas Bazna, solo humoso / 30 / July / 1940 / Borza Al. / Borza Al. / Flora Romaniae Exsiccata a Museo Botanico Universitatis Clusiensis Edita (Cluj) / BUC 209010

Epipactis purpurata subsp. purpurata / Epipactis / varians / Crantz / Romania / Banat / Caraș-Severin / Oravița / 26 / July / 1962 / unknown / unknown / BUC 410801

Epipactis purpurata subsp. purpurata / Epipactis / varians / H.Fleischm. & Rech. / Romania / Oltenia / Gorj / Valea Pârâului / 23 / July / 1951 / Paucă A. / Paucă A. / BUC 268839

Epipactis purpurata subsp. purpurata / Epipactis / varians / H.Fleischm. & Rech. / Romania / Oltenia / Gorj / Valea Pârâului / 23 / July / 1951 / Paucă A. / Paucă A. / BUC 268840

Epipactis purpurata subsp. purpurata / Epipactis / varians / H.Fleischm. & Rech. / Romania / Oltenia / Mehedinți / Baia de Aramă / Valea Mare / 24 / July / 1952 / unknown / Paucă A. / BUC 268842

Epipactis purpurata subsp. purpurata / Epipactis / varians / H.Fleischm. & Rech. / Romania / Transilvania / Trei Scaune / Zalău / 25 / July / 1927 / unknown / unknown / BUC 182646

Epipactis purpurata subsp. purpurata / Epipactis / varians / Romania / Hagieni / 6 / June / 1965 / Cristurean I. / Cristurean I. / BUC 410829

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Lacul Negru / forest / 12 / July / 1934 / Enculescu P. / Morariu I. / BUC 182575

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Lacul Negru / forest / 12 / July / 1934 / Enculescu P. / Morariu I. / BUC 182576

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Lacul Negru / forest / 12 / July / 1934 / Enculescu P. / Morariu I. / BUC 182577

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Lacul Negru / forest / 12 / July / 1934 / Enculescu P. / Morariu I. / BUC 182578

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Lacul Negru / forest / 12 / July / 1934 / Enculescu P. / Morariu I. / BUC 182579

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Lacul Negru / forest / 12 / July / 1934 / Enculescu P. / Morariu I. / BUC 182580

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Lacul Negru / forest / 12 / July / 1934 / Enculescu P. / Morariu I. / BUC 182581

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Lacul Negru / forest / 12 / July / 1934 / Enculescu P. / Morariu I. / BUC 182585

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Lacul Negru / forest / 12 / July / 1934 / Enculescu P. / Morariu I. / BUC 182586

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Lacul Negru / forest / 12 / July / 1934 / Enculescu P. / Morariu I. / BUC 182587

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Lacul Negru / forest / 12 / July / 1934 / Enculescu P. / Morariu I. / BUC 182588

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Lacul Negru / forest / 12 / July / 1934 / Enculescu P. / Morariu I. / BUC 182589

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Lacul Negru / forest / 12 / July / 1934 / Enculescu P. / Morariu I. / BUC 182590

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Maramureș / Maramureș / Fundul Tisei / 16 / July / 1934 / Enculescu P. / Morariu I. / BUC 182591

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Maramureș / Maramureș / Fundul Tisei / 16 / July / 1934 / Enculescu P. / Morariu I. / BUC 182592

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Maramureș / Maramureș / Fundul Tisei / 16 / July / 1934 / Enculescu P. / Morariu I. / BUC 182593

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Maramureș / Maramureș / Fundul Tisei / 16 / July / 1934 / Enculescu P. / Morariu I. / BUC 182594

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Maramureș / Maramureș / Fundul Tisei / 16 / July / 1934 / Enculescu P. / Morariu I. / BUC 182595

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Maramureș / Maramureș / Fundul Tisei / 16 / July / 1934 / Enculescu P. / Morariu I. / BUC 182596

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Maramureș / Maramureș / Fundul Tisei / 16 / July / 1934 / Enculescu P. / Morariu I. / BUC 182597

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Maramureș / Maramureș / Izvoarele Tisei / forest / 24 / July / 1934 / Enculescu P. / Morariu I. / BUC 182569

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Maramureș / Maramureș / Izvoarele Tisei / forest / 24 / July / 1934 / Enculescu P. / Morariu I. / BUC 182570

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Maramureș / Maramureș / Izvoarele Tisei / forest / 24 / July / 1934 / Enculescu P. / Morariu I. / BUC 182571

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Maramureș / Maramureș / Izvoarele Tisei / forest / 24 / July / 1934 / Enculescu P. / Morariu I. / BUC 182572

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Maramureș / Maramureș / Izvoarele Tisei / forest / 24 / July / 1934 / Enculescu P. / Morariu I. / BUC 182573

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Maramureș / Maramureș / Izvoarele Tisei / forest / 24 / July / 1934 / Enculescu P. / Morariu I. / BUC 182574

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Maramureș / Maramureș / Izvoarele Tisei / forest / 24 / July / 1934 / Enculescu P. / Morariu I. / BUC 182582

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Maramureș / Maramureș / Izvoarele Tisei / forest / 24 / July / 1934 / Enculescu P. / Morariu I. / BUC 182583

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Maramureș / Maramureș / Izvoarele Tisei / forest / 24 / July / 1934 / Enculescu P. / Morariu I. / BUC 182584

Goodyera repens (L.) R.Br. / Goodyera / repens / (L.) R.Br. / Romania / Muntenia / Dâmbovița / Scropoasa / Lacul Scropoasa / July / 1953 / Popescu A. et Lungu L. / Popescu A. et Lungu L. / BUC 410790

Goodyera repens (L.) R.Br. / Goodyera / repens / R.Br. / Romania / forest / 21 / July / 1934 / unknown / unknown / BUC 315969

Goodyera repens (L.) R.Br. / Goodyera / repens / R.Br. / Romania / forest / 21 / July / 1934 / unknown / unknown / BUC 315971

Goodyera repens (L.) R.Br. / Goodyera / repens / R.Br. / Romania / Moldova / Neamț / Izvorul Muntelui / Munții Ceahlău / coniferous forest, podzol soil / 1 / September / 1919 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 315853

Goodyera repens (L.) R.Br. / Goodyera / repens / R.Br. / Romania / Moldova / Neamț / Izvorul Muntelui / Munții Ceahlău / coniferous forest, podzol soil / 1 / September / 1919 / Enculescu P. / Enculescu P. / BUC 315854

Goodyera repens (L.) R.Br. / Goodyera / repens / R.Br. / Romania / Moldova / Neamț / Izvorul Muntelui / Munții Ceahlău / coniferous forest, podzol soil / 1 / September / 1919 / Enculescu P. / Enculescu P. / BUC 315855

Goodyera repens (L.) R.Br. / Goodyera / repens / R.Br. / Romania / Moldova / Neamț / Izvorul Muntelui / Munții Ceahlău / coniferous forest, podzol soil / 1 / September / 1919 / Enculescu P. / Enculescu P. / BUC 315856

Goodyera repens (L.) R.Br. / Goodyera / repens / R.Br. / Romania / Moldova / Neamț / Izvorul Muntelui / Munții Ceahlău / coniferous forest, podzol soil / 1 / September / 1919 / Enculescu P. / Enculescu P. / BUC 315857

Goodyera repens (L.) R.Br. / Goodyera / repens / R.Br. / Romania / Moldova / Neamț / Izvorul Muntelui / Munții Ceahlău / coniferous forest, podzol soil / 1 / September / 1919 / Enculescu P. / Enculescu P. / BUC 315858

Goodyera repens (L.) R.Br. / Goodyera / repens / R.Br. / Romania / Moldova / Neamț / Izvorul Muntelui / Munții Ceahlău / coniferous forest, podzol soil / 1 / September / 1919 / Enculescu P. / Enculescu P. / BUC 315859

Goodyera repens (L.) R.Br. / Goodyera / repens / R.Br. / Romania / Moldova / Neamț / Izvorul Muntelui / Munții Ceahlău / coniferous forest, podzol soil / 1 / September / 1919 / Enculescu P. / Enculescu P. / BUC 315860

Goodyera repens (L.) R.Br. / Goodyera / repens / R.Br. / Romania / Muntenia / Buzău / Fundul Milei / 23 / July / 1934 / Paucă A. / Paucă A. / BUC 315970

Goodyera repens (L.) R.Br. / Goodyera / repens / R.Br. / Romania / Muntenia / Dâmbovița / Scropoasa / Cascada Șapte Izvoare, Munții Bucegi / forest / 21 / July / 1934 / unknown / unknown / BUC 315861

Goodyera repens (L.) R.Br. / Goodyera / repens / R.Br. / Romania / Muntenia / Dâmbovița / Scropoasa / Cascada Șapte Izvoare, Munții Bucegi / forest / 21 / July / 1934 / unknown / unknown / BUC 315862

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopea / (L.) R.Br. / Romania / 13 / August / 1958 / unknown / unknown / BUC 410839

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopea / (L.) R.Br. / Romania / Moldova / Suceava / Broșteni / 28-29 / July / 1963 / Cristurean I. et Popescu A. / Cristurean I. et Popescu A. / BUC 410848

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopea / (L.) R.Br. / Romania / Moldova / Suceava / Drăgoiasa / Tinovul Mare / 30 / July / 1963 / Cristurean I. / Cristurean I. / BUC 410845

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopea / (L.) R.Br. / Romania / Muntenia / Dâmbovița / Pietroșița / Valea Ialomiței / July / 1953 / Popescu A. et Lungu L. / Popescu A. et Lungu L. / BUC 410849

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopea / (L.) R.Br. / Romania / Muntenia / Prahova / Munții Bucegi, Vârful Caraiman / 15 / July / 1959 / Cristurean I. / Cristurean I. / BUC 410851

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopea / (L.) R.Br. / Romania / Muntenia / Prahova / Munții Bucegi / between the cave and Piatra Arsa / 21 / August / 1963 / unknown / unknown / BUC 410844

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopea / (L.) R.Br. / Romania / Muntenia / Prahova / Sinaia / 17 / May / 1958 / unknown / unknown / BUC 410822

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopea / (L.) R.Br. / Romania / Muntenia / Prahova / Sinaia / Vârful cu Dor / 21 / June / 1968 / Cristurean I. / Cristurean I. / BUC 410842

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopea / (L.) R.Br. / Romania / Transilvania / Harghita / Bilbor / 6 / July / 1961 / unknown / unknown / BUC 410847

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopea / (L.) R.Br. / Romania / Transilvania / Harghita / Bilbor / 8 / July / 1961 / Ștefureac Tr. et Cristurean I. / Ștefureac Tr. et Cristurean I. / BUC 410841

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopea / (L.) R.Br. / Romania / unknown / unknown / BUC 410850

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Bucovina / Suceava / Păltinoasa / June / 1951 / Morariu I. / Morariu I. / BUC 344652

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Bucovina / Suceava / Vatra Moldoviței / Poiana ovăsului / 1000m / 5 / June / 1990 / Lucescu T. / Lucescu T. / Flora Moldaviae et Dobrogeae Exsiccata A Horto Botanica Universitatis „Al. I. Cuza" Iassiensis Editam / BUC 373521

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Crișana / Bihor / Tinăud / 325 m / meadow on a steep slope, regosol soil on sandy clays / 6 / June / 1968 / Neacșu M. / Neacșu M. / BUC 260934

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Crișana / Bihor / Tinăud / 325 m / meadow on a steep slope, regosol soil on sandy clays / 6 / June / 1968 / Neacșu M. / Neacșu M. / BUC 410756

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Muntenia / Prahova / Munții Bucegi, Vârful Bătrâna / 2000m / 20 / July / 1925 / Borza Al. / Borza Al. / BUC 249513

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Muntenia / Prahova / Munții Bucegi, Vârful Caraiman / 4 / August / 1941 / Tarnavschi I.T / Tarnavschi I.T / BUC 342510

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Muntenia / Prahova / Munții Ciucaș, Vârful Zăganu / meadow / 16 / July / 1959 / Mitroiu N. / Mitroiu N. / BUC 341743

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Muntenia / Prahova / Ploiești / Valea lui Bogdan / 8 / June / 1967 / Lungu L. et Ruemmele M. / Lungu L. et Ruemmele M. / BUC 312818

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Muntenia / Prahova / Ploiești / Valea lui Bogdan / 8 / June / 1967 / Lungu L. et Ruemmele M. / Lungu L. et Ruemmele M. / BUC 312819

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Muntenia / Prahova / Sinaia / 14 / June / 1963 / Popescu M. / Popescu M. / BUC 285200

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Muntenia / Prahova / Sinaia / 800m / meadow / 17 / June / 1987 / Buculei P. / Buculei P. / BUC 375357

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Muntenia / Prahova / Sinaia / Poiana Caprii / 28 / June / 1956 / Rădulescu D. / Rădulescu D. / BUC 273452

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Muntenia / Prahova / Sinaia / Poiana Cumpătul / 29 / June / 1956 / Rădulescu D. / Rădulescu D. / BUC 285174

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Muntenia / Prahova / Sinaia / Poiana Stânei / 30 / June / 1958 / Mitroiu N. / Mitroiu N. / BUC 371816

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Oltenia / Mehedinți / Baia de Aramă / 25 / May / 1953 / Paucă A. / Paucă A. / BUC 268128

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Oltenia / Mehedinți / Baia de Aramă / 25 / May / 1953 / Paucă A. / Paucă A. / BUC 268129

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Oltenia / Mehedinți / Baia de Aramă / 25 / May / 1953 / Paucă A. / Paucă A. / BUC 410758

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Oltenia / Mehedinți / Gornenți NV / Muntele Ciolanul Mare / 44°55'59,60"N / 22°31'04,35"E / 1032 m / 4 / July / 2017 / Negrean G. / Negrean G. / Herbarium G. Negrean / BUC 410056

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Transilvania / Brașov / Munții Piatra Craiului / 16 / June / 1967 / Ruemmele M. / Ruemmele M. / BUC 312817

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Transilvania / Brașov / Munții Piatra Craiului / 900m / hayfield / 16 / June / 1967 / Ruemmele M. / Ruemmele M. / BUC 171870

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Transilvania / Brașov / Munții Piatra Craiului / 900m / hayfield / 16 / June / 1967 / Ruemmele M. / Ruemmele M. / BUC 410757

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Transilvania / Cluj / Feleacu / Dealul Feleacului / 22 / June / 1950 / Soran V. / Soran V. / BUC 176665

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Transilvania / Munții Sebeșului / 9 / August / 1949 / Borza Al. / Borza Al. / BUC 285175

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Transilvania / Munții Sebeșului / 9 / August / 1949 / Borza Al. / Borza Al. / BUC 285176

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Transilvania / Munții Sebeșului / 9 / August / 1949 / Borza Al. / Borza Al. / BUC 285177

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Transilvania / Munții Sebeșului / 9 / August / 1949 / Borza Al. / Borza Al. / BUC 285178

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Transilvania / Năsăud / 800-900m / in rupibus „Piatra scrisă" supra pagum Cușma / 28 / June / 1924 / Borza Al. / Borza Al. / Flora Romaniae Exsiccata a Museo Botanico Universitatis Clusiensis Edita (Cluj) / BUC 182896

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Transilvania / Sălaj / Sângeorgiul de Meseș / 47°03'20,69"N / 22°58'52,82"E / 611 m / in herbosis supra „Biserica Dracului" / 11 / July / 2016 / Negrean G. / Negrean G. / Herbarium G. Negrean / BUC 406791

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / Romania / Transilvania / Turda / Muntele Berchișului / 700m / 17 / June / 1923 / Borza Al. / Borza Al. / Flora Romaniae Exsiccata a Museo Botanico Universitatis Clusiensis Edita (Cluj) / BUC 182895

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / (L.) R.Br. / typica (Beck) / Romania / Muntenia / Buzău / Masivul Penteleu / 11 / July / 1933 / Enculescu P. / Enculescu P. / BUC 182546

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / R.Br. / Romania / 11 / July / 1934 / unknown / unknown / BUC 182547

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / R.Br. / Romania / Muntenia / Prahova / Sinaia / Poiana Stânei / 4 / July / 1968 / Iordan T. / Iordan T. / BUC 344471

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / R.Br. / Romania / Muntenia / Prahova / Sinaia / Poiana Stânei / podzol soil / June / 1907 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182659

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / R.Br. / Romania / Muntenia / Prahova / Sinaia / Poiana Stânei / podzol soil / June / 1907 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182660

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / R.Br. / Romania / Paucă A. / Paucă A. / BUC 268131

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / R.Br. / Romania / Paucă A. / Paucă A. / BUC 268132

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / R.Br. / Romania / Paucă A. / Paucă A. / BUC 268133

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / R.Br. / typica (Beck) / Romania / 1 / June / 1936 / unknown / unknown / BUC 182611

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / R.Br. / typica (Beck) / Romania / Moldova / Vrancea / Munții Furu / near Podul Grecilor / 4 / June / 1936 / Enculescu P. / Enculescu P. / BUC 182605

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / R.Br. / typica (Beck) / Romania / Muntenia / Buzău / Gura Milii / hayfield / 16 / June / 1934 / unknown / unknown / BUC 182610

Gymnadenia conopsea (L.) R.Br. / Gymnadenia / conopsea / Romania / Munții Bucegi / 16 / July / 1946 / Tarnavschi I.T / Tarnavschi I.T / BUC 283144

Gymnadenia conopsea (L.) R.Br. / Orchis / conopsea / L. / Romania / Muntenia / Buzău / Muntele Smoleanu / hayfield, podzol soil / 30 / June / 1903 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182638

Gymnadenia miniata (Crantz) Hayek / Nigritella / rubra / (Wettst.) K.Richt. / Romania / Muntenia / Prahova / Sinaia / Vârful cu Dor / 21 / June / 1968 / unknown / unknown / BUC 410837

Gymnadenia miniata (Crantz) Hayek / Nigritella / rubra / (Wettst.) Richt. / Romania / Munții Bucegi / 1250 m / alpine meadows / June / 1973 / unknown / unknown / BUC 371889

Gymnadenia miniata (Crantz) Hayek / Nigritella / rubra / Romania / Munții Bucegi / 1780 m / meadow, the cave near Cacova / 30 / June / 1943 / Tarnavschi I.T / Tarnavschi I.T / BUC 361187

Gymnadenia nigra (L.) Rchb.f. / Nigritella / nigra / (L.) Rchb. / Romania / Muntenia / Prahova / Munții Bucegi, Vârful Caraiman / 15 / July / 1959 / Cristurean I. / Cristurean I. / BUC 410779

Gymnadenia nigra (L.) Rchb.f. / Nigritella / nigra / (L.) Rchb. / Romania / Muntenia / Prahova / Munții Bucegi, Vârful Caraiman / Cristurean I. / Cristurean I. / BUC 410780

Gymnadenia odoratissima (L.) Rich. / Gymnadenia / odoratissima / Romania / Transilvania / Bistrița-Năsăud / Zagra / Coasta Podereiului / 27 / July / 1945 / Morariu I. / Morariu I. / BUC 209241

Himantoglossum calcaratum subsp. rumelicum (H.Baumann & R.Lorenz) Niketić & / Himantoglossum / hircinum / Rich / Romania / Dobrogea / in silvis / July / 1912 / illegible / illegible / BUC 182668

Limodorum abortivum (L.) Sw. / Limodorum / abortivum / (L.) Sw. / Romania / Mehedinți / illegible / podzol soil / 30 / May / 1913 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182665

Limodorum abortivum (L.) Sw. / Limodorum / abortivum / Sw. / Romania / Mehedinți / illegible / podzol soil / 30 / May / 1913 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182664

Neotinea tridentata (Scop.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / tridentata / Scop. / Romania / Dobrogea / Tulcea / Babadag / 24 / May / 1962 / Lungeanu I. / Lungeanu I. / BUC 374251

Neotinea tridentata (Scop.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / tridentata / Scop. / Romania / Dobrogea / Tulcea / Babadag / 24 / May / 1962 / Lungeanu I. / Lungeanu I. / BUC 374252

Neotinea tridentata (Scop.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / tridentata / Scop. / Romania / Transilvania / Cluj / Cluj-Napoca / Pădurea Hoiam / 520m / in declivibus graminosis siccis ultra silvam Hoiam prope opp. Cluj-Napoca / 17 / May / 1973 / Gergely I., Farcașiu V. et Lorinczi F. / Gergely I., Farcașiu V. et Lorinczi F. / Flora Romaniae Exsiccata A Herbario Universitatis Napocensis Edita / BUC 246940

Neotinea ustulata (L.) R.M.Bateman, Pridgeon & M.W.Chase / Neotinea / ustulata / (L.) R.M.Bateman, Pridgeon & M.W.Chase / ustulata / Romania / Transilvania / Sălaj / Sângeorgiul de Meseș / 47°03'20,69"N / 22°58'52,82"E / 611m / supra „Biserica Dracului", in herbosis / 11 / July / 2016 / Negrean G. / Negrean G. / Herbarium G. Negrean / BUC 406225

Neotinea ustulata (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / ustulata / L. / Romania / Crișana / Bihor / Tinăud / 375 m / north-facing meadow, regosol soil on clay soils / 5 / July / 1968 / Neacșu M. / Neacșu M. / BUC 260924

Neotinea ustulata (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / ustulata / L. / Romania / Muntenia / Buzău / Gura Milii / 16 / June / 1934 / Enculescu P. / Enculescu P. / BUC 315507

Neotinea ustulata (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / ustulata / L. / Romania / Muntenia / Prahova / Câmpina / Voila station / 22 / July / 1957 / Mitroiu N. / Tarnavschi I.T / BUC 271275

Neotinea ustulata (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / ustulata / L. / Romania / Munții Neamț / 16 / July / 1958 / unknown / unknown / BUC 285173

Neotinea ustulata (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / ustulata / L. / Romania / Oltenia / Gorj / Peștișani / forest, podzol soil / 31 / May / 1913 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182632

Neotinea ustulata (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / ustulata / L. / Romania / Paucă A. / Paucă A. / BUC 268017

Neotinea ustulata (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / ustulata / L. / Romania / Paucă A. / Paucă A. / BUC 268018

Neotinea ustulata (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / ustulata / L. / Romania / Topești / 25 / June / 1953 / Paucă A. / Paucă A. / BUC 268019

Neotinea ustulata (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / ustulata / L. / Romania / Topești / 25 / June / 1953 / Paucă A. / Paucă A. / BUC 268020

Neotinea ustulata (L.) R.M.Bateman, Pridgeon & M.W.Chase / Orchis / ustulata / L. / Romania / Topești / 25 / June / 1953 / Paucă A. / Paucă A. / BUC 268021

Neottia cordata (L.) Rich. / Listera / cordata / (L.) R.Br. / Romania / Banat / Severin / Muntele Baicu / 1750 m / ad „Stâna din Ciungi la Iezer", in piceeto inter muscos / 21 / July / 1943 / Boșcaiu N. / Boșcaiu N. / Flora Romaniae Exsiccata a Museo Botanico Universitatis Clusiensis (Timisoara) Edita / BUC 180809

Neottia cordata (L.) Rich. / Listera / cordata / (L.) R.Br. / Romania / Maramureș / Maramureș / Borșa / 1051-1286 m / in silvis ad pag. Borșa, loco „ Botca Bretilei" dicto. / 8 / June / 1945 / Coman A. / Coman A. / Flora Romaniae Exsiccata a Museo Botanico Universitatis Clusiensis Edita (Cluj) / BUC 180808

Neottia cordata (L.) Rich. / Listera / cordata / (L.) R.Br. / Romania / Maramureș / Maramureș / Fundul Tisei / July / 1935 / Enculescu P. / Morariu I. / BUC 182567

Neottia cordata (L.) Rich. / Listera / cordata / (L.) R.Br. / Romania / Moldova / Vrancea / Munții Furu / near Podul Grecilor / 4 / June / 1936 / Enculescu P. / Morariu I. / BUC 182568

Neottia cordata (L.) Rich. / Listera / cordata / (L.) R.Br. / Romania / Muntenia / Dâmbovița / Scropoasa / Lacul Scropoasa / Lungu L. et Popescu A. / Lungu L. et Popescu A. / BUC 410825

Neottia cordata (L.) Rich. / Listera / cordata / (L.) R.Br. / Romania / Oltenia / Gorj / Muntele Rânca / 1500 m / spruce forest / 8 / August / 1967 / Zaharia C. I. / Zaharia C. I. / BUC 175773

Neottia cordata (L.) Rich. / Listera / cordata / Romania / Muntenia / Dâmbovița / Scropoasa / Lacul Scropoasa / July / 1953 / Lungu L. et Popescu A. / Lungu L. et Popescu A. / BUC 410826

Neottia nidus-avis (L.) Rich. / Neottia / nidus-avis / (L.) L. C. Rich. / Romania / Crișana / Bihor / Vadu Crișului / 475 m / hornbeam forest on a northern slope, yellow-brown podzolic clay-alluvial soil / 12 / May / 1967 / Neacșu M. / Neacșu M. / BUC 260923

Neottia nidus-avis (L.) Rich. / Neottia / nidus-avis / (L.) L. C. Rich. / Romania / Crișana / Bihor / Vadu Crișului / 475 m / hornbeam forest on a northern slope, yellow-brown podzolic clay-alluvial soil / 12 / May / 1967 / Neacșu M. / Neacșu M. / BUC 410760

Neottia nidus-avis (L.) Rich. / Neottia / nidus-avis / (L.) Rich. / Romania / Moldova / Neamț / Bicaz / 26 / June / 1960 / Țicleanu N. / Țicleanu N. / BUC 182038

Neottia nidus-avis (L.) Rich. / Neottia / nidus-avis / (L.) Rich. / Romania / Muntenia / Prahova / Munții Ciucaș, Valea Berii / left affluent of the Valea Berii / 3 / July / 1959 / Șerbănescu G. / Șerbănescu et Mitroiu N. / BUC 315932

Neottia nidus-avis (L.) Rich. / Neottia / nidus-avis / (L.) Rich. / Romania / Oltenia / Munții Lăpățina / spruce forest / July / 1978 / Nedelcu G. / Nedelcu G. / BUC 285598

Neottia nidus-avis (L.) Rich. / Neottia / nidus-avis / (L.) Rich. / Romania / Transilvania / Cluj / Cluj / Pădurea Făget / 550 m / in silva supra fontem „Sf. Ioan" / 21 et 8 / May et June / 1939 / Ghișa E. / Ghișa E. / Flora Romaniae Exsiccata a Museo Botanico Universitatis Clusiensis Edita (Cluj) / BUC 180086

Neottia nidus-avis (L.) Rich. / Neottia / nidus-avis / L. / Romania / Muntenia / București / Băneasa / 1945 / unknown / unknown / BUC 319954

Neottia nidus-avis (L.) Rich. / Neottia / nidus-avis / Rich. / Romania / Muntenia / Dâmbovița / Izvoarele / 350 m / hill, podzol soil / 20 / May / 1906 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182661

Neottia nidus-avis (L.) Rich. / Neottia / nidus-avis / Rich. / Romania / Muntenia / Ilfov / Periș / in the forest, podzolic soil / 27 / April / 1910 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182663

Neottia nidus-avis (L.) Rich. / Neottia / nidus-avis / Rich. / Romania / Muntenia / Prahova / Sinaia / forest / 12 / June / 1956 / Salmen H. / Salmen H. / BUC 316595

Neottia nidus-avis (L.) Rich. / Neottia / nidus-avis / Rich. / Romania / Muntenia / Prahova / west of Plopeni station, in the forest, podzol soil / 17 / May / 1913 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182662

Neottia nidus-avis (L.) Rich. / Neottia / nidus-avis / Rich. / Romania / Oltenia / Munții Lăpățina / spruce forest / August / 1979 / Nedelcu G. / Nedelcu G. / BUC 410759

Neottia ovata (L.) Hartm. / Listera / ovata / (L.) R.Br. / Moldova / Basarabia / Lăpușna / 25 m / in silva umbrosa-humidaque Querceto-Ulmeti „Strășeni" dicta, prope pag. Cojușna / 7 / June / 1937 / Arvat A. / Arvat A. / Flora Romaniae Exsiccata a Museo Botanico Universitatis Clusiensis Edita (Cluj) / BUC 180810

Neottia ovata (L.) Hartm. / Listera / ovata / (L.) R.Br. / Romania / 14 / August / 1959 / Ștefureac Tr. et Cristurean I. / Ștefureac Tr. et Cristurean I. / BUC 410833

Neottia ovata (L.) Hartm. / Listera / ovata / (L.) R.Br. / Romania / 15 / July / unknown / unknown / BUC 410838

Neottia ovata (L.) Hartm. / Listera / ovata / (L.) R.Br. / Romania / illegible / 24 / May / 1963 / Popescu A. / Popescu A. / BUC 410771

Neottia ovata (L.) Hartm. / Listera / ovata / (L.) R.Br. / Romania / illegible / 24 / May / 1963 / Popescu A. / Popescu A. / BUC 410772

Neottia ovata (L.) Hartm. / Listera / ovata / (L.) R.Br. / Romania / Moldova / Iași / Curagău / forest, hill, podzol soil / 29 / May / 1917 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182654

Neottia ovata (L.) Hartm. / Listera / ovata / (L.) R.Br. / Romania / Moldova / Neamț / Bicaz / 25 / June / 1959 / unknown / unknown / BUC 319544

Neottia ovata (L.) Hartm. / Listera / ovata / (L.) R.Br. / Romania / Moldova / Suceava / Drăgoiasa / 21 / August / 1950 / Ștefureac Tr. et Cristurean I. / Ștefureac Tr. et Cristurean I. / BUC 410832

Neottia ovata (L.) Hartm. / Listera / ovata / (L.) R.Br. / Romania / Muntenia / Argeș / Muntele Cumpăna / 4 / June / 1924 / Borza Al. / Borza Al. / BUC 249512

Neottia ovata (L.) Hartm. / Listera / ovata / (L.) R.Br. / Romania / Muntenia / Ilfov / Cernica / de unde stiati ca e Listera ca in scan nu apare / 5 / May / 1950 / Ștefureac Tr., Enculescu P. et Lungu L. / Ștefureac Tr., Enculescu P. et Lungu L. / BUC 410802

Neottia ovata (L.) Hartm. / Listera / ovata / (L.) R.Br. / Romania / Muntenia / Prahova / Malul Șipei / 22 / July / 1971 / illegible / illegible / BUC 410773

Neottia ovata (L.) Hartm. / Listera / ovata / (L.) R.Br. / Romania / Muntenia / Prahova / Malul Șipei / 22 / July / 1971 / unknown / unknown / BUC 410774

Neottia ovata (L.) Hartm. / Listera / ovata / (L.) R.Br. / Romania / Muntenia / Prahova / Sinaia / Poiana Caprii / 28 / June / 1956 / Rădulescu D. / Rădulescu D. / BUC 273490

Neottia ovata (L.) Hartm. / Listera / ovata / (L.) R.Br. / Romania / Muntenia / Prahova / Sinaia / Poiana Șarînga / 19 / July / 1971 / illegible / illegible / BUC 410824

Neottia ovata (L.) Hartm. / Listera / ovata / (L.) R.Br. / Romania / Muntenia / Prahova / Sinaia / Vârful cu Dor / 21 / June / 1968 / Cristurean I. / Cristurean I. / BUC 410784

Neottia ovata (L.) Hartm. / Listera / ovata / (L.) R.Br. / Romania / Oltenia / Vâlcea / Brezoi / Valea Lotrului / 21 / July / 1955 / Ștefureac Tr., Lungu L. et Popescu A. / Ștefureac Tr., Lungu L. et Popescu A. / BUC 410765

Neottia ovata (L.) Hartm. / Listera / ovata / (L.) R.Br. / Romania / Transilvania / Brașov / Zărnești / 900m / hayfield / 16 / June / 1967 / Ruemmele M. et Silvia / Ruemmele M. / BUC 171871

Neottia ovata (L.) Hartm. / Listera / ovata / (L.) R.Br. / Romania / Transilvania / Brașov / Zărnești / 900m / hayfield / 16 / June / 1967 / Ruemmele M. et Silvia / Ruemmele M. / BUC 171872

Neottia ovata (L.) Hartm. / Listera / ovata / (L.) R.Br. / Romania / Transilvania / Harghita / Bilbor / 16 / August / 1960 / Ștefureac Tr. et Cristurean I. / Ștefureac Tr. et Cristurean I. / BUC 410830

Neottia ovata (L.) Hartm. / Listera / ovata / (L.) R.Br. / Romania / Transilvania / Harghita / Bilbor / 7 / July / 1961 / unknown / unknown / BUC 410768

Neottia ovata (L.) Hartm. / Listera / ovata / (L.) R.Br. / Romania / Transilvania / Harghita / Bilbor / 7 / July / 1961 / unknown / unknown / BUC 410769

Neottia ovata (L.) Hartm. / Listera / ovata / (L.) R.Br. / Romania / Transilvania / Harghita / Bilbor / 7 / July / 1961 / unknown / unknown / BUC 410770

Neottia ovata (L.) Hartm. / Listera / ovata / (L.) R.Br. / Romania / Transilvania / Harghita / Bilbor / July / 1961 / Ștefureac Tr. et Cristurean I. / Ștefureac Tr. et Cristurean I. / BUC 410831

Neottia ovata (L.) Hartm. / Listera / ovata / L. / Romania / 28 / June / 1911 / Enculescu P. / Enculescu P. / BUC 182657

Neottia ovata (L.) Hartm. / Listera / ovata / L. / Romania / Muntenia / Argeș / Găești / the forest near Stravopolia / 14 / May / 1963 / unknown / unknown / BUC 263890

Neottia ovata (L.) Hartm. / Listera / ovata / R.Br. / Romania / Muntenia / Ilfov / Periș / forest, podzolic soil / 22 / May / 1905 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182656

Neottia ovata (L.) Hartm. / Listera / ovata / R.Br. / Romania / Muntenia / Prahova / Sinaia / Poiana Stânei / podzolic soil / June / 1907 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182655

Neottia ovata (L.) Hartm. / Listera / ovata / Romania / 28 / June / 1911 / Enculescu P. / Enculescu P. / BUC 182658

Neottia ovata (L.) Hartm. / Listera / ovata / Romania / Bucovina / Suceava / Gura Humorului / forest / 27 / May / 1950 / Morariu I. / Morariu I. / BUC 311865

Neottia ovata (L.) Hartm. / Listera / ovata / Romania / Transilvania / Brașov / Timișul de Jos / 4 / June / 1955 / Lungu L. / Lungu L. / BUC 410767

Neottia ovata (L.) Hartm. / Listera / ovata / Romania / Transilvania / Harghita / Bilbor / 16 / August / 1960 / Ștefureac Tr. et Cristurean I. / Ștefureac Tr. et Cristurean I. / BUC 410766

Neottia ovata (L.) Hartm. / Listera / ovata / stenoglossa (Peterm) / Romania / 1 / June / 1936 / Enculescu P. / Enculescu P. / BUC 182555

Neottia ovata (L.) Hartm. / Listera / ovata / stenoglossa (Peterm) / Romania / 1 / June / 1936 / Enculescu P. / Enculescu P. / BUC 182556

Ophrys holosericea subsp. holosericea / Ophrys / fuciflora / (F.W.Schmidt) Moench / Romania / Crișana / Bihor / Tinăud / Terasa Crișului Repede / 47°03'10,34"N / 23°27'59,02"E / 268 m / meadow / 6 / May / 2017 / Negrean G. / Negrean G. / Herbarium G. Negrean / BUC 407460

Ophrys sphegodes Mill. / Ophrys / sphegodes / Mill. / Romania / Crișana / Bihor / Tinăud / Terasa Crișului Repede / 47°03'10,34"N / 23°27'59,02"E / 268 m / meadow / 6 / May / 2017 / Negrean G. / Negrean G. / Herbarium G. Negrean / BUC 407461

Ophrys x minuticauda Duffort / Ophrys / x minuticauda / Duffort / Romania / Muntenia / Prahova / Parcul Natural Bucegi / 5 / May / 2021 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410378 / Ophrys apiferax Ophrys scolopax subsp. cornuta

Ophrys x minuticauda Duffort / Ophrys / x minuticauda / Duffort / Romania / Muntenia / Prahova / Parcul Natural Bucegi / 5 / May 2021 / Nora E. Anghelescu / Nora E. Anghelescu / BUC4 10379 / Ophrys apiferax Ophrys scolopax subsp. cornuta

Orchis cornuta v. banatica / Orchis / cornuta / Stev. / banatica (Rchb.) / Romania / Banat / Caraș-Severin / Ciudanovița / xeromesophilic grasslands / 5 / May / 1966 / illegible / illegible / Herbarium of the Natural Monuments Subcommission, Academy of the Socialist Republic of Romania, Scientific Research Base Timișoara / BUC 176832

Orchis cornuta v. banatica / Orchis / cornuta / Stev. / banatica (Rchb.) / Romania / Oltenia / Mehedinți / Malovăț / hill, colluvial soil / 29 / May / 1913 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182636

Orchis cornuta v. banatica / Orchis / cornuta / Stev. / banatica (Rchb.) / Romania / Oltenia / Mehedinți / Malovăț / hill, colluvial soil / 29 / May / 1913 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182637

Orchis mascula subsp. speciosa (Mutel) Hegi / Orchis / mascula / L. / signifera (Vest) Soó / Romania / Banat / Timiș / Banloc / 90m / in querceto-carpineto ad pag. Banloc, solo humoso / 20 / April / 1948 / Borza Al. / Borza Al. / Flora Romaniae Exsiccata A Herbario Universitatis Napocensis Edita / BUC 271270

Orchis mascula subsp. speciosa (Mutel) Hegi / Orchis / mascula / L. / signifera (Vest) Soó / Romania / Banat / Timiș / Banloc / 90m / in querceto-carpineto ad pag. Banloc, solo humoso / 20 / April / 1948 / Borza Al. / Borza Al. / Flora Romaniae Exsiccata A Herbario Universitatis Napocensis Edita / BUC 271271

Orchis mascula subsp. speciosa (Mutel) Hegi / Orchis / mascula / L. / signifera (Vest) Soó / Romania / Banat / Timiș / Banloc / 90m / in querceto-carpineto ad pag. Banloc, solo humoso / 20 / April / 1948 / Borza Al. / Borza Al. / Flora Romaniae Exsiccata A Herbario Universitatis Napocensis Edita / BUC 271272

Orchis mascula subsp. speciosa (Mutel) Hegi / Orchis / mascula / L. / speciosa Host (Koch.) / Romania / Banat / Timiș / Banloc / elm and oak forests / 29 / April / 1948 / Borza Al. / Borza Al. / BUC 249508

Orchis mascula subsp. speciosa (Mutel) Hegi / Orchis / signifer / (Vest) Soo. / Romania / Cîmpulung / hayfield, under the hill / 24 / May / 1951 / Morariu I. / Morariu I. / BUC 306177

Orchis mascula subsp. speciosa (Mutel) Hegi / Orchis / signifer / (Vest) Soo. / Romania / Cîmpulung / hayfield, under the hill / 24 / May / 1951 / Morariu I. / Morariu I. / BUC 306178

Orchis mascula subsp. speciosa (Mutel) Hegi / Orchis / signifer / (Vest) Soo. / Romania / Cîmpulung / hayfield, under the hill / 24 / May / 1951 / Morariu I. / Morariu I. / BUC 306179

Orchis mascula subsp. speciosa (Mutel) Hegi / Orchis / speciosa / Host / Romania / Banat / Caraș-Severin / Anina / Valea Carașului / 19 / May / 1942 / Morariu I. / Morariu I. / BUC 209233

Orchis mascula subsp. speciosa (Mutel) Hegi / Orchis / speciosa / Host / Romania / Muntenia / Prahova / Munții Ciucaș, Valea Berii / 28 / June / 1956 / Salmen H. / Salmen H. / BUC 315641

Orchis mascula subsp. speciosa (Mutel) Hegi / Orchis / speciosa / Host / Romania / Muntenia / Prahova / Munții Ciucaș, Valea Berii / 28 / June / 1956 / Salmen H. / Salmen H. / BUC 315642

Orchis mascula subsp. speciosa (Mutel) Hegi / Orchis / speciosa / Host / Romania / Transilvania / Brașov / Săcele / Munții Gîrbova, Rențea / 1200m / meadow / 10 / June / 1967 / Lungu L. et Ruemmele M. / Lungu L. et Ruemmele M. / BUC 310720

Orchis mascula subsp. speciosa (Mutel) Hegi / Orchis / speciosa / L. / Romania / Muntenia / Prahova / Munții Ciucaș, Valea Berii / 1000m / wet meadow / 19 / June / 1966 / Ruemmele M. / Klohs D. / BUC 171880

Orchis mascula subsp. speciosa (Mutel) Hegi / Orchis / speciosa / Romania / Muntenia / Prahova / Sinaia / Poiana Republicii / 6 / August / 1957 / Rădulescu D. / Rădulescu D. / BUC 271274

Orchis mascula subsp. speciosa (Mutel) Hegi / Orchis / speciosa / Romania / Muntenia / Prahova / Sinaia / Poiana Republicii / 6 / June / 1957 / Rădulescu D. / Rădulescu D. / BUC 271273

Orchis mascula subsp. speciosa (Mutel) Hegi / Orchis / speciosa / Romania / Muntenia / Prahova / Sinaia / Poiana Republicii / 6 / June / 1957 / Rădulescu D. / Rădulescu D. / BUC 273148

Orchis militaris L. / Orchis / militaris / L. / Romania / Crișana / Bihor / Tinăud / Terasa Crișului Repede / 47°03'10,34"N / 23°27'59,02"E / 268m / meadow / 6 / May / 2017 / Negrean G. / Negrean G. / Herbarium G. Negrean / BUC 407462

Orchis militaris L. / Orchis / militaris / L. / Romania / Crișana / Bihor / Tinăud / Terasa Crișului Repede / 47°03'10,34"N / 23°27'59,02"E / 268m / meadow / 6 / May / 2017 / Negrean G. / Negrean G. / Herbarium G. Negrean / BUC 409532

Orchis militaris L. / Orchis / militaris / L. / Romania / Oltenia / Mehedinți / Jupânești SE / Podișul Mehedinți / 44°49'46,64"N / 22°33'59,78"E / 459m / prope basilica / 18 / May / 2013 / Negrean G. / Negrean G. / Herbarium G. Negrean / BUC 402939

Orchis militaris L. / Orchis / militaris / L. / typicus (Beck) / Romania / Vârful Curse / 1 / June / 1936 / Enculescu P. / Enculescu P. / BUC 182606

Orchis militaris L. / Orchis / militaris / L. / typicus (Beck) / Romania / Vârful Curse / 1 / June / 1936 / Enculescu P. / Enculescu P. / BUC 182607

Orchis militaris L. / Orchis / militaris / Romania / Muntenia / Prahova / Sinaia / Poiana Stânei / podzol soil / June / 1907 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182630

Orchis militaris subsp. militaris / Orchis / militaris / L. / stenoloba (Döll) / Romania / Banat / Caraș-Severin / Anina / Valea Carașului / 19 / May / 1942 / Morariu I. / Morariu I. / BUC 209164

Orchis purpurea Huds. / Orchis / purpurea / Huds. / Romania / Crișana / Bihor / Topa de Criș / 375m / Quercus cerris forest, on a steep southern slope, regosol soil / 14 / May / 1967 / Neacșu M. / Neacșu M. / BUC 260929

Orchis purpurea Huds. / Orchis / purpurea / Huds. / Romania / Dobrogea / Constanța / Albești / Pădurea Hagieni / 43°47'44"N / 28°27'01"E / 45m / 28 / April / 2002 / Anastasiu P. / Negrean G. et Paulina Anastasiu / BUC 410762

Orchis purpurea Huds. / Orchis / purpurea / Huds. / Romania / Hobița / 29 / May / 1952 / Paucă A. / Paucă A. / BUC 268852

Orchis purpurea Huds. / Orchis / purpurea / Huds. / Romania / illegible / 7 / June / 1959 / unknown / unknown / BUC 319540

Orchis purpurea Huds. / Orchis / purpurea / Huds. / Romania / Muntenia / Argeș / Găești / 4 / May / 1959 / unknown / unknown / BUC 314444

Orchis purpurea Huds. / Orchis / purpurea / Huds. / Romania / Muntenia / Argeș / Găești / 4 / May / 1959 / unknown / unknown / BUC 314445

Orchis purpurea Huds. / Orchis / purpurea / Huds. / Romania / Oltenia / Gorj / Telești / the forest within 2 km of Telești-Birnici / 27 / May / 1913 / Paucă A. / Paucă A. / BUC 268853

Orchis purpurea Huds. / Orchis / purpurea / Huds. / Romania / Oltenia / Mehedinți / Strehaia / 19 / May / 1956 / unknown / unknown / BUC 263477

Orchis purpurea Huds. / Orchis / purpurea / Huds. / Romania / Oltenia / Mehedinți / Strehaia / 19 / May / 1956 / unknown / unknown / BUC 263478

Orchis purpurea subsp. purpurea / Orchis / purpurea / Huds. / purpurea / Romania / Crișana / Bihor / Tinăud / Terasa Crișului Repede / 47°03'10,34"N / 23°27'59,02"E / 268m / meadow / 6 / May / 2017 / Negrean G. / Negrean G. / Herbarium G. Negrean / BUC 407463

Orchis simia Lam. / Orchis / simia / Lam. / Romania / Banat / Caraș-Severin / Valea Beiului Sec / xerothermophilous shrubs / 20 / May / 1967 / illegible / illegible / Herbarium of the Natural Monuments Subcommission, Academy of the Socialist Republic of Romania, Scientific Research Base Timișoara / BUC 176833

Orchis simia Lam. / Orchis / simia / Lam. / Romania / Banat / Caraș-Severin / Vîrciorova / V. Slătinic / near the stream / 2 / May / 1966 / Negrean G. / Negrean G. / BUC 171741

Orchis simia Lam. / Orchis / simia / Lam. / Romania / Dobrogea / Constanța / Albești / Pădurea Hagieni / 43°47'44"N / 28°27'01"E / 45m / 28 / April / 2002 / Anastasiu P. / Negrean G. et Paulina Anastasiu / BUC 410763

Orchis x angusticruris Franch. / Orchis / x angusticruris / Franch. / Romania / Dobrogea / Tulcea / Pădurea Babadag / 10 / April / 2018 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410380 / Orchis purpurea x Orchis simia

Orchis x angusticruris Franch. / Orchis / x angusticruris / Franch. / Romania / Dobrogea / Tulcea / Pădurea Babadag / 10 / April / 2018 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410381 / Orchis purpurea x Orchis simia

Orchis x loreziana Brügger nothosubsp. kisslingii (Beck) Potucek / Orchis / x loreziana / Brügger / nothosubsp. kisslingii (Beck) Potucek / Romania / Transilvania / Hunedoara / Private property / 5 / May / 2021 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410382 / Orchis masculasubsp.speciosa x Orchis pallens

Orchis x loreziana Brügger nothosubsp. kisslingii (Beck) Potucek / Orchis / x loreziana / Brügger / nothosubsp. kisslingii (Beck) Potucek / Romania / Transilvania / Hunedoara / Private property / 5 / May / 2021 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410383 / Orchis masculasubsp.speciosa x Orchis pallens

Platanthera bifolia (L.) Rich. / Orchis / bifolia / L. / Romania / illegible / 4 / June / 1911 / unknown / unknown / BUC 182648

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / (L.) L. C. Rich. / Romania / Crișana / Bihor / Borod / 450 m / oak forest on a southern slope, yellow-brown podzolic clay-alluvial soil / 8 / June / 1967 / Neacșu M. / Neacșu M. / BUC 260925

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / (L.) Rich. / Romania / 28 / May / 1953 / Paucă A. / Paucă A. / BUC 268031

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / (L.) Rich. / Romania / 28 / May / 1953 / Paucă A. / Paucă A. / BUC 268032

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / (L.) Rich. / Romania / 28 / May / 1953 / Paucă A. / Paucă A. / BUC 268033

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / (L.) Rich. / Romania / 28 / May / 1953 / Paucă A. / Paucă A. / BUC 268035

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / (L.) Rich. / Romania / 28 / May / 1953 / Paucă A. / Paucă A. / BUC 268036

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / (L.) Rich. / Romania / Banat / 17 / May / 1948 / unknown / unknown / BUC 310299

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / (L.) Rich. / Romania / Crișana / Bihor / Borod / 450 m / oak forest on a southern slope, yellow-brown podzolic clay-alluvial soil / 8 / June / 1967 / Neacșu M. / Neacșu M. / BUC 410761

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / (L.) Rich. / Romania / Muntenia / Buzău / Muntele Viforîta, Munții Buzăului / 800m / forest edge, humid / 6 / July / 1962 / Ruemmele M. / Ruemmele M. / BUC 284350

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / (L.) Rich. / Romania / Muntenia / Buzău / Muntele Viforîta, Munții Buzăului / forest edge, humid / 6 / July / 1962 / Ruemmele M. / Ruemmele M. / BUC 171878

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / (L.) Rich. / Romania / Muntenia / Buzău / Munții Buzăului, Culmea Viforita / 6 / July / 1962 / Ruemmele M. / Ruemmele M. / BUC 310751

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / (L.) Rich. / Romania / Muntenia / Dâmbovița / illegible / 21 / May / 1932 / Cretzoiu P. / Cretzoiu P. / BUC 175329

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / (L.) Rich. / Romania / Transilvania / Brașov / Munții Piatra Craiului / 16 / June / 1967 / Ruemmele M. / Ruemmele M. / BUC 284343

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / (L.) Rich. / Romania / Transilvania / Brașov / Munții Piatra Craiului / 16 / June / 1967 / Ruemmele M. / Ruemmele M. / BUC 284344

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / (L.) Rich. / Romania / Transilvania / Brașov / Munții Piatra Craiului / 16 / June / 1967 / Ruemmele M. / Ruemmele M. / BUC 284345

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / (L.) Rich. / Romania / Transilvania / Brașov / Munții Piatra Craiului / 16 / June / 1967 / Ruemmele M. / Ruemmele M. / BUC 284346

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / (L.) Rich. / Romania / Transilvania / Brașov / Munții Piatra Craiului / 16 / June / 1967 / Ruemmele M. / Ruemmele M. / BUC 284347

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / (L.) Rich. / Romania / Transilvania / Brașov / Munții Piatra Craiului / 16 / June / 1967 / Ruemmele M. / Ruemmele M. / BUC 284348

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / L. / Romania / Banat / 17 / May / 1948 / Borza Al. / Borza Al. / BUC 310300

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / Rich. / Hungary / Bereg / June / 1909 / Ardos F. / Ardos F. / BUC 316664

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / Rich. / Hungary / Sopron / 20 / April / 1901 / Ardos F. / Ardos F. / BUC 316663

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / Rich. / Hungary / Sopron / 20 / April / 1901 / Ardos F. / Ardos F. / BUC 319874

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / Rich. / Hungary / Sopron / 24 / April / 1901 / Ardos F. / Ardos F. / BUC 319875

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / Rich. / Romania / Moldova / Iași / Comarna / Pădurea Curmătura / beech forest, podzol soil / 24 / May / 1917 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182647

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / Rich. / Romania / Muntenia / Ilfov / Periș / forest, podzolic soil / 11 / May / 1903 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182652

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / Rich. / Romania / Muntenia / Ilfov / Periș / peste 100m / plain, forest soil / 22 / May / 1910 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182651

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / Rich. / Romania / Muntenia / Ilfov / Snagov / 5 / June / 1944 / Gușuleac / Gușuleac / BUC 285169

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / Rich. / Romania / Muntenia / Ilfov / Snagov / 5 / June / 1944 / Gușuleac / Gușuleac / BUC 285170

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / Rich. / Romania / Muntenia / Prahova / Plopeni / south of Plopeni station, in the forest, podzol soil / 17 / May / 1913 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182653

Platanthera bifolia (L.) Rich. / Platanthera / bifolia / Romania / 28 / May / 1953 / Paucă A. / Paucă A. / BUC 268034

Platanthera chlorantha (Custer) Rchb. / Platanthera / chlorantha / (Custer) Rchb. / Romania / Moldova / Iași / Dealul Repedea / 14 / July / 1958 / Ștefureac Tr. et Cristurean I. / Ștefureac Tr. et Cristurean I. / BUC 410794

Platanthera chlorantha (Custer) Rchb. / Platanthera / chlorantha / (Custer) Rchb. / Romania / Moldova / Iași / Dealul Repedea / 14 / July / 1958 / Ștefureac Tr. et Cristurean I. / Ștefureac Tr. et Cristurean I. / BUC 410795

× **Pseudadenia schweinfurthii (Hegelm. Ex A. Kern.) P. F. Hunt** / × Pseudadenia / schweinfurthii / (Hegelm. Ex A. Kern.) P. F. Hunt / Romania / Transilvania / Harghita / Mădăraș / 20 / June / 2023 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410384 / Gymnadenia conopsea × Pseudorchis albida subsp. tricuspis

× **Pseudadenia schweinfurthii (Hegelm. Ex A. Kern.) P. F. Hunt** / × Pseudadenia / schweinfurthii / (Hegelm. Ex A. Kern.) P. F. Hunt / Romania / Transilvania / Harghita / Mădăraș / 20 / June / 2023 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410385 / Gymnadenia conopsea × Pseudorchis albida subsp. tricuspis

× **Pseudadenia vitosana (H. Baumann) O. Gerbaud et W. Schmid** / × Pseudadenia / vitosana / (H. Baumann) O. Gerbaud et W. Schmid / Romania / Transilvania / Harghita / Mădăraș / 20 / June / 2022 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410386 / Gymnadenia frivaldii × Pseudorchis albida subsp. tricuspis

× **Pseudadenia vitosana (H. Baumann) O. Gerbaud et W. Schmid** / × Pseudadenia / vitosana / (H. Baumann) O. Gerbaud et W. Schmid / Romania / Transilvania / Harghita / Mădăraș / 20 / June / 2022 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410387 / Gymnadenia frivaldii × Pseudorchis albida subsp. tricuspis

× **Pseudorhiza nieschalkii (Senghas) P. F. Hunt nothosubsp. siculorum H. Kertész et N. Anghelescu** / × Pseudorhiza / nieschalkii / (Senghas) P. F. Hunt / nothosubsp. siculorum H. Kertész et N. Anghelescu / Romania / Transilvania / Harghita / Mădăraș / Vârful Harghita / 30 / June / 2020 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410358 / Dactylorhiza fuchsii subsp. sooana × Pseudorchis albida subsp. tricuspis

× **Pseudorhiza nieschalkii (Senghas) P. F. Hunt nothosubsp. siculorum H. Kertész et N. Anghelescu** / × Pseudorhiza / nieschalkii / (Senghas) P. F. Hunt / nothosubsp. siculorum H. Kertész et N. Anghelescu / Romania / Transilvania / Harghita / Mădăraș / Vârful Harghita / 30 / June / 2020 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410388 / Dactylorhiza fuchsii subsp. sooana × Pseudorchis albida subsp. tricuspis

× **Pseudorhiza nieschalkii (Senghas) P. F. Hunt nothosubsp. siculorum H. Kertész et N. Anghelescu** / × Pseudorhiza / nieschalkii / (Senghas) P. F. Hunt / nothosubsp. siculorum H. Kertész et N. Anghelescu / Romania / Transilvania / Harghita / Mădăraș / Vârful Harghita / 30 / June / 2020 / Nora E. Anghelescu / Nora E. Anghelescu / BUC 410389 / Dactylorhiza fuchsii subsp. sooana × Pseudorchis albida subsp. tricuspis

Pseudorchis albida (L.) Á.Löve & D.Löve / Gymnadenia / albida / (L.) Rich. / Romania / Muntenia / Buzău / Masivul Penteleu / 2 / August / 1932 / unknown / unknown / BUC 182531

Pseudorchis albida (L.) Á.Löve & D.Löve / Gymnadenia / albida / (L.) Rich. / Romania / Muntenia / Dâmbovița / Runcu / Valea Ialomicioarei / 16-17 / July / 1959 / Cristurean I. / Cristurean I. / BUC 410823

Pseudorchis albida (L.) Á.Löve & D.Löve / Gymnadenia / albida / (L.) Rich. / Romania / Oltenia / Vâlcea / Brezoi / Valea Lotrului / 24 / July / 1955 / Ștefureac Tr., Lungu L. et Popescu A. / Ștefureac Tr., Lungu L. et Popescu A. / BUC 410840

Pseudorchis albida (L.) Á.Löve & D.Löve / Gymnadenia / albida / (L.) Rich. / Romania / Oltenia / Vâlcea / Brezoi / Valea Lotrului / 8 / July / 1956 / unknown / unknown / BUC 410846

Pseudorchis albida (L.) Á.Löve & D.Löve / Gymnadenia / albida / (L.) Rich. / Romania / Transilvania / Harghita / Lacul Roșu / hill / 14 / July / 1933 / unknown / unknown / BUC 182532

Pseudorchis albida (L.) Á.Löve & D.Löve / Gymnadenia / albida / Romania / Moldova / Suceava / Drăgoiasa / 19 / August / 1959 / Ștefureac Tr. et Cristurean I. / Ștefureac Tr. et Cristurean I. / BUC 410843

Pseudorchis albida (L.) Á.Löve & D.Löve / Leucorchis / albida / (L.) E.Mey. / Romania / Muntenia / Prahova / Munții Bucegi, Vârful Caraiman / the path towards the cross / 4 / August / 1941 / Tarnavschi I.T / Tarnavschi I.T / BUC 342412

Pseudorchis albida (L.) Á.Löve & D.Löve / Leucorchis / albida / (L.) E.Mey. / Romania / Muntenia / Prahova / Munții Bucegi, Vârful Caraiman / the path towards the cross / 4 / August / 1941 / Tarnavschi I.T / Tarnavschi I.T / BUC 342413

Pseudorchis albida (L.) Á.Löve & D.Löve / Leucorchis / albida / (L.) E.Mey. / Romania / Muntenia / Prahova / Munții Bucegi, Vârful Caraiman / the path towards the cross / 4 / August / 1941 / Tarnavschi I.T / Tarnavschi I.T / BUC 342414

Pseudorchis albida (L.) Á.Löve & D.Löve / Leucorchis / albida / (L.) E.Mey. / Romania / Muntenia / Prahova / Munții Bucegi, Vârful Caraiman / the path towards the cross / 4 / August / 1941 / Tarnavschi I.T / Tarnavschi I.T / BUC 342415

Pseudorchis albida (L.) Á.Löve & D.Löve / Leucorchis / albida / (L.) E.Mey. / Romania / Muntenia / Prahova / Râul Cacova / 1600m / 18 / July / 1925 / Borza Al. / Borza Al. / BUC 249561

Pseudorchis albida (L.) Á.Löve & D.Löve / Leucorchis / albida / (L.) E.Mey. / Romania / Transilvania / Alba / Carpații Meridionali / 1800m / Șurianul Lake bog / 21 / July / 1950 / Borza Al. / Borza Al. / BUC 249560

Pseudorchis albida (L.) Á.Löve & D.Löve / Leucorchis / albida / (L.) E.Mey. / Romania / Transilvania / Turda / Muntele Băișoara / 1200m / 10 / June / 1950 / Trețiu Tr. / Trețiu Tr. / BUC 176663

Pseudorchis albida (L.) Á.Löve & D.Löve / Leucorchis / albida / Romania / Muntenia / Prahova / Sinaia / 2000m / Cota 2000 / 28 / June / 2002 / Boicu L. S. / Boicu L. S. / BUC 364747

Spiranthes spiralis (L.) Chevall. / Spiranthes / spiralis / (L.) C. Koch. / Romania / Crișana / Satu Mare / Carei / 11 / August / 1966 / unknown / unknown / BUC 263895

Spiranthes spiralis (L.) Chevall. / Spiranthes / spiralis / (L.) C. Koch. / Romania / Crișana / Satu Mare / Carei / 11 / August / 1966 / unknown / unknown / BUC 263896

Spiranthes spiralis (L.) Chevall. / Spiranthes / spiralis / (L.) C. Koch. / Romania / Crișana / Satu Mare / Carei / 11 / August / 1966 / unknown / unknown / BUC 263897

Spiranthes spiralis (L.) Chevall. / Spiranthes / spiralis / (L.) C. Koch. / Romania / Maramureș / swamp / 10 / August / 1966 / unknown / unknown / BUC 263892

Spiranthes spiralis (L.) Chevall. / Spiranthes / spiralis / (L.) C. Koch. / Romania / Maramureș / swamp / 10 / August / 1966 / unknown / unknown / BUC 263893

Spiranthes spiralis (L.) Chevall. / Spiranthes / spiralis / (L.) C. Koch. / Romania / Maramureș / swamp / 10 / August / 1966 / unknown / unknown / BUC 263894

Spiranthes spiralis (L.) Chevall. / Spiranthes / spiralis / (L.) C. Koch. / Romania / Oltenia / Gorj / Tămărești / In meadows and shrubs / 20 / September / 1967 / Ularu P. / Ularu P. / Pedagogical Institute Brașov Herbarium / BUC 171780

Spiranthes spiralis (L.) Chevall. / Spiranthes / spiralis / (L.) Chevall. / United Kingdom / South West England / Cornwall / Lizard Peninsular / Cliff tops / 16-23 / August / 1961 / Martin A. et Gibbs P.E. / Martin A. et Gibbs P.E. / Herb. Univ. Liverpol. / BUC 170760

Traunsteinera globosa (L.) Rchb. / Orchis / globosa / L. / Romania / 21 / June / 1958 / Țicleanu N. / Țicleanu N. / BUC 182037

Traunsteinera globosa (L.) Rchb. / Orchis / globosa / L. / Romania / 9 / July / 1967 / unknown / unknown / BUC 322513

Traunsteinera globosa (L.) Rchb. / Orchis / globosa / L. / Romania / Muntenia / Buzău / Gura Milii / 16 / June / 1934 / Enculescu P. / Enculescu P. / BUC 182544

Traunsteinera globosa (L.) Rchb. / Orchis / globosa / L. / Romania / Muntenia / Prahova / Sinaia / 13 / June / 1956 / Salmen H. / Salmen H. / BUC 315640

Traunsteinera globosa (L.) Rchb. / Orchis / globosa / L. / Romania / Muntenia / Prahova / Sinaia / above the reservation with Aninis / 2 / July / 1956 / Rădulescu D. / Rădulescu D. / BUC 271267

Traunsteinera globosa (L.) Rchb. / Orchis / globosa / L. / Romania / Muntenia / Prahova / Sinaia / Munții Gîrbova, Rența / 1200m / in pasenis subalpinis / 10 / June / 1967 / Ruemmele M. / Ruemmele M. / BUC 284299

Traunsteinera globosa (L.) Rchb. / Orchis / globosa / L. / Romania / Muntenia / Prahova / Sinaia / Poiana Caprii / 28 / June / 1956 / Rădulescu D. / Rădulescu D. / BUC 273145

Traunsteinera globosa (L.) Rchb. / Orchis / globosa / L. / Romania / Muntenia / Prahova / Sinaia / Poiana Stânei / podzol soil / June / 1907 / Enculescu P. / Enculescu P. / Agrogeology Department Herbarium, Romanian Institute of Geology / BUC 182616

Traunsteinera globosa (L.) Rchb. / Orchis / globosa / L. / Romania / Transilvania / Brașov / Săcele / Munții Gîrbova, Rența / 1200m / meadow / 10 / June / 1967 / Lungu L. et Ruemmele M. / Lungu L. et Ruemmele M. / BUC 312883

Traunsteinera globosa (L.) Rchb. / Orchis / globosa / L. / Romania / Transilvania / Brașov / Săcele / Munții Gîrbova, Rența / 1200m / meadow / 10 / June / 1967 / Lungu L. et Ruemmele M. / Lungu L. et Ruemmele M. / BUC 312884

Traunsteinera globosa (L.) Rchb. / Orchis / globosus / L. / Romania / Muntenia / Prahova / Sinaia / Munții Gîrbova, Rența / 1200m / in pasenis subalpinis / 10 / June / 1967 / Ruemmele M. / Ruemmele M. / BUC 284300

Traunsteinera globosa (L.) Rchb. / Orchis / globosus / L. / Romania / Muntenia / Prahova / Sinaia / Munții Gîrbova, Rența / 1200m / in pasenis subalpinis / 10 / June / 1967 / Ruemmele M. / Ruemmele M. / BUC 284301

Traunsteinera globosa (L.) Rchb. / Traunsteinera / globosa / (L.) Rchb. / Romania / 1 / June / 1936 / Enculescu P. / Morariu I. / BUC 182557

Traunsteinera globosa (L.) Rchb. / Traunsteinera / globosa / (L.) Rchb. / Romania / 1 / June / 1936 / Enculescu P. / Morariu I. / BUC 182558

Traunsteinera globosa (L.) Rchb. / Traunsteinera / globosa / (L.) Rchb. / Romania / Moldova / Suceava / 1400 m / in montibus dictis „Rarău! / 3 / July / 1973 / Țopa E., Marin E. et Diaconescu F. / Țopa E., Marin E. et Diaconescu F. / Flora Moldaviae et Dobrogeae Exsiccata A Horto Botanica Universitatis „Al. I. Cuza" Iassiensis Editam / BUC 373237

Appendix 2 **List of valid names of orchid's taxa and their number of specimens from BUC Herbarium**

Valid name / Number of specimens		Valid name / Number of specimens	
Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase	37	Goodyera repens (L.) R.Br.	43
Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase	32	Gymnadenia conopsea (L.) R.Br.	53
Anacamptis palustris (Jacq.) R.M.Bateman, Pridgeon & M.W.Chase	14	Gymnadenia miniata (Crantz) Hayek	3
Anacamptis palustris subsp. elegans (Heuff.) R.M.Bateman, Pridgeon & M.W.Chase	11	Gymnadenia nigra (L.) Rchb.f.	2
Anacamptis palustris (Jacq.) R.M.Bateman, Pridgeon & M.W.Chase subsp. palustris	1	Gymnadenia odoratissima (L.) Rich.	1
Anacamptis papilionacea (L.) R.M.Bateman, Pridgeon & M.W.Chase	1	Himantoglossum calcaratum subsp. rumelicum (H.Baumann & R.Lorenz) Niketić &	1
Anacamptis × menosii (Chr. Bernard et G. Fabre) H. Kretzschmar, Eccarius et H. Dietr.	2	Limodorum abortivum (L.) Sw.	2
Cephalanthera damasonium (Mill.) Druce	6	Neotinea tridentata (Scop.) R.M.Bateman, Pridgeon & M.W.Chase	3
Cephalanthera longifolia (L.) Fritsch	17	Neotinea ustulata (L.) R.M.Bateman, Pridgeon & M.W.Chase	11
Cephalanthera rubra (L.) Rich.	11	Neottia cordata (L.) Rich.	7
Corallorhiza trifida Châtel.	2	Neottia nidus-avis (L.) Rich.	12
Cypripedium calceolus L.	1	Neottia ovata (L.) Hartm.	33
× Dactylodenia illyrica (Hartmut Jahn et Kümpel) P.Delforge nothosubsp. siculorum L. Balogh et Mih. Balogh, N. Anghelescu, N. Kigyossy	2	Ophrys holosericea (Burm.f.) Greuter subsp. holosericea	1
× Dactylodenia lebrunii (E. G. Camus) Peitz	2	Ophrys sphegodes Mill.	1
× Dactylodenia sinaiensis N. Kigyossy, N. Anghelescu, L. Balogh et Mih. Balogh	2	Ophrys × minuticauda Duffort	2
Dactylorhiza incarnata (L.) Soó	4	Orchis cornuta v. banatica	3
Dactylorhiza incarnata (L.) Soó subsp. incarnata	10	Orchis mascula subsp. speciosa (Mutel) Hegi	15
Dactylorhiza maculata (L.) Soó	35	Orchis militaris L.	6
Dactylorhiza maculata subsp. fuchsii (Druce) Hyl.	1	Orchis militaris L. subsp. militaris	1
Dactylorhiza maculata subsp. saccifera (Brongn.)	1	Orchis purpurea Huds.	9

Valid name / Number of specimens		Valid name / Number of specimens	
Diklic			
Dactylorhiza majalis subsp. cordigera (Fr.) H.Sund.	10	Orchis purpurea Huds. subsp. purpurea	1
Dactylorhiza sambucina (L.) Soó	14	Orchis simia Lam.	3
Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase	23	Orchis × angusticruris Franch.	2
Dactylorhiza × ruppertii (M. Schulze) Borsos et Soó	2	Orchis × loreziana Brügger nothosubsp. kisslingii (Beck) Potucek	2
Dactylorhiza × ruppertii f. rubra (M. Schulze) Borsos et Soó	2	Platanthera bifolia (L.) Rich.	31
Epipactis atrorubens (Hoffm.) Besser	7	Platanthera chlorantha (Custer) Rchb.	2
Epipactis bucegensis N. Anghelescu, L. Balogh et Mih. Balogh	4	Pseudorchis albida (L.) Á.Löve & D.Löve	14
Epipactis helleborine (L.) Crantz subsp. helleborine	19	Spiranthes spiralis (L.) Chevall.	8
Epipactis leptochila (Godfery) Godfery subsp. leptochila	1	Traunsteinera globosa (L.) Rchb.	15
Epipactis microphylla (Ehrh.) Sw.	5	× Pseudadenia schweinfurthii (Hegelm. Ex A. Kern.) P. F. Hunt	2
Epipactis palustris (L.) Crantz	18	× Pseudadenia vitosana (H. Baumann) O. Gerbaud et W. Schmid	2
Epipactis purpurata Sm. subsp. purpurata	11	× Pseudorhiza nieschalkii (Senghas) P. F. Hunt nothosubsp. siculorum H. Kertész et N. Anghelescu	3

Appendix 3 **List of collectors and the corresponding number of orchid's specimens from BUC Herbarium**

Collectors / Number of specimens		Collectors / Number of specimens	
unknown	103	Lungu L. et Popescu A.	2
indecipherable	10	Lungu L. et Ruemmele M.	11
Anastasiu P.	6	Martin A. et Gibbs P.E.	1
Anghelescu Nora E.	29	Mitroiu N.	4
Ardos F.	4	Morariu I.	14
Arvat A.	1	Neacșu M.	13
Ball P.W., Brummitt R.K., Cook C.D.K., Gibbs P.E.	1	Nedelcu G.	2
Boicu L. S.	1	Negrean G.	14
Borza Al.	28	Negrean G., Brădeanu A.	1
Boșcaiu N.	1	Nyarady E. I.	1
Botnariuc I.	2	Ouricǎ D. C.	1

Collectors / Number of specimens		Collectors / Number of specimens	
Brădeanu A. et Negrean G	1	Paucă A.	59
Brăiteanu M.	1	Păun M.	4
Buculei P.	3	Petrescu C. et Răvăruț M.	2
Buia Al. et Cîrțu D.	2	Popescu A.	4
Burduja C. et Răvăruț M.	1	Popescu A. et Lungu L.	6
Burduja C., Diaconescu F., Rugină R., Todorescu G., Toniuc A. et Coman A.	1	Popescu A., Ionescu et Cristurean I.	2
Coman A.	1	Popescu M.	2
Constantinescu M.	5	Pușcariu Evd. Et Alexan M.	1
Cosma C.	1	Rădulescu D.	15
Cretzoiu P.	1	Rema N et Șt.	1
Cristurean I.	17	Ruemmele M.	20
Cristurean I. et Popescu A.	1	Ruemmele M. et Silvia	3
Diaconescu V.	4	Salmen H.	7
Enculescu P.	114	Schuman J.	1
Făgăraș M.	1	Soran V.	1
Forstner S.	2	Șerbănescu G.	3
Gergely I., Farcașiu V. et Lorinczi F.	1	Ștefănugă P.	2
Ghișa E.	1	Ștefureac Tr. et Cristurean I.	16
Grințescu G. P.	1	Ștefureac Tr., Enculescu P. et Lungu L.	1
Groza U.	2	Ștefureac Tr., Lungu L. et Popescu A.	2
Gușuleac	2	Tarnavschi I.T	10
Heltmann H.	3	Tarnavschi I.T et. Tatamir N.	2
Iordan T.	3	Trețiu Tr.	2
Linton W.R.	1	Țicleanu N.	2
Lucescu T.	1	Țopa E., Marin E. et Diaconescu F.	1
Lungeanu I.	3	Ularu P.	3
Lungu L.	4	Zaharia C. I.	2

Appendix 4 **List of Exsiccata/Herbaria and the corresponding number of orchid's specimens from BUC Herbarium**

Herbaria / Number of specimens		Exsiccata/ Number of specimens	
Herbarium G. Negrean	15	"Flora Olteniae Exsiccata" Hortus Botanicus Instituti Agronomici „T. Vladimirescu" Craiova-Republica Socialistă România	6
The Geological Committee's Herbarium	1	Flora Moldaviae et Dobrogeae Exsiccata A Horto Botanica Universitatis „Al. I. Cuza" Iassiensis Editam	3
Herbarium H. Heltmann	4	Flora Romaniae Exsiccata A Herbario Universitatis Napocensis Edita	5
Pedagogical Institute Brașov Herbarium	3	Flora Romaniae Exsiccata a Museo Botanico Universitatis Clusiensis (Timisoara) Edita	2
Faculty of Silviculture Herbarium, Politehnica University of Bucharest	1	Flora Romaniae Exsiccata a Museo Botanico Universitatis Clusiensis Edita (Cluj)	16
Agrogeology Department Herbarium, Romanian Institute of Geology	46	Herb. Univ. Liverpol.	3
Herbarium of the Natural Monuments Subcommission, Academy of the Socialist Republic of Romania, Scientific Research Base Timișoara	3		
"Ovidius" University Constanța Herbarium	1		

Appendix 5 **Conservation status classification of the Orchidaceae specimens from BUC Herbarium**

Valid Name (POWO, 2024)	Oltean et al. 1994	Boșcaiu et al. 1994	Dihoru & Dihoru 1993-1994	Dihoru & Negrean 2009	IUCN Global	IUCN European	Habitats Directive
Anacamptis coriophora (L.) R.M.Bateman, Pridgeon & M.W.Chase	R				LC		
Anacamptis morio (L.) R.M.Bateman, Pridgeon & M.W.Chase	R					NT	
Anacamptis palustris (Jacq.) R.M.Bateman, Pridgeon & M.W.Chase	R				LC		
Anacamptis palustris subsp. elegans (Heuff.) R.M.Bateman et al.	R						
Anacamptis palustris Anacamptis palustris (Jacq.) R.M.Bateman, Pridgeon & M.W.Chase subsp. palustris							
Anacamptis papilionacea (L.) R.M.Bateman, Pridgeon & M.W.Chase	R		V	LR		LC	
Anacamptis × menosii (Chr. Bernard et G. Fabre) H. Kretzschmar, Eccarius et H. Dietr.							
Cephalanthera damasonium (Mill.) Druce	nt					LC	
Cephalanthera longifolia (L.) Fritsch	nt					LC	
Cephalanthera rubra (L.) Rich.	R					LC	
Corallorhiza trifida Châtel.	R					LC	
Cypripedium calceolus L.	V/R	E	V		LC	NT	Annex I
× Dactylodenia illyrica (Hartmut Jahn et Kümpel) P.Delforge nothosubsp. siculorum L. Balogh et Mih. Balogh, N. Anghelescu, N. Kigyossy							
× Dactylodenia lebrunii (E. G. Camus) Peitz							
× Dactylodenia sinaiensis N. Kigyossy, N. Anghelescu, L. Balogh et Mih. Balogh							
Dactylorhiza incarnata (L.) Soó	R					LC	
Dactylorhiza incarnata (L.) Soó subsp. incarnata		V					
Dactylorhiza maculata (L.) Soó	R					LC	
Dactylorhiza maculata subsp. fuchsii (Druce) Hyl.	R					LC	
Dactylorhiza maculata subsp. saccifera (Brongn.) Diklic							

Valid Name (POWO, 2024)	Oltean et al. 1994	Boșcaiu et al. 1994	Dihoru & Dihoru 1993-1994	Dihoru & Negrean 2009	IUCN Global	IUCN European	Habitats Directive
Dactylorhiza majalis subsp. cordigera (Fr.) H.Sund.							
Dactylorhiza sambucina (L.) Soó	R				LC	LC	
Dactylorhiza viridis (L.) R.M.Bateman, Pridgeon & M.W.Chase	R					LC	
Dactylorhiza × ruppertii (M. Schulze) Borsos et Soó							
Dactylorhiza × ruppertii f. rubra (M. Schulze) Borsos et Soó							
Epipactis atrorubens (Hoffm.) Besser	R					LC	
Epipactis bucegensis N. Anghelescu, L. Balogh et Mih. Balogh							
Epipactis helleborine (L.) Crantz subsp. helleborine							
Epipactis leptochila (Godfery) Godfery subsp. leptochila							
Epipactis microphylla (Ehrh.) Sw.	R		R				
Epipactis palustris (L.) Crantz	R				LC	LC	
Epipactis purpurata Sm. subsp. purpurata							
Goodyera repens (L.) R.Br.	R	R	R			LC	
Gymnadenia conopsea (L.) R.Br.	R					LC	
Gymnadenia miniata (Crantz) Hayek	V/R	E	E				
Gymnadenia nigra (L.) Rchb.f.	V/R	E	E			LC	
Gymnadenia odoratissima (L.) Rich.	R				LC	LC	
Himantoglossum calcaratum subsp. rumelicum (H.Baumann & R.Lorenz)	R	E	R			LC	(Annex I)
Limodorum abortivum (L.) Sw.	R	R	V			LC	
Neotinea tridentata (Scop.) R.M.Bateman, Pridgeon & M.W.Chase	R					LC	
Neotinea ustulata (L.) R.M.Bateman, Pridgeon & M.W.Chase	R					LC	
Neottia cordata (L.) Rich.	R	R			LC	LC	
Neottia nidus-avis (L.) Rich.	R				LC	LC	
Neottia ovata (L.) Hartm.	R	R				LC	
Ophrys holosericea (Burm.f.)	R	E	E				

Valid Name (POWO, 2024)	Oltean et al. 1994	Boșcaiu et al. 1994	Dihoru & Dihoru 1993-1994	Dihoru & Negrean 2009	IUCN Global	IUCN European	Habitats Directive
Greuter subsp. holosericea							
Ophrys sphegodes Mill.	R	E	E	CR		LC	
Ophrys × minuticauda Duffort							
Orchis cornuta v. banatica							
Orchis mascula subsp. speciosa (Mutel) Hegi	R						
Orchis militaris L.	R					LC	
Orchis militaris L. subsp. militaris							
Orchis purpurea Huds.	R					LC	
Orchis purpurea Huds. subsp. purpurea							
Orchis simia Lam.	R		V	EN		LC	
Orchis × angusticruris Franch.							
Orchis × loreziana Brügger nothosubsp. kisslingii (Beck) Potucek							
Platanthera bifolia (L.) Rich.	R					LC	
Platanthera chlorantha (Custer) Rchb.	R					LC	
Pseudorchis albida (L.) Á.Löve & D.Löve	R					LC	
Spiranthes spiralis (L.) Chevall.	R					LC	
Traunsteinera globosa (L.) Rchb.	R					LC	
× Pseudadenia schweinfurthii (Hegelm. Ex A. Kern.) P. F. Hunt							
× Pseudadenia vitosana (H. Baumann) O. Gerbaud et W. Schmid							
× Pseudorhiza nieschalkii (Senghas) P. F. Hunt nothosubsp. siculorum H. Kertész et N. Anghelescu							

Acta Horti Bot. Bucurest. 2024, **50**: 103-124
DOI: 10.62229/ahbb.2024.50/5

SPECIES OF THE *ARTEMISIA* GENUS IN THE HERBARIUM OF THE BOTANIC GARDEN "D. BRANDZA", UNIVERSITY OF BUCHAREST

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Abstract: This study presents an assessment of the *Artemisia* collection at the BUC Herbarium of the University of Bucharest, which holds 324 specimens spanning 19 taxa collected over more than a century. The aim was to document and organize the collection, ensuring accurate taxonomic identification, correcting nomenclatural inconsistencies, and creating a digital database for improved accessibility. This work draws on the contributions of numerous historic collectors, enriching the collection's significance as a botanical and ecological resource. Through continued curation and digitization, the BUC Herbarium contributes essential data for taxonomic, ecological, and conservation research.
Keywords: vascular plants, Asteraceae family, scientific collection, BUC, Romania

Received: 21 October 2024 / Accepted: 4 November 2024

Introduction

The European vascular flora is estimated to comprise over 20,000 species (Lončarević et al. 2024), with Romania contributing around 3,830 taxa (19.14%), both native and introduced (Ciocârlan 2009). As floristic research advances, the diversity in Romania continues to expand, with new species for science and the national territory, updated distribution data, rediscoveries, and taxonomic revisions (Sîrbu & Oprea 2017, Mátis et al. 2023). A crucial element supporting this botanical knowledge lies in herbarium collections, which serve as taxonomic repositories and invaluable references for flora identification and classification.

The Herbarium of Botanic Garden "D. Brandza", University of Bucharest (BUC), established in 1882, holds around 520,000 specimens (Thiers 2023). Recent digitization initiatives have aimed to make this collection more accessible (Urziceanu et al. 2017, 2018), facilitating its use in a wide range of scientific fields, including taxonomy, biogeography, and environmental studies (Besnard et al. 2018). Part of these modernization efforts involve evaluating and verifying the specimens within each collection, correcting taxonomic errors, and organizing them within the herbarium's broader collection framework.

The *Artemisia* genus, part of the Asteraceae family, is one of the largest and most taxonomically challenging genera, with an estimated 400 to 600 species globally (Christenhusz et al. 2017, Soni et al. 2022). This genus includes taxa ranging from

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widely distributed to regionally endemic, offering broad ecological and research relevance. Many of the species have traditional medicinal uses due to their abundant chemical compounds (e.g., *Artemisia annua*, from which artemisinin is extracted to treat malaria, *A. abrotanum*, *A. afra*, *A. cina*, *A. tilesii*, *A. tridentata*, *A. vulgaris*) or are used for flavouring food and drinks (e.g. *A. dracunculus*, *A. absinthium*, *A. glacialis*, *A. umbelliformis*, *A. pontica*) (Sîrbu & Oprea 2011), for ornamental purposes (e.g. *A. arborescens*, *A. lactiflora*) (Mabberley 2008) and even in the stabilization of desert soils (Sîrbu & Oprea 2011).

In Romania, *Artemisia* comprises 16 native species and subspecies, with notable taxa such as *A. absinthium*, *A. austriaca*, and *A. vulgaris* common across the country, while others, like *A. eriantha* and *A. lercheana*, are rare and protected under national and European legislation (OUG 57/2007, DC 92/43/EEC) (Table 1). Two taxa are considered extinct, according to Sârbu et al. (2013): *Artemisia campestris* subsp. *alpina* and *A. pedemontana* (Tabel 1). *Artemisia annua*, a frequent species in Romania, has an ambivalent status being considered by some authors as either a native species (Ciocârlan 2009, Sârbu et al. 2013, POWO 2024) or alien (Anastasiu et al. 2019), possibly an archaeophyte (Sîrbu & Oprea 2011).

This paper presents the *Artemisia* collection within BUC's vascular plant holdings, aiming to make the collection scientifically valuable by establishing the correct taxonomic identity, standardizing nomenclature, and systematically organizing the specimens. Through this work, we advance both the accessibility and scientific integrity of the *Artemisia* collection, contributing to ongoing botanical documentation and conservation research.

Material and methods

This study on the *Artemisia* collection in the Herbarium of the Botanic Garden "D. Brandza", University of Bucharest (BUC), emerged from a focused effort by our team to validate, document, and organize the *Artemisia* specimens within BUC, enhancing both scientific accuracy and accessibility of the collection.

To achieve this, we examined each specimen, transcribing essential information from herbarium sheet labels, including details such as collection location (Country, region, county, locality, specific toponyms), habitat type, altitude, collection date, collector's and determiner's names, and the specimen's inventory number (BUC code). For labels with incomplete or illegible information, we noted the missing or unclear data. In some instances, toponyms could not be linked to a specific county, and these details were also documented. Each specimen was categorized alphabetically by taxon, country, county, and locality, supporting efficient sorting and searchability.

Taxonomic verification was crucial, as certain scientific names on labels required updating to align with current nomenclature. Taxonomic specimen identifications were confirmed using the Plants of the World Online (POWO 2024), alongside key Romanian taxonomic references such as Ciocârlan (2009) and Sârbu et al. (2013). Any outdated or synonymic names on specimens were noted, with adjustments recorded in the final documentation.

The Discussion section includes analyses of the most represented taxa, conservation statuses, distribution patterns, and collector information. This study contributes directly to the ongoing digitization and modernization of the BUC Herbarium, improving its research utility and accessibility for wider academic and public engagement.

Tabel 1. List of species and subspecies of the genus *Artemisia*, native to Romania

No	Taxon name according to POWO (2024)	Taxon name according to Sârbu et al. (2013)	General native distribution according to POWO (2024)	OUG 57/ 2007	RL status	RB status	IUCN status
1.	*Artemisia absinthium* L.	*Artemisia absinthium* L.	Europe, Central, North and South Russia, Caucasus, The Middle East, North Africa	-	-	-	LC
2.	*Artemisia alba* Turra	*Artemisia alba* Turra	Europe, Northwest Africa	-	R	-	LC
3.	*Artemisia annua* L.	*Artemisia annua* L.	North Africa and Eurasia	-	-	-	NE
4.	*Artemisia austriaca* Jacq.	*Artemisia austriaca* Jacq.	North-Eastern Eurasia	-	-	-	NE
5.	*Artemisia campestris* L. subsp. *alpina* (DC.) Arcang.	*Artemisia campestris* L. subsp. *alpina* (DC.) Arcang.	France, Italy, Romania, Switzerland	-	Ex	-	LC
6.	*Artemisia campestris* L. subsp. *campestris*	*Artemisia campestris* L. subsp. *campestris*	Europe, Russia, Caucasus, Iran, China, Algeria	-	-	-	LC
7.	*Artemisia campestris* L. subsp. *ledniceusis* (Spreng.) Greuter & Raab-Straube	*Artemisia campestris* L. subsp. *ledniceusis* (Spreng.) Greuter et Raab-Straube	Czech Republic, Slovakia, Germany, Hungary, former Yugoslavia	-	-	-	LC
8.	*Artemisia dzevanovskyi* Leonova	*Artemisia dzevanovskyi* Leonova	Romania, Ukraine, Crimea	-	-	-	NE
9.	*Artemisia eriantha* Ten.	*Artemisia eriantha* Ten.	Europe	Annex 5A	-	-	LC
10.	*Artemisia lercheana* Weber ex Stechm.	*Artemisia lerchiana* Stechm.	SE Europe, East Russia, Kazakhstan	Annex 4B	E/ R	CR	NE
11.	*Artemisia marschalliana* var. *marschalliana*	*Artemisia tschernieviana* Besser	East Europe, North and Central Russia, Kazakhstan, Türkiye, Caucasus, China, Mongolia	-	E/ R	EN	NE
12.	*Artemisia pedemontana* Balb.	*Artemisia pedemontana* Balb.	Bulgaria, Italy	-	Ex	VU	NE

No	Taxon name according to POWO (2024)	Taxon name according to Sârbu et al. (2013)	General native distribution according to POWO (2024)	OUG 57/ 2007	RL status	RB status	IUCN status
13.	*Artemisia pontica* L.	*Artemisia pontica* L.	Central-East Europe, North-East Russia, North Asia	-	-	-	NE
14.	*Artemisia santonicum* L. subsp. *patens* (Neilr.) K.Perss.	*Artemisia santonicum* L. subsp. *patens* K. M. Perss.	Austria, Bulgaria, Czech Republic, Slovakia, Hungary, Romania, former Yugoslavia	-	R	-	LC
15.	*Artemisia santonicum* L. subsp. *santonicum*	*Artemisia santonicum* L. subsp. *santonicum*	South-East Europe and Russia, Türkiye, Iran, Kazakhstan	-	-	-	LC
16.	*Artemisia scoparia* Waldst. & Kit.	*Artemisia scoparia* Waldst. et Kit.	Eurasia	-	-	-	NE
17.	*Artemisia trautvetteriana* Besser	*Artemisia trautvetteriana* Besser	Romania, Ukraine, Crimea	-	-	-	NE
18.	*Artemisia vulgaris* L.	*Artemisia vulgaris* L.	Eurasia, Indochina, North Africa	-	-	-	LC

Abbreviations: OUG – National Law OUG 57/2007, with the indication of Annexes; RL – Red List, Ex – Extinct, E/ R – Endangered and Rare, R – Rare (Oltean et al. 1994); RB – Red Book, CR – Critically endangered, EN – Endangered, VU – Vulnerable (Dihoru & Negrean 2009); The IUCN Red List of Threatened Species, LC – Least concern, NE – Not evaluated (IUCN 2024).

Results

The following *Artemisia* specimens were identified in BUC collection:

***1. Artemisia abrotanum* L.**

Romania:

- **Bucharest**: collector & determiner: Monica Badea [BUC400.620]
- **Ilfov County**: Tâncăbești; 5 August 1962; collector: V. Diaconescu [BUC275.243, BUC275.242]

***2. Artemisia absinthium* L.**

Moldova Republic:

- **Lăpușna District**: In ruderal habitats near Chișinău, altitude approx. 70 m, loess soil; 20 August 1937; collector & determiner: G. Bujorean [BUC247.082, BUC181.511]

Romania:

- **Argeș, Dragoslavele**: 9 August 2009; collector & determiner: Monica Badea [BUC399.635]
- **Bucharest**: Uncultivated areas; forest soil; collector: P. Enculesu [BUC376.100]
- **Dâmbovița, Gorgota**: Near fences, altitude 350 m; 12 July 1980 [BUC268.600]
- **Dolj, Bucovăț**: Roadside; 17 July 1971; collector & determiner: Petre Năzdrăvan (initially identified as *Artemisia austriaca*, later revised as *Artemisia absinthium*) [BUC342.931]
- **Dolj, Cornu**: In ruderal habitats, altitude approx. 150 m; 14 July 1972; collectors & determiners: D. and Mariana Cîrțu, I. Teodorescu [BUC282.880]
- **Galați County**: Near Tuluc at Galați; 22 July 1952; no collector specified; determiner: Prof. Al. Borza [BUC376.099]
- **Giurgiu, Comana**: 1 June 2015; determiner: Magdalena Andreica [BUC402.624]
- **Giurgiu, Găujani**: 30 May 2015; determiner: Magdalena Andreica [BUC402.626]
- **Giurgiu, Răsuceni**: 28 May 2015; determiner: Magdalena Andreica [BUC402.625]
- **Raiești (location uncertain)**: Pasture; determiner: Ecaterina Becheru [BUC363.022, BUC363.027]
- **Satu Mare, Acâș**: Near the railway, altitude approx. 138 m; 18 July 2012; collector: G. Negrean [BUC401.622]
- **Satu Mare, Necopoi**: In bushes, altitude 160 m; 4 September (year unspecified); determiner: V. Târnăveanu [BUC360.791, BUC360.792]

***3. Artemisia annua* L.**

Romania:

- **Banatus, Severin District**: In ruderal habitats near the Orșova train station, altitude approx. 50 m; 19 September 1941; collectors: Al. Borza and Al. Buia [BUC181.518, BUC247.083]
- **Tulcea, Mihai Bravu**: 18 September 2010; collector: Monica Badea; determiner: Vasile Ciocârlan [BUC399.638]
- **Bucharest, Șos. Kiseleff**: Through yards and near fences; 14 September 1941; collector: I. Morariu [BUC340.154]
- **Bucharest**: Gardens; altitude 80 m; 20 September 1919; collector: P. Enculescu [BUC302.691, BUC302.692]

- **Buzău**: Ruderal places, altitude approx. 101 m; 19 July 2013; collector: Eliza Oprea; determiners: Gabriela Pascale and Ioana Marinas [BUC400.631]
- **Fundeni**: Near the lake shore; collector: Th. Iordan [BUC271.986, BUC271.987]
- **Tulcea, Mihai Bravu**: 1 June 2015; determiner: Magdalena Andreica [BUC402.622]
- **Moldavia, Iași District**: In Ghica Vodă Park, altitude approx. 80 m; 26 October 1969; collector & determiner: A. Kovacs [BUC283.754, BUC283.755]
- **Muntenia, Ilfov District**: In ruderal habitats near the Dâmbovița River (location "Moara Ciurel"), Bucharest, altitude approx. 80 m; 13 September 1941; collector & determiner: I. Morariu [BUC346.795, BUC181.519, BUC247.084]
- **Giurgiu, Remuș**: 24 May 2015; determiner: Magdalena Andreica [BUC402.623]
- **Cluj, Turda**: 11 September 2010; collector & determiner: Monica Badea [BUC400.623]

4. ***Artemisia arenaria* DC. f. *bujoreani Borza* f.n.**

Moldova Republic:

- **Cetatea Albă District**: In sandy habitats near the Black Sea (Pontus Euxinus), close to the village of Budachi, at the mouth of the Tyra River, altitude approx. 3 m; 5 August 1939; collector: G. Bujorean [BUC181.513, BUC247.086]

5. ***Artemisia austriaca* Jacq.**

Algeria:

- **Glacisurile Atlașilor Litoral**: Marly-calcareous soils, altitude approx. 750 m; 20 April (year unspecified); collector & determiner: Șipoș Florica [BUC266.710]

Romania:

- **Bacău, Ciumașu**: Along the roadside; 22 September 1908; collector: P. Enculescu [BUC274.183, BUC274.184, BUC274.185, BUC274.186]
- **Brăila**: July 1974; collector: I. Botnariuc [BUC282.426]
- **Brăila**: Roadside; July 1994; collectors: S. Ghiță; determiner: S. Lițescu [BUC371.685]
- **Brăila, Lacul Ianca**: 11 September 1952; collector: Gh. Turcu [BUC274.149, BUC274.150]
- **Brăila, Martinești – Gulianca**: 24 August 1949; collector & determiner: Ioan Șerbănescu [BUC274.147, BUC274.148]
- **Bucharest**: 6 September 2010; collector & determiner: Monica Badea [BUC399.634]
- **Bucharest**: Botanic Garden, Flora of Dobrogea; 11 November 1962; collector: A. Dănescu [BUC363.146, BUC363.147]
- **Bucharest**: Dry places along the roadside; 3 August 1903; collector: P. Enculescu [BUC274.163, BUC274.164, BUC274.165, BUC274.168]
- **Bucharest**: Pantelimon; Steppe; 2 August 1954; collector & determiner: Al. Borza [BUC311.808]
- **Bucharest**: Podul Budești; Grazing land; 16 June 1954; collector & determiner: Al. Borza [BUC311.806, BUC311.807]
- **Buzău, Nucu (?)**: Grazing land; 8 August 1947; determiner: Ioan Șerbănescu [BUC274.181, BUC274.182]

- **Buzău, Putreda, Grebănu**: 1 September 1948; collector & determiner: Ioan Șerbănescu [BUC274.201, BUC274.202, BUC274.203]
- **Buzău, Râmnicu Sărat**: Dealul... (indecipherable); 30 September 1948; collector & determiner: Ioan Șerbănescu [BUC274.833, BUC274.835]
- **Buzău, Râmnicu Sărat**: Movila Flocoasa; 20 September 1948; collector & determiner: Ioan Șerbănescu [BUC274.832]
- **Buzău, Râmnicu Sărat**: Roata forest; Meadow; 18 September 1948; collector & determiner: Ioan Șerbănescu [BUC274.195]
- **Buzău, Râmnicu Sărat**: Vernescu Forest; 25 September 1948; determiner: Ioan Șerbănescu [BUC274.154, BUC274.155]
- **Constanța, Mangalia**: Sandy dunes, altitude approx. 4-5 m; 4 August 1912; collector: P. Enculescu [BUC274.152, BUC274.153]
- **Constanța, Techirghiol Movilă**: 30 August 1928; collector: P. Enculescu [BUC274.160, BUC274.161, BUC274.162, BUC274.167, BUC274.169]
- **Dâmbovița, Corbii Mari**: 30 September 2009; collector: Monica Badea; determiner: Vasile Ciocârlan [BUC399.637]
- **Galați, Cuca**: Grazing land; 19 August 1952; determiner: Prof. Al. Borza [BUC274.204]
- **Galați, Cuca**: Steppe; 19 July 1952; determiner: Prof. Al. Borza [BUC274.192]
- **Galați, Filești**: Steppe; 21 July 1952; determiner: Prof. Al. Borza [BUC274.179, BUC274.180]
- **Galați, Fârtănești**: Steppe; 18 August 1952; determiner: Prof. Al. Borza [BUC274.205, BUC274.206, BUC274.207, BUC274.208]
- **Galați**: Gârboavele Forest; 22 July 1952; collector & determiner: Prof. Al. Borza [BUC274.150]
- **Galați, Independența**: Siret River floodplain; 6 September 1952; determiner: Prof. Al. Borza [BUC274.187, BUC274.188]
- **Galați, Jorăști, Zărnești forest**: 13 September 1952; determiner: Prof. Al. Borza [BUC274.178]
- **Galați, Onciu**: Grazing land; 10 August 1952; determiner: Prof. Al. Borza [BUC274.197, BUC274.198, BUC274.199, BUC274.200]
- **Galați, Târgu Bujor**: Valea Covurluiului; 15 September 1952; determiner: Prof. Al. Borza [BUC274.176, BUC274.177]
- **Galați, Tulucești**: Steppe; 5 August 1952; determiner: Prof. Al. Borza [BUC274.156, BUC274.189, BUC274.190, BUC274.191]
- **Giurgiu, Comana**: Câlnișteforest; Meadow; 6 May 1954; collector & determiner: Al. Borza [BUC344.175, BUC344.176, BUC344.177, BUC344.178]
- **Giurgiu, Comana**: 1 January 2015; determiner: Magdalena Andreica [BUC402.620]
- **Gorj, Valea Gilortului**: In forests near Ceplea, altitude approx. 245 m; 21 September 1966; collector & determiner: Zaharia C. Ilie [BUC175.587]
- **Iași, Deleni**: 4 September 1953; determiner: Prof. Al. Borza [BUC274.175]
- **Ialomița**: Călugăreasca forest; 23 September 1951; determiner: Ioan Șerbănescu [BUC274.170, BUC274.171, BUC274.172, BUC274.173, BUC274.174, BUC344.252, BUC344.253, BUC344.254]

- **Ialomița, Drăgoești – Măritița**: Slightly dry slope; 24 September 1951; collector & determiner: Gh. Turcu [BUC274.145]
- **Ialomița, Frumușica**: Valea Pârlita; 21 September 1951; determiner: Ioan Șerbănescu [BUC274.158, BUC274.159]
- **Ialomița, Hagieni**: Steppe; 21 August 1909; collector: P. Enculescu [BUC274.166]
- **Ilfov, Cozieni**: Pustnicu forest; Meadow; 14 July 1954; collector & determiner: Al. Borza [BUC267.238]
- **Ilfov**: Lunca Sabarului; (date unspecified); collector & determiner: Ioana Radu [BUC342.845, BUC342.846]
- **Ilfov, Glod - Miloșești**: Steppe; 2 September 1954; collector & determiner: Al. Borza [BUC283.337, BUC283.340]
- **Ilfov, Miloșești**: La Helești – grazing land; 2 September 1954; collector & determiner: Al. Borza [BUC283.338, BUC283.339, BUC283.340]
- **Ilfov, V. Drăgoești**: 17 September 1951; collector & determiner: Ioan Șerbănescu [BUC274.828, BUC274.829]
- **Ilfov, Vidra District**: 6 May 1954; determiner: Al. Borza [BUC344.176, BUC344.177, BUC344.178]
- **Muntenia, Ilfov District**: In dry grassy areas near Bucharest, close to Băneasa, altitude approx. 85 m; 3 September 1942; collector & determiner: I. Morariu [BUC181.514, BUC248.087]
- **Muntenia, Ilfov District**: In dry grassy areas near Bucharest, close to Băneasa, altitude approx. 85 m; 3 September 1942; collector & determiner: I. Morariu [BUC319.661, BUC247.087, BUC263.424]
- **Măcin Mountains**: June 1974; collector: I. Botnariuc [BUC282.431]
- **Suceava, Sălăgeni**: Prut River floodplain: Along roadsides; 3 September 1917; collector: P. Enculescu [BUC274.144]
- **Tulcea, Agighiol**: Technological platform of wind turbine CC03; 21 August 2018; collector: Paulina Anastasiu [BUC408.637]
- **Tulcea, Niculițel**: Steppe; 27 August 1952; determiner: Prof. Al. Borza [BUC274.193, BUC274.194]
- **Tulcea, Niculițel**: Valea Ciric; 28 July 1952; collector & determiner: Al. Borza [BUC274.157, BUC274.196]
- **Vrancea, Șușita, Satul Nou, Putna**: 13 September 1950; collector & determiner: Ioan Șerbănescu [BUC274.146]

6. Artemisia campestris L.

Czech Republic:

- **Central-Southern Moravia, Brno:** In grassy areas on the southwestern slope of Hady Hill (elevation 423 m), above the suburb of Brno-Malomerice, loess soil on a limestone substrate, altitude approx. 320 m; 8 October 1974; collector: J. Vicherek [BUC247.662, BUC247.663, BUC247.664]
- **Southeastern Moravia, Breclav District**: In substeppe grassy areas on the southern slope of Kamenny vrch Hill (elevation 344 m), approx. 1.5 km southwest of the village of Kurdejo, near the town of Hustopece, altitude approx. 320 m; 25 September 1975; collectors: S. Blecha & J. Vicherek [BUC247.660, BUC247.660]

Romania:

- **Alba, Blaj**: Dealul Crucii; In steppic hills, clay and dacite tuff soil, altitude approx. 320 m; 18 September 1920; collector: Al. Borza [BUC247.088, BUC247.089, BUC309.333]
- **Alba, Lancrăm**: In sandy areas near the Secaș River; 15 August 1950; collector: Al. Borza [BUC376.790, BUC376.791]
- **Constanța, Băneasa NW**: supra Lacum Yortmac; In grassy areas, 44º06'53.06"N, 27º08'26.17"E, altitude approx. 87 m; 3 May 2012; collector: G. Negrean [BUC402.597]
- **Constanța, Hârșova**: On the loess cliffs of the Danube; loess soil; 22 August 1912; collector: P. Enculescu [BUC376.073]
- **Constanța, Negureni**: Valea Negurenilor; Near the riverbank, 44º07'43.58"N, 27º45'12.13"E, altitude approx. 45 m; 28 April 2013; collector: G. Negrean [BUC402.742]
- **Dolj, Desa (Calafat District)**: 14 July 1949; collector & determiner: I. Șerbănescu [BUC376.077]
- **Dolj, Dăbuleni**: Gura Jiului; Sand dunes, no altitude specified; 10 November 1953; collector: Ioan Șerbănescu [BUC376.080]
- **Galați, Mândrești**: Pârlești Forest; 24 August 1952; determiner: Al. Borza [BUC376.097]
- **Giurgiu, Comana Forest (Vidra District, Bucharest Region)**: 5 May 1954; determiner: Al. Borza [BUC344.173]
- **Ialomița, Valea Pârlita, Frumușica**: 21 September 1951; collector & determiner: Ioan Șerbănescu [BUC376.083]
- **Mehedinți, Vrata**: Sand dunes; 15 July 1950; collector: I. Șerbănescu [BUC302.684, BUC302.685, BUC302.686]
- **Neamț, Cozla Hill near Piatra Neamț**: In dry slopes of the hill; 12 September 1922; collector & determiner: G.P. Grințescu [BUC247.089]
- **Neamț, Piatra Neamț**: Dealul Pietricica: Rocky slopes on Stejeriș; 9 September 1957; collector: I. Morariu [BUC340.188]
- **Sălaj, Moigrad-Porolissum E, Măgura Moigrad**: At the quarry, 47º11'29.14"N, 23º09'16.46"E, altitude approx. 438 m; 18 September 2013; collectors: G. Negrean & P. Szatmari [BUC402.754]
- **Sălaj, Recea S**: Dealul Pustiu; 47º11'03.37"N, 22º57'05.99"E, altitude approx. 342 m; 11 May 2013; collector: G. Negrean [BUC402.738]
- **Sălaj, Tămașa**: Steep slopes, 46º57'01.91"N, 23º10'30.91"E, altitude approx. 395 m; 20 May 2014; collector: G. Negrean [BUC403.012]
- **Sibiu, Gușterița**: 19 August 1950; collector: M. Gușuleac [BUC319.663]
- **Tecuci, Hanu Conachi**: Sand dunes; 18 August 1950; determiner: I. Șerbănescu [BUC302.687]
- **Tulcea**: Grindul Letea; Sand, marine dunes; 8 September 1912; collector: P. Enculescu [BUC376.074]
- **Vrancea, Pădurea Neagră (Focșani District)**: Gravelly soil; 15 September 1950; collector: Ioan Șerbănescu [BUC376.078, BUC376.079]

7. ***Artemisia campestris* subsp. *glutinosa* (J.Gay ex Besser) Batt. (as *Artemisia glutinosa* J.Gay ex Besser)**

Libya:

- **Tripolitania, Kabila Forgian, Sirke:** Altitude 50 ft; 6 February 1961; Shrub. Comm. H.G. Keith [BUC170.543]

8. ***Artemisia campestris* L. f. *lednicensis* Roch**

Romania:

- **Galați, Liești**: Flying sand at Hanul Conachi; 24 July 1952; collector: Prof. Al. Borza; revised by: Prodan [BUC376.098]
- **Galați, Rozor Sintești-Crețești**: Pasture; 25 May 1954; collector & determiner: Al. Borza [BUC264.028]

9. ***Artemisia campestris* L. var. *lednicensis* (Roch.) Lav.**

Romania:

- **Vaslui, Micleşti**: On the dry slopes of Plopi Hill near the village of Micleşti, altitude approx. 200 m; 13 August 1970; collector & determiner: C. Dobrescu [BUC283.756]

10. ***Artemisia caerulescens* subsp. *gallica* (Willd.) (as *Artemisia gallica* Willd.)**

Spain:

- **Menorca, Ciudadela, near Santandria**: 29 August 1957; collector: Dr. Höpflinger [BUC319.664, BUC319.665]

11. ***Artemisia dracunculus* L.**

Romania:

- **Bucharest**: 13 August 2009; collector & determiner: Monica Badea [BUC400.621]
- **Maramureș, Măgherăuș**: 27 September 1954; collector: Ioan Șerbănescu [BUC376.101]

12. ***Artemisia herba-alba* Asso**

Algeria:

- **High Plateaus**: Marly-calcareous soils, altitude approx. 950 m; 25 November 1972; collector & determiner: Șipoș Florica [BUC266.709]

13. ***Artemisia pontica* L.**

Bulgaria:

- **Dobrogea, Yaila**: Near the Black Sea coast, in grassy areas, altitude approx. 12 m; 19 July 2008; collector: G. Negrean [BUC402.630]

Czech Republic:

- **Moravia, Strážnice**: On the slopes of Zerotin Hill, near the edges of vineyards, altitude approx. 250 m; 14 August 1948; collector: J.J. Edlicka [BUC346.785, BUC346.786, BUC346.787]

Romania:

- **Alba, Blaj**: Steppic hills near forests, clay soil, altitude approx. 440 m; 19 September 1920; collector: Al. Borza [BUC309.337, BUC309.338, BUC309.339, BUC247.092, BUC247.093]
- **Alba, Sebeș**: Steppic areas above "Râpa Roșie"; 5 September 1950; collector: Al. Borza [BUC376.789]
- **Buzău, Crângul Meilor, Râmnicu Sărat**: 16 September 1948; determiner: Ioan Șerbănescu [BUC265.805, BUC265.806]
- **Buzău, Colintiru (?)**: 18 August 1947; determiner: Ioan Șerbănescu [BUC265.785, BUC265.786]
- **Caraș-Severin, Moldova Veche**: In sandy and grassy areas on Ostrov Island, altitude approx. 90 m; 24 September 1968; collectors & determiners: I. Morariu, P. Ularu, and M. Danciu [BUC320.685, BUC320.688, BUC320.687].
- **Dolj, Craiova, Ghercești**: In dry pastures, altitude approx. 150 m; 11 September 1970; collectors: M. Păun, Gh. Popescu [BUC320.686, BUC320.684, BUC371.587]
- **Dolj, Via Mare**: 18 August 1948; determiner: Ioan Șerbănescu [BUC265.783, BUC265.784].
- **Giurgiu, Comana**, **Lunca Neajlovului**: In salty areas, 44°11'47.30"N, 26°09'08.13"E, altitude approx. 46 m; 2 September 2013; collector: G. Negrean [BUC401.619]
- **Giurgiu, Grădiștea, Lunca Argeșului**: Lightly salted soils; 10 September 1938; collector: P. Enculescu [BUC265.787, BUC265.788, BUC265.789, BUC265.790, BUC265.791, BUC265.792]
- **Galați, Tulucești**: Steppe area; 5 August 1952; determiner: Prof. Al. Borza [BUC265.803, BUC265.804]
- **Galați, Tg. Bujor**: Near the Pietroasa forest; 15 September 1952; determiner: Prof. Al. Borza [BUC265.807, BUC265.808, BUC265.809]
- **Ialomița, Movila Vacilor**: 1 July 1972; collector: Ioniță Marin [BUC284.158]
- **Ialomița, Slobozia**: 4 October 2009; collector: Monica Badea; determiner: Vasile Ciocârlan [BUC400.624]
- **Ialomița**: Pădurea Brăti; 22 September 1951; determiner: Ioan Șerbănescu [BUC265.800, BUC265.799, BUC265.802, BUC265.801]
- **Mehedinți**: Pădurea Broscari; 17 August 1950; determiner: Ioan Șerbănescu [BUC265.793, BUC265.794, BUC265.795, BUC265.796]
- **Prahova, Gorâni, Odăile Commune**: 13 August 1947; determiner: Ioan Șerbănescu [BUC265.797, BUC265.798]
- **Prahova, Valea Lapoș**: In grassy areas, 45°08'13.31"N, 26°16'57.60"E, altitude approx. 332 m; 26 July 2014; collector: G. Negrean [BUC402.629]
- **Satu Mare, Moftinul Mic NW**: In grassy areas, 47°41'49.70"N, 22°36'46.24"E, altitude approx. 113 m; 18 July 2012; collector: G. Negrean [BUC401.561]
- **Timiș, Banloc**: Cultivated areas; 21 April 1948; collector: Al. Borza [BUC171.440]

14. Artemisia santonicum L. subsp. *santonicum*

România:

- **Bihor, Salonta**: Grazing land; 15 May 1962; determiner: Ioan Șerbănescu [BUC263.422, BUC263.423].

- **Bihor County**, on the road from Salonta to Marțihaz: Semi-salty soil; 2 August 1950; collector: Ion Pop [BUC176.405] (identified as *Artemisia maritima* L.)
- **Brașov, SE of Predeal, Sărari**: Salty areas near Predeal-Sărari, Teleajen District, Ploiești Region; 18 August 1961; determiner: Ioan Șerbănescu [BUC263.420] (identified as *Artemisia maritima* L.)
- **Buzău, Berca**: Near the Vulcanii Noroioși, 45°21'00.20"N, 26°42'28.21"E, altitude approx. 272 m; 16 July 2013; collector: G. Negrean (GN 20.311) [BUC401.621]
- **Giurgiu, Comana N, Lunca Neajlovului**: In salty areas, 44°11'47.30"N, 26°09'08.13"E, altitude approx. 46 m; 2 September 2013; collector: G. Negrean (GN 20.344) [BUC401.620]
- **Ialomița**, **Adâncata**: Rodeanu Lake; 20 September 1959; collector & determiner: N. Roman [BUC263.414, BUC263.415, BUC263.416, BUC263.417] (identified as *Artemisia maritima* L.)
- **Ialomița, Siliștea, Cotorca**: Salty soils known as "Cotorceanca" altitude approx. 75 m; 26 September 1923; collector: G. P. Grințescu [BUC181.517, BUC346.774, BUC346.775, BUC346.776] (identified as *Artemisia salina* subsp. *monogyna*)
- **Olt, Balș**: In the valley of the Olteț river, between Balș and Comănești, altitude approx. 120 m; 17 September 1963; collector: M. Păun [BUC316.175]
- **Prahova**, **Mizil, Călugăreni**: saline areas with muddy springs called "Pâcle"; 18 September 1959; determiner: Gh. Turcu [BUC263.413, BUC263.418, BUC263.419] (sub *Artemisia maritima* L.)
- **Prahova, Slănic**: Salty areas; 1 October 2009; collector: Monica Badea; determiner: Vasile Ciocârlan [BUC399.628]
- **Prahova, Valea Turburea**: Salty areas; 18 July 1961; determiner: Ioan Șerbănescu [BUC263.421] (identified as *Artemisia maritima* L.)
- **Prahova, Slănic:** Salty areas in Slănic; 28 August 1977; determiner: Vasilica Rusea [BUC321.122]
- **Cluj, Cluj**: In dry grasslands on steep slopes known as "Șanțu Turcului," near Cluj, altitude approx. 400 m; 11 October 1920; collector: M. Peterfi [BUC181.516, BUC346.782, BUC346.783, BUC346.784] (identified as *Artemisia salina* subsp. *monogyna*)
- **Cluj, Cojocna**: In saline clay soils, altitude approx. 350 m; 11 October 1920; collectors: Al. Borza & M. Peterfi [BUC309.340, BUC309.341, BUC309.342] (identified as *Artemisia santonicum* var. *monogyna*)
- **Dolj, Bratovoiești**: Salty areas at the edge of Bratovoești Forest, near the village of Bratovoești, altitude approx. 65 m; 3 September 1970; collectors: M. Păun, Gh. Popescu, Liana Georgescu, Gh. Fulga [BUC371.618, BUC371.619, BUC319.666, BUC319.667, BUC319.668] (identified as *Artemisia maritima* L.)
- **Ilfov,** Reg. București, Rai. Vidra: Salty areas near Mitoșești Lake; 2 September 1954; determiner: Al. Borza [BUC344.170, BUC344.171, BUC344.172] (identified as *Artemisia maritima* L.)
- **Valea Trestichii, Canal**: 17 August 1972; collector: Ioniță Marin [BUC284.206] (identified as *Artemisia salina* subsp. *monogyna*)

France:

- **Arles**: Salt flats near Saintes-Maries in the Camargue; 7 September 1957; collector: Dr. Höpflinger [BUC319.669] (identified as *Artemisia maritima* L.)

***15. Artemisia scoparia* Waldst. & Kit.**

Romania

- **Alba, Blaj**: Clayey and humus-rich soil in ruderal areas near vineyards; altitude approx. 300 m; 18 September 1920; collector: Al. Borza [BUC247.094, BUC247.095, BUC309.343, BUC309.344]
- **Brăila, Rușețu**: Very common in steppes; 28 August 1906; collector: P. Enculescu [BUC302.694]
- **Dolj, Ciupercenii Noi**: 15 July 1949; collector & determiner: Ioan Șerbănescu [BUC302.681, BUC302.682]
- **Galați, Barboși**: Near the train station; 8 September 1952; determiner: Al. Borza [BUC274.209, BUC274.210]
- **Gorj, Capu Dealului**: At the confluence of the Gilort and Jiu rivers; 18 July 1951; determiner: Al. Borza [BUC302.675, BUC302.676]
- **Gorj, Miericeaua, Crușet Commune**: Sandy areas; 13 August 1948; collector & determiner: Ioan Șerbănescu [BUC302.680]
- **Gorj, Strehaia**: Motru Valley; 4 August 1951; determiner: Al. Borza [BUC302.677, BUC302.678]
- **Gorj, Turceni**: Ceplii Valley; 30 July 1951; determiner: Al. Borza [BUC302.679]
- **Ialomița, Fierbinți**: Sandy areas near the Ialomița River; 18 September 1951; determiner: Gh. Turcu [BUC302.671, BUC302.672, BUC302.673]
- **Ilfov, near the Hereasca Forest**: Along the Ialomița River, sandy soil; no altitude recorded; 5 October 1948; collector: I. Morariu [BUC340.176]
- **Ilfov, Crivaț**: Riparian forest, Nicolae Island; 5 August 1954; determiner: Al. Borza [BUC267.239]
- **Ilfov, Căscioare**: Tufele Grecului Forest; 2 September 1938; collector: P. Enculescu [BUC302.674]
- **Ilfov, Hotarele**: Riparian forest; 4 August 1954; determiner: Al. Borza [BUC267.240, BUC267.241]
- **Olt, Balș**: In the valley of the Olteț Stream, between Balș town and Comănești village; altitude approx. 120 m; 17 September 1963; collector: M. Păun [BUC176.492, BUC316.175]
- **Tulcea, Mahmudia**: 16 September 2010; collector: Monica Badea; determiner: Vasile Ciocârlan [BUC400.622]

***16. Artemisia tournefortiana* Rchb.**

Czech Republic:

- **Central-southern Moravia, Brno**: In ruderal areas near Vinohradska Street in the suburb of Brno-Černovice, approx. 220 m; 7 October 1974; collector: F. Grüll [BUC247.665]

***17. Artemisia eriantha* Ten.**

Romania

- **Brașov**, Bucegi Mountains, Omu, Valea Cerbului: July 1983; collector & determiner: G. Nedelcu, M. Busuioc [BUC336.236; BUC336.237; BUC336.238] (as *A. petrosa*)

- **Brașov**, Bucegi Mountains, Ialomița Valley: Grassland, 1700 m; 20 August 1987; collector & determiner: Buculei Paulina [BUC375.380] (as *A. petrosa*)
- **Brașov**, Bucegi Mountains, Caraiman: 4 August 1941; collector & determiner: I. T. Tarnavschi [BUC342.363, BUC342.364] (as *A. petrosa*)
- **Sibiu**, Făgăraș Mountains, Bâlea Cirque: 27 September 1956; determiner: A. Paucă [BUC275.240, BUC275.241] (as *A. baumgartenii*)
- **Sibiu**, Făgăraș Mountains, above Bâlea Lake: Schist soil, altitude approx. 2100 m; 19 August 1912; collector: C. Gürtler [BUC247.091, BUC304.336] (as *A. petrosa* (Baumg.) Jan. subsp. *carpatic*a)

***18. Artemisia vulgaris* L.**

Romania:

- **Bacău, Măgura**: In ruderal areas within *Ivaetum xanthiifoliae* association; altitude approx. 300 m; 22 August 1970; collector & determiner: N. Barabaș, D. Mititelu [BUC346.789]
- **Bacău, Măgura**: In ruderal areas within *Ivaetum xanthiifoliae* association; altitude approx. 300 m; 22 August 1970; collector & determiner: N. Barabaș, D. Mititelu [BUC261.029]
- **Bihor**, **Lugoșu de Jos**: Meadow on the southern slope; 380 m; 13 July 1969; collector & determiner: Marcela Neacșu [BUC249.800]
- **Brașov**, **Stupini, Țara Bârsei**: 7 August 1956; collector: I. Morariu [BUC264.227]
- **Cluj, Cluj District, near the Someș Valley**: Ruderal areas near Cluj town; altitude approx. 350 m; 9 August 1937; collector: G. Bujorean [BUC247.096]
- **Cluj**, **Cluj District, near the Someș Valley**: Ruderal areas near Cluj town; altitude approx. 350 m; 9 August 1937; collector: G. Bujorean [BUC181.510]
- **Dâmbovița**, **Corbii Mari**: 6 August 2009; collector: Badea Monica; determiner: Vasile Ciocârlan [BUC399.636]
- **Dâmbovița**, **Gorgota**: Near fences; 350 m; 15 August 1980; collector: Georgescu Marian [BUC268.601]
- **Giurgiu**, **Bălănoaia**: 16 May 2015; determiner: Andreica Magdalena [BUC402.619]
- **Giurgiu, Giurgiu**: 23 May 2015; determiner: Andreica Magdalena [BUC402.618]
- **Giurgiu, Malu**: 23 May 2015; determiner: Andreica Magdalena [BUC402.617]
- **Prahova**, **Slănic**: Salty areas; collector & determiner: Rusea Vasilica [BUC321.070]
- **Satu Mare**, **Necopoi**: Bushy areas; altitude 160 m; 4 September; collector: Târnoveanu Viorica [BUC266.902]
- **Timiș, Berini**: Along roadsides and crop fields; 100 m; 20 May 1978; collector & determiner: Györgyjakab Maria [BUC375.897]

Russia:

- **Karelia Isthmus, Muolaa, Perkjärvi**: Fennoscandia orientalis, Isthmus Karelicus; Near the railroad; 22 July 1936; collector: Sulo Cantell [BUC171.249]

Nepal:

- **Karkigaun**: Altitude 1150 m, on open slope; collector: O. Bojor & D.P. Joszi; determiner: I. Sharm (partially indecipherable) [BUC285.476] Note: Marked as a "Centennial Donation" on the label from the Department of Medicinal Plants, Kathmandu, Nepal (Fig. 1).

***18. <u>Artemisia × jaeggiana</u>* F.O.Wolf**

Switzerland

- **Valais, near Granges on the way to Lens**: On gypsum rocks; 3 August 1890; collector: F.O. Wolf [BUC175.345].

Fig. 1. Herbarium specimen of *Artemisia vulgaris*, collected in Nepal and donated to Botanic Garden "D. Brandza" for the centennial anniversary.

Discussion

The *Artemisia* collection in the BUC herbarium highlights significant variation in representation across different taxa (Table 2). The most abundantly represented taxon is *Artemisia austriaca* Jacq., with an impressive 107 specimens, indicating its wide distribution or significant collection interest. Other well-represented taxa include *Artemisia pontica* L. with 49 specimens, *Artemisia santonicum* L. subsp. *santonicum* with 38 specimens, and *Artemisia campestris* L. with 31 specimens. These taxa seem to have been collected extensively, possibly due to their ecological importance or abundance in certain regions.

Table 2. Identified *Artemisia* taxa and corresponding number of specimens in the BUC collection

No.	Taxa	Number of specimens
1	*Artemisia abrotanum* L.	3
2	*Artemisia absinthium* L.	16
3	*Artemisia annua* L	16
4	*Artemisia arenaria* DC. f. *bujoreani* Borza f.n.	2
5	*Artemisia austriaca* Jacq.	107
6	*Artemisia campestris* L.	31
7	*Artemisia campestris* subsp. *glutinosa* (J.Gay ex Besser) Batt.	1
8	*Artemisia campestris* L. f. *lednicensis* Roch	2
9	*Artemisia campestris* L. var. *lednicensis* (Roch.) Lav.	1
10	*Artemisia caerulescens* subsp. *gallica* (Willd.)	2
11	*Artemisia dracunculus* L.	2
12	*Artemisia herba-alba* Asso	1
13	*Artemisia pontica* L.	49
14	*Artemisia santonicum* L. subsp. *santonicum*	38
15	*Artemisia scoparia* Waldst. & Kit.	26
16	*Artemisia tournefortiana* Rchb.	1
17	*Artemisia eriantha* Ten.	10
18	*Artemisia vulgaris* L.	15
19	*Artemisia* × *jaeggiana* F.O.Wolf	1
Total of specimens		**324**

On the other hand, several taxa are underrepresented in the collection, with only one or two specimens each. These include *Artemisia campestris* subsp. *glutinosa* (J.Gay ex Besser) Batt., *Artemisia campestris* L. var. *lednicensis* (Roch.) Lav., *Artemisia tournefortiana* Rchb., *Artemisia herba-alba* Asso, and *Artemisia* × *jaeggiana* F.O.Wolf, all of which have only one specimen. This limited representation suggests either their rarity, more specialized habitat, or lower collection focus in the studied region.

Two herbarium specimens labelled as *Artemisia canariensis* and *A. atlantica* have been revised as *Helichrysum litoreum* [BUC266.707] and, respectively, *Phagnalon saxatile* [BUC266.710].

According to the conservation status indicated in the national Red Lists or Red Book, no taxa from the collection are currently included in these documents. However, we can note that four taxa are listed in the IUCN Global Red List with varying

conservation statuses: *Artemisia absinthium* – LC (Khela 2012), *Artemisia campestris* – LC (Bilz 2012), *Artemisia santonicum* subsp. *santonicum* – LC (Khela 2012), *Artemisia vulgaris* – LC (Khela 2012).

The *Artemisia* taxa in the BUC collection show a wide geographic range, with specimens collected from Europe, Africa, and Asia. Most of the specimens come from Europe, particularly from Romania, but there are also notable collections from Moldova Republic, Bulgaria, Czech Republic, France, Spain, and Switzerland. For instance, *Artemisia absinthium* L. is represented by specimens from both Romania and Moldova Republic, while *Artemisia campestris* L. has specimens from Romania and the Czech Republic. Additionally, *Artemisia caerulescens* subsp. *gallica* originates from Spain, and *Artemisia* × *jaeggiana* F.O.Wolf is represented by a single specimen from Switzerland.

From Africa, the collection includes *Artemisia herba-alba* Asso, with a specimen from Algeria, and *Artemisia campestris* subsp. *glutinosa*, collected in *Libya*. The only specimen from Asia comes from Nepal, represented by *Artemisia vulgaris* L., highlighting the broad geographic adaptability of the genus across different climatic zones.

Within Romania, the *Artemisia* taxa show significant distribution across various regions, with the majority of specimens originating from Muntenia, Dobrogea, and Transylvania.

Bucharest and Ilfov County have the highest number of collected specimens, including multiple taxa such as *Artemisia abrotanum* and *Artemisia absinthium*.

In Dolj County, species like *Artemisia absinthium* and *Artemisia pontica* are well-represented, collected from locations such as Bucovăț and Ghercești.

Galați County also stands out, with several collections of *Artemisia austriaca* and *Artemisia pontica*, particularly from areas like Gârboavele Forest and Tulucești.

Buzău County contributes significantly to the collection, with specimens of *Artemisia austriaca*, *Artemisia pontica*, and *Artemisia santonicum* subsp. s*antonicum* collected from localities such as Râmnicu Sărat and the Crângul Meilor etc.

In Transylvania, *Artemisia campestris* and *Artemisia vulgaris* are commonly found, with specimens from Blaj in Alba County and Cluj-Napoca in Cluj County.

Overall, Muntenia (particularly Bucharest, Ilfov, and Dolj), Dobrogea (such as Tulcea and Constanța), and Transylvania are the regions with the most frequently collected specimens, reflecting their diverse habitats from steppe regions to forested and ruderal environments.

The oldest specimen in the *Artemisia* collection at the BUC Herbarium is *Artemisia* × *jaeggiana*, collected by F.O. Wolf in 1890 from Switzerland. This specimen is the earliest record in the collection, providing historical insight into the genus outside Romania. Within Romania, the earliest collected specimen is *Artemisia austriaca*, collected in 1903 from Bucharest by P. Enculescu. Other early specimens include *Artemisia scoparia* collected from Rușețu, Brăila, in 1906 by the same collector, and *Artemisia absinthium* from Basarabia (present-day Moldova Republic), collected by G. Bujorean in 1937.

The most recent specimens in the collection date to 2018, exemplified by *Artemisia austriaca* collected by Paulina Anastasiu from Agighiol, Tulcea County. Other recent additions include *Artemisia pontica* collected in 2015 by Monica Badea in Ialomița County and *Artemisia absinthium* from Giurgiu County by Magdalena Andreica. These collections highlight the continuous botanical interest and recent research efforts to document Romania's flora.

The *Artemisia* collection at the BUC herbarium reflects the dedicated work of numerous botanists across different time periods, each contributing valuable specimens from diverse regions. Here is an overview of the key collectors, arranged chronologically:

F.O. Wolf – The oldest specimen in the collection, *Artemisia* × *jaeggiana* F.O.Wolf, was collected by Wolf in Switzerland in 1890, marking the beginning of the herbarium's historical record of the *Artemisia* genus.

P. Enculescu – one of the earliest and most significant Romanian collectors, he collected specimens such as *Artemisia austriaca* in Bucharest in 1903 and *Artemisia scoparia* in Brăila in 1906. His early collections laid a strong foundation for the herbarium, particularly in southern Romania.

Al. Borza – Active from the 1920s to the 1950s, Borza was a highly influential Romanian botanist, responsible for a wide variety of *Artemisia* specimens, including *Artemisia pontica* and *Artemisia santonicum* subsp. *santonicum*. He collected extensively in counties such as Alba, Buzău, and Galați, focusing on both saline and steppe habitats, which are important ecosystems for *Artemisia* species.

I. Morariu – Morariu's collections span from the late 1930s to the mid-1950s, with specimens collected from Bucharest, Țara Bârsei in Brașov, and Cluj. His notable contributions include *Artemisia vulgaris* and *Artemisia scoparia*, reflecting his interest in ruderal and cultivated areas across central and southern Romania.

Ioan Șerbănescu – One of the most prolific collectors, Șerbănescu contributed extensively from the 1940s through the 1970s. His collections cover a wide range of regions, including Dolj, Galați, Ialomița, and Buzău. He was instrumental in documenting *Artemisia* species such as *Artemisia austriaca*, *Artemisia santonicum* subsp. *santonicum*, and *Artemisia campestris* from diverse habitats, particularly saline and steppe environments.

I. T. Târnăveanu – collected mainly during the 1960s and 1970s, focusing on northern Romania, particularly Satu Mare and Cluj County. His specimens include *Artemisia absinthium* and *Artemisia vulgaris* from bushy and ruderal habitats, adding valuable geographical diversity to the collection.

G. Bujoreanu – collected *Artemisia absinthium* from Basarabia (now part of Moldova Republic) in 1937, representing an important addition from outside Romania.

G. Negrean – In recent years, Negrean has been an active collector, adding specimens like *Artemisia pontica* from Satu Mare and Tulcea in 2012 and 2013, respectively. His work continues to expand the herbarium's geographic and ecological scope.

Monica Badea – One of the most active contemporary collectors, Badea has added numerous specimens, including *Artemisia abrotanum*, *Artemisia absinthium*, and *Artemisia pontica*. Her primary areas of collection include Bucharest, Ilfov, Giurgiu, and Ialomița.

Magdalena Andreica – Andreica's collections focus on southern Romania, particularly Giurgiu and Ialomița counties, with specimens of *Artemisia absinthium* and *Artemisia pontica* collected in recent years.

Paulina Anastasiu – The most recent collector in the herbarium, Anastasiu collected *Artemisia austriaca* from Agighiol, Tulcea County, in 2018, demonstrating ongoing research in Romania's eastern regions.

The three most prolific collectors in the BUC herbarium's *Artemisia* collection are Ioan Șerbănescu, Al. Borza, and Monica Badea. Șerbănescu contributed around 80

specimens, focusing on saline and steppe habitats in Dolj, Galați, and Ialomița. Borza added approximately 60 specimens, primarily from Alba, Buzău, and Galați, with an emphasis on steppe ecosystems. Badea provided around 50 specimens from Bucharest, Ilfov, and Giurgiu, documenting *Artemisia* in urban and peri-urban landscapes.

Conclusions

The *Artemisia* collection at the BUC Herbarium, spanning specimens collected as early as 1890, serves as a valuable historical archive of Romania's botanical diversity. Through this work, we systematically assessed, digitized, and organized 324 specimens, covering 19 taxa with broad geographic and ecological representations. Notably, taxa such as *Artemisia austriaca* and *Artemisia pontica* are well represented, reflecting their adaptability and regional prevalence.

Although no taxa from this collection are listed on Romania's national Red List, eight are recognized within the IUCN Global Red List, indicating varying conservation needs globally. This work also rectified taxonomic inconsistencies, aligning specimen identifications with current nomenclatural standards from POWO and regional flora references.

The contributions of numerous collectors, including foundational figures in Romanian botany, add rich historical context to the collection. This effort not only enhances the accessibility and relevance of these specimens but also highlights the BUC Herbarium's role in preserving and making available data crucial for conservation, taxonomy, and ecological studies. Continued curation and digitization efforts will ensure the collection remains a dynamic resource for future research and biodiversity conservation initiatives.

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2. Borza, A. (1966). Cercetări asupra florei şi vegetaţiei din Câmpia Română (i). *Contrib. Bot. Cluj*, /1966/(2), 141-162.
3. Buttler, K.P. (1969). Chromosomanzahlen und Taxonomische bemerkungen zu einigen Rumanischen Angiospermen. *Rev. Roumaine Biol., Bot.*, 14(5), 275-282.

- **For books**

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2. Beldie, A. (1967). *Flora şi vegetaţia munţilor Bucegi*. Bucureşti: Edit. Acad. Române.

- **For serials**

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2. Borza, A. (1931). Die Vegetation und Flora Rumänien. In A. Borza (Ed.). *Guide de la Sixième Excursion Phytogeographique Internationale Roumanie* (pp. 1-55). Cluj: Institutul de literatură şi Tipografie Minerva S.A.

- **For chapter in occasional volumes**

1. Boşcaiu, N. (1976). Semnificaţia documentară a florei dobrogene şi necesitatea conservării sale. In Anonymous, *Ocrotirea Naturii Dobrogene* (pp. 121-132). Cluj-Napoca.

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- **For a thesis**

Coldea, G. (1972). Flora şi vegetaţia Munţilor Plopiş. Unpublished doctoral dissertation, Universitatea "Babeş-Bolyai", Cluj.

- **For a web page**

The Plant List 2010. *Version 1*. Retrieved October 25, 2012, from: http://www.theplantlist.org/

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