Drosera in Ukraine: 
Ecological, chorological specifics and phytosozonomical characteristics

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Introduction

In the conditions of global changes of the environment, the priority task is theoretical and conceptual substantiation, methodological recommendations and practical measures for the protection of phytodiversity as a medium-critical basis of balanced development of the biosphere. In the conditions of intensified anthropogenic impact, transformation of biotopes, it is necessary to determine ecological-chorological peculiarities of rare, endangered species of plants and to recommend zoological criteria for their survival and reproduction. The abovementioned problems are very important for heterotrophic helophytes, which are among the most vulnerable to the effects of desiccation of wetlands and peatlands, and in particular for species of the Drosera L. genus (the family – Droseraceae).

As is known, almost 50% of peatlands are degraded in Ukraine; the area of wetlands is 4.5 million hectares (1.6% of the state territory), drained lands – 3.3 million hectares (Konishchuk, 2015). That means that half of the potential ecotopes of helophytes are lost. In addition, even in the objects of the nature reserve fund, the condition of the populations of rare marsh plants, in particular sundews is deteriorating. This is due to the natural processes of succession, sylvatization, the mineralization of the substrate, change in the hydrological regime, the transformation of ecotopes, etc. Consequently, the problem of ecological assessment of the low frequency, disappearing helophytes on the example of sundews is highly topical and requires a priority solution in order to optimize the conservation of phytodiversity of rare species. The aim of the work is to optimize ecosozonomical conceptual approaches and practical monitoring measures for preservation of taxa of Drosera L. in Ukraine based on scientific substantiation. To achieve the goal of the work the following tasks were to be performed: 1) to unify and systematize bibliographic information, data of the herbarium funds; 2) to conduct field expeditions with geobotanical descriptions, selection of herbarium and samples of substrate (peat), water; 3) to study the ecological conditions, chorology of habitat, to describe the composition of phytocoenoses, to determine the type of substrate; 4) to determine the morphometric parameters and carry out correlation analysis; 5) to prove experimentally the possibility of growing ex-situ and repatriation in-situ; 6) to develop criteria for protection of sundews and offer effective measures for the conservation and reproduction of populations.

The practical significance and prospects of the research – the obtained results can be used in preparing the next edition of the Red Data Book of Ukraine, in the implementation of the programme “Chronicle of Nature” by national natural parks, biosphere reserves, nature reserves, in the work of the relevant departments of the Ministry of Ecology and Natural Resources of Ukraine and regional state administrations, forestry and water management. It is advisable to create an electronic database of ecotopes with geographical coordinates for GPS. According to the developed methodological recommendations, it is worthwhile to start the programme for the restoration of weakened, and if possible disappeared, sundew populations.

Materials and methods

We analyzed bibliographic (Montrezor, 1886-1891; Pachosky, 1897, 1913; Kholodny, 1938; Flora URSR, 1953; Andrienko, 1977, 2006, 2010; Denisova, 1981), actual data and herbarium collections of all known habitats of Drosera L. of the Ukrainian natural flora. We ana-
lyzed certain foreign publications (Cheek, 1998, 2001; Podbielskowksi & Sudnik-Wojcikowska, 2003) which confirmed the similarity of conditions of habitats in Europe. Our work was also based on the materials of our own expeditionary field research conducted during 2012–2017. The performance of the work is associated with basic research “Methodological fundamentals of sustainable development of wetland landscapes and peat ecosystems” (2011–2015) degree thesis, No 0111U003228. “Implementation of an integrated Pan-European system of ecological management of agricultural landscapes and biodiversity conservation in Ukraine” (2016–2020) degree thesis No 0116U000464 (Project manager – V. V. Konishchuk) and the preparation of the dissertation “Ecological preconditions for reservation of heterotrophic helophytes of genus Drosera L., Pinguicula L. in Ukraine ex-situ” (O. I. Skakalska). The research was carried out by the route method with reconnaissance. Geobotanical descriptions were carried out according to generally accepted techniques (Hryhora & Yakabenko, 2005). In addition to the original research, for the chorological analysis of rare plant species we analysed the literary data and materials from the herbarium resources of the M. H. Kholodnyi Botanical Institute of NAS of Ukraine, Rivne Regional Museum, Volyon Regional Museum, Institute of Agroecology and Environmental Management of NAAS. The list of the habitats in accordance to the administrative principle includes the settlement, tract, the object of the natural reserve fund, authors (Flora URSR, 1953; Andrienko, 1977, 2006, 2010), and the information about the herbarium. The water analysis was determined by a portable certified device: pH-OVP meter / conductivity meter / solimeter / thermometer Ezeo 7200. Peat ash content was determined using the standard method of burning in a muffle furnace Veb Elektro Bad Frankenhussen MLW Elektro LM 312.11 Typ L1, with weighing on analytical scales Nagera VEB Großwarzen Berlin IV S 3-3. For laboratory analysis of peat, a light monocular microscope Konos Research (max 1600x) with digital camera Ucros 14 MPix was used.

Digital images were made by the Nikon D3200. Selected samples of plants in agreement with the objects of the natural reserve fund were transferred to the Herbarium of the M. H. Kholodnyi Institute of Botany of NAS of Ukraine (KW), Institute of Agroecology and Environmental Management of NAAS of Ukraine. Taxonomy is given according to generally accepted conventions (Mocsákin & Fedorchonok, 1999) for the International Plant Names Index (IPNI). Latin transliteration for geographical names and synonyms is provided in accordance with the requirements (Postanova KMU, 23.12.2015). Bioethical norms were not violated.

Results

Three species and one hybrid of sundew grow in situ in Ukraine – Drosera longifolia L. (syn. D. anglica Huds.) (great or English sundew), D. intermedia Hayne (oblong-leaved or spoonleaf sundew), D. rotundifolia L. (common or round-leaved sundew), D. x obovata Mert. et W. D. Koch. The first two species are included in the Red Data Book of Ukraine (2009) with protected status as vulnerable, and were included in the two previous editions of the Red Book. D. rotundifolia has a regional conservation status in the vast majority of its natural range, in particular in Vinnytsia, Volyn, Dnipropetrovsk, Donetsk, Zakarpattia, Ivano-Frankivsk, Kyiv, Luhans’k, Liviv, Poltava, Rivne, Sumy, Ternopil, Kharkiv, Khmelnyz’kyi, Chernivtsi regions (Oliynyk et al., 2012), except in Zhytomir and Chernihiv regions. Ecotope conditions: pH 6.0–7.5 (less often 4–6), small-grained gypsum, sedge-sphagnum peat with a decomposition degree of 10–20% (less than 30%). The species is an assessor in the group. It grows in groups of class Schiecherio-Caricetum fuscæ Tüxen 1937, associations: Caricetum lasiocarpaceae Koch 1926, Caricetum limosae Brun–Blanquet 1921, Rhynchosporion albae Osvald 1923, Sphagno-Caricetum rostratae Steffen 1931 etc. Light-loving hygrophyte. General biornomorphological characteristics: hemicyrpto- phytic, perennial plant with linear- or oblong and wedge-shaped laminae, the height of flowering stems of 10–25 (sometimes 35) cm, stalk upright; leaves in basal rosette directed obliquely upward, linear wedge-shaped, 15–40 mm long, 3–5 mm wide with membranous brown stipules, highly rooted to the petiole, split at the top on setaceous parts, the top covered with glandular hairs; flowers are white, collected in a raceme; fruit is an ovoid single-pore capsule; sepals at the base are increased, oblong, finely granular and serrate, 5–6 mm long, about 2 mm wide; lobes are spade-shaped, white, 5–7 mm long, +(-) 3 mm wide; ovary is obovate-ellipso- dal; 3 columns, from the base with 2 separate arising parts, clavate on top; the capsule is egg-shaped, longer than the calyx (Fig. 1). The seed is spindle-shaped, with a loose adjacent skin. Blossoms in July–August. Gives fruits in August–September. It is propagated by windborne seeds. It is perennial. The number of chromosomes 2n = 40, hybrids with D. rotundifolia, some cultivated hybrids are also known.

The species is included in the Red Book of Ukraine, the Czech Republic, Slovakia, Hungary, Romania, Biarsk, Volgod, Kaluga Oblasts of the Russian Federation, the Red List of Plants and Mushrooms of Poland. According to official materials (Red Data Book of Ukraine, 2009), 25 sites are indicated according to herbarium collections and 22 according to the literary data. According to the literature, herbarium data, which we analyzed, and our own data, the chorological characteristic of D. longifolia L. is as follows (Fig. 2).

Locations of D. longifolia L. in Ukraine:

Volyn region: Volodymyr-Volynskyi district (d.) – Volodymyr-Volynskyi city (O. S. Rohovych); Kamian-Kashynskyi d. – village (v.) Zhytnytsia (Zhytnyvka) (T. L. Andrienko, 1971, KW); v. Zalissia (Y. K. Pachoskyi); v. Verkhly (E. M. Bradas, H. F. Bacharica, 1949, KW); Sviatobuzavskiyi Nature Reserve (v. Buzav); Sircie Nature Reserve (v. Dobre) (PZF Volynskoi oblasti, 1999); Kivertyskyi d. – V. Tsman (K. Vandas); Kovel city (O. S. Rohovych, Y. K. Pachoskyi); – d. Liubeshivskyi (v. Liubche (Y. Batiura and others, 2005); Kovel city (O. S. Rohovych, Y. K. Pachoskyi); Liubeshivskyi d. – trembling bog, Lake (l.) Okhotyn, v. Liubche (Y. P. Didukh, 1991, KW); Shatskyi National Park, l. Buzhnia (V. V. Konishchuk, 2016); Natural Park, to the west of Lake Pulemetske; to the south of Lake Luka; Caricetum rostratae; 3 columns, from the base with 2 separate arising parts, clavate on top; the capsule is egg-shaped, longer than the calyx (Fig. 1). The seed is spindle-shaped, with a loose adjacent skin. Blossoms in July–August. Gives fruits in August–September. It is propagated by windborne seeds. It is perennial. The number of chromosomes 2n = 40, hybrids with D. rotundifolia, some cultivated hybrids are also known.

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Locations of D. longifolia L. in Ukraine:
v. Usow, stow of Yamne, on the shore of the drainage channel, on peatlands (I. I. Moroz, 1972); (Herbarium of the National Botanical Garden named after M. M. Hryshko of the NAS of Ukraine, KWA); Olevskyi d. – v. Ozeriany (M. N. Kopachevska), between Rudnia Radoviska and Zamyslovychi (D. K. Zerov); the station of Post Droiani, the stow of Shevtsova Nyva (M. I. Kotov, KW); the outskirts of Zamyslovychi village (O. O. Orlov, 1989, 1990, 2005); Nature Reserve of Plotnytsia (PZF Ukrainy, 2009); Poliskyi Nature Reserve (T. L. Andrienko and others, 2006, PZF Ukrainy, 2009), 2 km from v. Seleziwka, swamp (S. Y. Didenko, O. A. Hnatiuk, 2007, KWA).

Fig. 1. *Drosera longifolia*, Bolitse Bog; growing *ex-situ* (Photo: V. V. Konishchuk)

Fig. 2. Location of *Drosera longifolia* in Ukraine

Kyiv region: Chornobylskiy Radiation and Ecological Biosphere Reserve, the northern part of the Ilia River Basin (V. V. Konishchuk, 2016); the outskirts of Kyiv, Petrozavivskaya Borschavochka, the valley of the Irpin River (O. S. Rohovych, V. V. Montrezor); Mykilska Slobidka (O. S. Rohovych) (left-bank massif near the Rusaniivka Strait, Kyiv, the location is lost); near Lake Pyly (I. F. Shmalhauzen, V. V. Montrezor, Y. M. Semenkevych, D. K. Zerov, P. F. Oksiuk) (according to our data, in 2016 no location was identified, ecotopes are very disturbed, partially drained); v. Romanivka (valley of the Irpin River) (I. F. Shmalhauzen), between Kyiv and Brovary (Y. M. Semenkevych); Perviapol-Khmelnitskiy d. – v. Viatyshe (O. S. Rohovych) (a lost location, a village flooded by the Kaniv reservoir, near Taybi village); sphagnum
in 2016 no location was found, ecotopes are very disturbed,
bog, v. Korzhi, v. Baryshivka (Y. K. Pachoskyi, 1913), (according to
in two botanical gardens (M. S. Khomiak, 2011); v. Zhornyska (A. To-
mashev), on a peat bog, Ivano-Frankove (F. Tomashovskyi).

Rivne region: Volodymyrets’kyi d. – v. Ozet’ (Y. P. Didukh, 2000, KW),
and development of meadow formations in the peatlands. Location of
Khorivska (Y. K. Pachoskyi, 2015); Ratnivskyi d. – Piddushne Bog (E. M. Bradis, 1949),
and others, 2006); Dubrovits’kyi d. – Perebory Bog (to the east of
the literature and herbaric data we analyzed and data of our own, the
floristic diversity of the location is the basin of the Desna River; the southern is in the
The leaves are positioned in pre-root rosette, oriented upward, with elliptical, wedge-shaped lamina with a pe-
and split almost to the basis into or lanceolate-bristle of spike parts.

Conditions of growth locations are mesomorphic, flooded mesoeu-
the meadows of the River Southern Bug (M. O. Burchak-Abramovych).
Zhytomyr region: Yemilchynskyi d. – Chasnykivskyi Nature Reserve, Park, Poliskyi Nature Reserve (Photo: V. V. Konishchuk)

Fig. 3. Drosera intermedia, Mizhrichynskyi Regional Landscape Park, Polisskiy Nature Reserve (Photo: V. V. Konishchuk)

Zhytomyr region: Yemilchynskyi d. – Chasnykivskyi Nature Reserve, v. Kochyryne (PZF Ukraine, 2009); Zhytomyrskyi d. – the outskirts of Stepan village (A. I. Barbarych, 1950, KW).

Korostenskyi district – Korosten Forest Range, Behivske Forestry, Lozanove Bog (O. O. Orlov, 2008, 1972, A. Shumilov, 1972, S. Y. Popovych, 1981, T. L. Andrienko, S. Y. Popovych); Poliskyi Nature Reserve, Dobra Bog, the stow of Brid, v. Kovanka, v. Symytsia (V. V. Konishchuk, 2013).

Kyiv region: Chernobyl Radiation and Ecological Biosphere Reserve (T. L. Andrienko, 2010; V. V. Konishchuk, 2016); the outskirts of Kyiv, on the bog near l. Rybne (D. K. Zerov, 1921, 1925, KW); outskirts of Kyiv, l. Rybne (I. F. Shmalhauzen, D. K. Zerov) (according to our data, in 2016, no location was found, ecotopes are very disturbed, partially drained); Petrivtsi, a swamp near the stow of Imshane (Y. M. Semenkevych, 1914, 1926, KW); Kyjevo-Mezhyhirskie forests, bog near the Shcherbyntsi stream (Y. M. Semenkevych); Boryspilske d. – v. Starе (O. M. Dubovyk), Zhukynske Forest Reserve, 155–156 quarter (L. S. Balashov, 1965, KW); Chernobylskyi (Polisskiy) d. – v. Zoryn (M. M. Bortniak, 1957, KW); Ivanivskyi d. – v. Pylaeva, Holovate Bog (A. Zapiatova, 1968, KW).

Rivne region: Bereznivskyi d. – bog Kalyna (H. F. Bachurina, 1951, KW), Nadsluchanskyi Regional Landscape Park; Nature Reserve of Boloto Halo, v. Sovpa; Nature Reserve of Urohychyshe BRYSHCHE, v. Kenizivka (PZF Rivne oblasti, 2008); Volodymyretske d. – v. Ozero (Y. P. Didulik, 2000, KW); Koza-Berezyna Bog, v. Rudka (V. V. Konishchuk, 2002); Batamy Bog (T. L. Andrienko, 1971, KW); Khyntotyskiy Nature Reserve, v. Stepanshorod (T. L. Andrienko and others 2006); Nature Reserves of Voronovskiy and Oseretskiy; nature reserve stow of Ozero Voronk, v. Voronk (V. V. Konishchuk, 2002); Dubrovtyskiy d. – Perebrodskie Forests, bog near the stow of Makhmerova Hirka (L. S. Balashov, 1975, KW); Pochayevskyi Nature Reserve, v. Verbiivka (T. L. Andrienko, O. I. Priadko, 1980, KW); Perebrody Bog (T. L. Andrienko, 1975, N. Parakhonska, 1975, KW); Rivnenskyi Nature Reserve, the stow of Perebrody; Nature Reserves of Velyke Pochaevske Ozero, Zolotynskyi, Svarcevytskiy (T. L. Andrienko and others 2006); Zarnychenskyi d. – Morosnichno II Bog, v. Butove (Stepangrorsdskie Forest Reserve (T. L. Andrienko, 1976, KW); bog near Lake Nobel, v. Kotyra (T. L. Andrienko, 1976, KW); v. Semykiv (E. M. Brasids, 1950, KW); Regional Landscape Park of Prypiaty-Stokhid; Dibrivskyi, Ostrivskyi, Vychivskyi Nature Reserves (T. L. Andrienko and others 2006); Osorotyskiy d. – Bashchanskiy Nature Reserve; National Nature Reserve of Dermaosko-Ostroty; Krynytsivskyi d. – v. Berezove (L. Sipailova, 1958, KW); Post Drovianyi, v. Post-Postivka, the stow of Syra Pohonya, Perebrody (T. L. Andrienko, and others, 2016), v. Stare Selo, roadside depressions (S. Kulczynski, 1939), (Y. P. Didulik, D. M. Yakushenko, 2007, KW); Rivnenskyi Nature Reserve, v. Stepanhorod (T. L. Andrienko and others 2006); Nastrashchuky Bog; nature monument reserve Ozero Sviate, v. Koropie (PZF Rivnenskoi oblasti, 2008); v. Petrivtsi, a swamp near the stow of Imshane (Y. M. Semenkevych); Boryspilskyi d. – v. Berestovets (O. V. Lukash); Kozeletskyi d. – v. Syrnytsia (V. V. Konishchuk, 2013).

Khmelnickyi region: Letychivskyi d. – the outskirts of Letychiv, to the north of the stow Ostryn, to the south of Shchedrova on the hills partially drained; v. Petrivtsi, a swamp near the stow of Imshane (Y. M. Semenkevych); Boryspilskyi d. – v. Berestovets (O. V. Lukash); Kozeletskyi d. – the outskirts of Os'cker city, Shakhove Bog (A. Rakochi); Borzniakivskyi d. – v. Berestovets (O. V. Lukash); Koketskyi d. – Mizhrichynskyi Regional Landscape Park district forestry, Vovche Bog, Zhytavnivny Bog; nature monument reserve Ozero Sviate, v. Koropie (V. V. Konishchuk, 2015).
**Drosera x obovata** Mert. et W. D. J. Koch. The hybrid of parent species *D. rotundifolia* and *D. longifolia* grows in marshes and peatlands, common in Siberia, the Far East, Scandinavia, the Middle Atlantic, Europe, and the Mongolia, North America (Andrienko, 2010).

A stellar perennial plant, propagates vegetatively. The stalk is straight, two times longer than the rosette of the pre-root leaves. The laminae are obovate, in length 1.5–2.0 times greater than the width (Fig. 5). The surface is pubescent, glandular. Inflorescence is a tassel. Perianth is actinomorphic. Sterile hybrid, vegetative reproduction is more intense than among related species. Sometimes can be isolated from the mother species, gives fruits, but the capsules are likely to be underdeveloped. Flowers are white. Blossoms in July-August. It is perennial, hygrophyte, and mesotrophic.

The taxon is included in the Red Book of Kaluga Oblast of Russia as a very rare species on the verge of extinction. Has no nature-protection status in Ukraine. We suggest including this disappearing hybrid into the Red Book of Ukraine similarly to some unique taxa of algae (Osnovy algosozologii, 2008).

Conditions of growth locations are flooded mesoeutrophic marshes, mainly sedge-sphagnum quaking bogs of karst and proglacial types of lakes, belonging to the classes Scleruchzero-Caricetea fuscae Tüxen 1937, Oxycooco-Sphagnetetea Braun-Blanquet et Tüxen ex Westhoff, Dijk et Paschier 1946, associations: *Rhynchosporetum albae* Osvald 1923, *Drosero intermediae-Rhynchosporetum albae* (Allorge et Denis 1923) Allorge 1926, and other. Water pH 6.5–7.5 (rarer 4–5), flooded sedge-sphagnum, hypnum peat and peat composed of different herbs and with low ash content and a decomposition degree of 10–20% (less than 30%). According to the literature, herbarium data and data of our own, the chorological characteristic of *Drosera x obovata* Mert. et W. D. J. Koch is as follows (Fig. 6).

**Kyiv region:** the outskirts of Kyiv, v. Romanivka (O. Rohovych, I. Shmalhauzen); Baryshivskyi d. – between Baryshivka and v. Kozh (in 2016 the location was not been confirmed by us); Brovarskyi d. – near the city of Brovary (D. Zerov, P. Oksiuk, 1923, KW); Vyshhorodskyi d. – v. Pylaia, Rohy Bog (A. Zapiatova, 1968, KW).

**Lviv region:** v. Ivano-Frankove, near the lake (B. Blotskyi).

**Rivne region:** Volodymyretskyi d. – Rivnenskyi Nature Reserve, Koza-Berezyna Bog (V. V. Konishchuk, 2002); Rokytnivskyi d. – the shore of Lake Bile, v. Khmil (L. L. Onuk, O. I. Skakalska, I. O. Skoroplas, 2013); the stow of Syra Pohonia (v. Bilsk), Perebrody (v. Stare Selco), sedge-sphagnum floats (V. V. Konishchuk, 2002).

**Kharkiv region:** the outskirts of Kharkiv, between village of Vasycheve and village of Bezliudivka (H. I. Shyriaev) (probably the loss of location due to drainage).

**Chernihiv region:** Kozeletskyi d. – the nature monument reserve Ozero Sviata, v. Koropie (V. V. Konishchuk, 2015).
Drosera rotundifolia. the round-leaved sundew, usually grows in groups with other species of the Drosera L. genus, but is more commonly distributed in wide amplitudes of ecological valency. Water pH 3–5 (6–8), peat of different ash content with decomposition degree from 10–20% to 30–50%, possibly substrate from shrub remains, sod-podzolic soils, loam, rocky surfaces with lichen-moss coverage or gley-silt sediment. Can be dominant in sub-associations. The plant is perennial, light-loving oligotroph. The round-leaved sundew is included in the Red List of Mushrooms and Plants of Poland as a species on the verge of extinction, Red Book of Briansk, Kaluga, Orlov Oblasts of RF as a rare species with falling abundance. It has the status of a regional rare species in most regions of Polissia. It is recommended to include the species into the next edition of the Red Book of Ukraine. According to the literature and herbarium data we analyzed, and our own data of the chorological characteristic of *D. rotundifolia* L. is given (Fig. 8).

Location of *D. rotundifolia* L. in Ukraine:

Vinnytsia region: Kalynivtskiy d. – Kalynivka, Medvidska Dacha (V. M. Virenchenko, 2003, KW); Hryvka, Zhar Bog (D. K. Zerov, 1927, KW); Litynskyi d. – Nature Reserve Zhar (V. V. Konishchuk, 2010).

Volyn region: Volodymyr-Volynskyi d. – Volodymyr-Volyn (A. S. Rohovych); Verba, Ovadne (Y. K. Pachosky); Holiovanskyi (Liubnyiskyi) d. – d. Opalyn (A. I. Barbarych, 1949, KW); Zabolotivskyi (Ratynskiy) d. – Zabolotia, the shore of Lake Tur (A. I. Barbarych, 1949, KW); Zabolotia Bog (S. Kuleczynsky, 1939), Kamyn-Kashyrskyi d. – d. Novi Chervyshcha (V. L. Shchynska, D. M. Yakushenko, E. O. Vorobiov, 1998, KW); v. Rudka Chervynska (T. L. Andrienko, 2007, KW); Misheev Nature Reserve (v. Voiehoshcha), the bog near Verkhy village; Vutynskyi Nature Reserve (v. Nyno) (V. V. Konishchuk, 2008); Nature monument Ozero Dobre (v. Pidrichia); Stokhid Nature Reserve (V. V. Konishchuk, 2002); Kivertyskiy d. – Kivertys, Zvyrintsiy, Berehchany (J. Panek, 1935, 1938); Zhuravychivskyi Nature Reserve (V. V. Konishchuk, 2000); Kormyn Nature Reserve (v. Berestiane); Chortove Bog; Kivertyskiy National Nature Park Tsarsamska Pushcha; Kovel'skiy d. – Kovel (O. S. Rohovych, V. V. Montrezor); Shtirov, bog near Lake Synovog (N. I. Batova, 1998, KW); trembling bog, l. Liubche (V. P. He-liuta, 2001); trembling bog, l. Okhotyn (E. Batuira and others, 2005); trembling bog, l. Mikhivskiy (N. Romanuik and others, 2005); Nature Reserve of Nemyhivne (T. L. Andrienko and others, 2006); Liubnyiskyi d. – National Nature Reserve of Pripyat-Stokhid; trembling bog, l. Chervyshchynske (Shyni); bog Rohizne (O. S. Rohovych, V. V. Konishchuk, 2012); Liubomylskyi d. – Opalyn (A. I. Barbarych); trembling bog, l. Orikhove (E. Batuira and others, 2005); Zhytomyr region: Ovrutskyi d. – v. Selesivka, Poliskyi Nature Reserve (K. V. Fedorov, 1998, KW); Litynskyi d. – Nature Reserve Zhar (V. V. Konishchuk, 2010).

Location of *D. rotundifolia* Mert et W. D. J. Koch in Ukraine:

Vinnitsa region: Kamin-Kashyrskyi d. – Kamin-Kashyrskyi d. – Kalynivtskiy d. – Kamin-Kashyrskyi (J. Panek, 1935, 1938); Zhuravychivskyi Nature Reserve (V. V. Konishchuk, 2000); Kormyn Nature Reserve (v. Berestiane); Chortove Bog; Kivertyskiy National Nature Park Tsarsamska Pushcha; Kovel'skiy d. – Kovel (O. S. Rohovych, V. V. Montrezor); Shtirov, bog near Lake Synovog (N. I. Batova, 1998, KW); trembling bog, l. Liubche (V. P. He-liuta, 2001); trembling bog, l. Okhotyn (E. Batuira and others, 2005); trembling bog, l. Mikhivskiy (N. Romanuik and others, 2005); Nature Reserve of Nemyhivne (T. L. Andrienko and others, 2006); Liubnyiskyi d. – National Nature Reserve of Pripyat-Stokhid; trembling bog, l. Chervyshchynske (Shyni); bog Rohizne (O. S. Rohovych, V. V. Konishchuk, 2012); Liubomylskyi d. – Opalyn (A. I. Barbarych); trembling bog, l. Orikhove (E. Batuira and others, 2005); Zhytomyr region: Ovrutskyi d. – v. Selesivka, Poliskyi Nature Reserve (K. V. Fedorov, 1998, KW); Litynskyi d. – Nature Reserve Zhar (V. V. Konishchuk, 2010).
(E. M. Bradis, 1954); Cheremskyi Nature Reserve, Cheremsky Bog, Nature monument Bolitse (V. V. Konishchuk, 2002); Troianivs’ki Bolota (Babinets, Pyskovets, Sokolske, Liute) (V. V. Konishchuk, 2011); Osnytskyi Nature Reserve (v. Osnytsia); Kruchene Ozero (v. Cherevalka); trembling bog, l. Trosne, Sviate, Bile (v. Karasyn) (V. V. Konishchuk, 2000); trembling bog, l. Dovhe, Oldyrh, Lokottia, the stows of Storomovicha, Tatans’kyi Mokh, Pobordinia, Krai, Ozhynnie, Tranik, Piatkyunya (v. Zamoistia) (V. V. Konishchuk, 2000–2016); Nature Reserve Ryys (v. Troianiwinska); Ratnivskyi d. – Ratne (A. I. Barbarych, 1949, KW); Nature monument Ozero Sviate (Zabolottia) (T. L. Andrienko and others, 2006); Starovyzhivskyi d. – Bobotske Bog (v. Zalymanarny) (E. M. Bradis, Radzyievskyi, 1949, KW); Ozeryshche Nature Reserve (v. Kornarove); Karasyne Bog (Nirivis’ke Forestry) (N. Romaniuk and others, 2005); Shatskyi d. – v. Svituaz (A. I. Barbarych, 1949, KW), v. Shatsk; Krasynets Bog (V. I. Honcharenko, 2005, KW); Shatskyi National Nature Park, Pylivskyi Riv Bog (D. M. Yakushenko, 2005, KW); Lely Bog, the stow of Shyia-Perennut (v. Melnyky) (T. L. Andrienko and others, 2006, 2010); Chakhivskyi Nature Reserve (v. Pyipsiat); Shatskyi National Nature Park, trembling bog, l. Buzhnia (V. V. Konishchuk, 2016); Vierskyi Nature Reserve (v. Rostan), Pishchanskyi, Pulmivskyi (PZF Ukrainy, 1999).

Fig. 7. Drosera rotundifolia L., Rinvenskyi and Cheremskyi Nature Reserves (Photo: V. V. Konishchuk)

Fig. 8. Location of Drosera rotundifolia in Ukraine.

Dnipro region: near village of Rybal’ske (Dnipro city) (Shmalhauzen, Akinfeev, Sidorov).
Donetsk region: Krasnolymanskyi d. – v. Yarova (V. M. Ostepko, V. V. Kucherevskyi, 1979, KW).
Zhytomyr region: Yemilchynskyi d. – Nature Reserve of Chasnykivskyi (v. Kochychyne); Zaburinskyi Nature Reserve (v. Paranyne); Zhytomyrskyi d. – Zhytomyr (Lohovskyi, Montrezor); near Zhytomyr, Vyla (Artemchuk); bog beyond the River Huiva (D. Zerov, P. Oksiuk); the outskirts of Zhytomir (D. Zerov, P. Oksiuk, 1925, KW); Korostenskyi d. – v. Horshchyk; Konystenskyi d. – Korosteshivskyi (V. Sovinskyi); Horodnytsia (Vernie); v. Oskow (D. M. Yakushenko, 2008, KW); Narodytskyi d. – Drevlyanskyi Nature Reserve (V. V. Konishchuk, 2015); Novograd-Volynskyi d. – Horodnytskyi Nature Reserve (V. V. Konishchuk, 1978, KW); Reserve of Kaziava (Bronytske Forestry); Nature Reserve of Chervonovilskyi (v. Perelissianka); Ovrutskyi d. – Ovruch (O. S. Rohovych); the stow of Yarmne (v. Usowo); v. Chervonka, boggy

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shores along the Chervonka River, the stow of Robech and peat bogs (Smyk, 1963, KWHA); Polissky Nature Reserve (T. L. Andrienko and others, 2006), Dobroge, the stow of Brid (v. Kovanka, v. Symitsa); Nature Reserve of Didove Ozero (V. V. Konishchuk, 2013); Myroshy Bog (L. S. Balashov, 1972, KW); v. Horodets (D. M. Yakushenko, O. O. Orlov, 2006, KW); Kutne Nature Reserve (v. Borutyne); Olevskyi d. – v. Oterany (M. N. Kopachevska); Rudnia-Radovliska (D. K. Ze- rov); Lapatyuchi, Zarnyolovskyi (Y. K. Pachoskyi); Post Droviniany (M. I. Kotov); Nature Reserve of Plotnytsya (PZF Ukrainy, 2009).

Zakarpattia region: Karpatysky Biosphere Reserve; Uzhansky National Natural Park; National Natural Park Synevyr (Lake Dyke); Bereh- hivskyi d. – the outskirts of the city of Berehovo; Vynohradivskyi d. – the outskirts of the city of Vynohradiv (L. M. Felbaba-Klushyna, 2012); Izhivsky d. – the sphagnum bog under the Boomsora mount, 750 m above sea level (V. I. Chopyk, 1968, KW); National Natural Park of Zacharovanyi Krayi, v. Ilyivsya (V. V. Lutak, 2012); Sydovrotses, mountain valley Krachanska, bog on a slope at 1451 m above sea level (L. M. Borauekvy, 2007, KW); Perekopskyi county, valley of Luny- mar (E. M. Bradis, 1948, KW); Mzhizhivskyi d. – v. Lisovets; Mukachivskyi d. – Mukachevo city, Serne Bog; v. Ivanivtsi, v. Puzniakivtsi (S. S. Kharkevych, 1957, KWHA), v. Bushtyn; Khastivskyi d. – the outskirts of Khast city (L. M. Felbaba-Klushyna, 2012).

Ivano-Frankivsk region: Verkhovynskyi d. – Karpatysky National Natu- re Reserve; Nature monument Boloto Vysia, v. Burkut; Halytskyi d. – Halytskyi National Nature Park; National Natural Park Synevyr (Lake Dyke); Bereh- hivskyi d. – the outskirts of the city of Berehovo; Vynohradivskyi d. – the outskirts of the city of Vynohradiv (L. M. Felbaba-Klushyna, 2012); Izhivsky d. – the sphagnum bog under the Boomsora mount, 750 m above sea level (V. I. Chopyk, 1968, KW); National Natural Park of Zacharovanyi Krayi, v. Ilyivsya (V. V. Lutak, 2012); Sydovrotses, mountain valley Krachanska, bog on a slope at 1451 m above sea level (L. M. Borauekvy, 2007, KW); Perekopskyi county, valley of Luny- mar (E. M. Bradis, 1948, KW); Mzhizhivskyi d. – v. Lisovets; Mukachivskyi d. – Mukachevo city, Serne Bog; v. Ivanivtsi, v. Puzniakivtsi (S. S. Kharkevych, 1957, KWHA), v. Bushtyn; Khastivskyi d. – the outskirts of Khast city (L. M. Felbaba-Klushyna, 2012).
city of Kupianks (M. Klokov, S. Piskunov, 1910, KW); Pechenizkyi d. – the outskirts of Pechenya (V. M. Cherniave, M. M. Lavrenko); Kharkivskyi d. – the outskirts of Kharkiv, Osvoa (V. M. Cherniave); Kliukenve Bog (H. I. Shyriaev, 1907, KW); (H. I. Shyriaev, M. I. Kozlov); near the village of Vasyshcheve (V. M. Cherniave); Shpakivka, Bezliudivka (H. I. Shyriaev); near Kalyvnyshche (V. I. Taile, P. K. Kozlov, M. I. Kozlov).

Kherson region: Tsaturskyi d. – Kozaichelevka arena (V. P. Polischuk, 2009); Lower Dnipro sands, the stow of Rakiv Kutochok (O. Y. Umanets, I. I. Moissenenko, 2012).

Khmelnytskyi region: Netishynskyi d. – Netishyn city, in the sands near Chornolonskyi NPS reservoir (H. A. Chorna, M. M. Hubar, 2004), (O. Y. Umanets, I. I. Moissenenko, 2012).

Table 1: Anatomical characteristics and leaf morphometry of D. longifolia

| No | Chorology, biotope, collector, date | Anatomical characteristic | The ratio of width / length in presentation of leaves, mm | Index of roundness of the leaf |
|----|-----------------------------------|--------------------------|-------------------------------------------------------|-------------------------------|
| 1  | Volyn region, Maneytskyi district, village Zamostia, Cherkasy Nature Reserve, Cherniaves sedge-sphagnum bog, drain stream Lissiyi, V. V. Konishchuk, August 2, 2002 | Stem – 2 (length 7.0, 8.0 cm), capsule at the stage of formation, leaves – 10 (length with petiole 5–10 cm), root length 40.0 mm | 3.1/5.5, 5.0/10.4, 5.1/28.3 | 0.564, 0.841, 0.180, 0.263 |
| 2  | Volyn region, Maneytskyi district, village Zamostia, Cherkasy Nature Reserve, Cherniaves sedge-sphagnum bog, drain stream Lissiyi, V. V. Konishchuk, August 2, 2002 | Stem – 4 (length 22.2 cm), small capsule – 6 (on a 1 stem), leaves – 12 (length with a petiole 5–7 cm), length of root 25.0 mm | 2.0/5.6, 3.1/15.2, 3.0/18.1 | Medium 0.383 |
| 3  | Volyn region, Maneytskyi district, village Zamostia, Cherkasy Nature Reserve, Cherniaves sedge-sphagnum bog, V. V. Konishchuk, April 4, 2004 | Stem – 1 (length 22.0 cm), small capsule – 6 (width, a max. a size 5.5x8.8 mm), leaves – 15 (length with a petiole 1–9.5 cm), length of root 20.9 mm | 2.6/31.0, 4.0/21.2, 2.5/24.4 | 0.122, 0.615, 0.150, | Medium 0.126 |
| 4  | Volyn region, Shatskyi district, village Zamostia, Cherkasy Nature Reserve, Cherniaves sedge-sphagnum bog, V. V. Konishchuk, April 4, 2004 | Stem – 1, small capsule – 5, leaves – 12 (length with a petiole 1–8.5 cm), length of root 28.8 mm | 2.9/29.0, 2.3/21.2, 3.5/14.0 | 0.100, 0.108, 0.250, | Medium 0.159 |

Table 2: Anatomical characteristics and leaf morphometry of D. intermedia

| No | Chorology, biotope, collector, date | Anatomical characteristic | The ratio of width / length in presentation of leaves, mm | Index of roundness of the leaf |
|----|-----------------------------------|--------------------------|-------------------------------------------------------|-------------------------------|
| 1  | Rivne region, Samenskyi district, Rivenskyi Nature Reserve, Semyon moss forest, Kremenska-Schirova tract (M. D. Yatsak, June 20, 2004) | Stem – 4 (length 9.0, 9.5 cm), capsule – 9, 8, 5, 5 pieces, leaves – 44 (length with petiole 1–4.5 cm), the length of the root 10.5 mm | 2.6/10.5, 3.5/11.2 | 0.248, 0.313, 0.192, 0.250, Medium 0.251 |
| 2  | Rivne region, Samenskyi district, Rivenskyi Nature Reserve, Semyon moss forest, Kremenska-Schirova tract (M. D. Yatsak, June 20, 2004) | Stem – 2 (length 5.0 cm), capsule – 4, 2, 2, 1, leaves – 12 (length with petiole 1–4.0 cm), root length 30 mm | 3.6/11.6, 3.0/10.0, 2.9/9.9 | 0.310, 0.30, 0.293, Medium 0.301 |
| 3  | Zhytomyr region, Zhytomoyskyi district, Zyrkovo Bog, quarter number 3, Reserve Poltysnya, b tog. O.O. Udov, July 20, 2008 | Stem – 1 (length 12.0 cm), capsule – 6, leaves – 34 (length with petiole 1–5.5 cm), length of the root of 10.0 mm | 3.6/11.8, 3.8/11.0, 3.1/12.0 | 0.305, 0.345, 0.288, 0.282, 0.371, 0.298, Medium 0.310 |
| 4  | Zhytomyr region, Zhytomoyskyi district, Zyrkovo Bog, quarter number 3, Reserve Poltysnya, b tog. O.O. Udov, July 20, 2008 | Stem – 1 (length 9.0 cm), capsule – 3, leaves – 30 (length with petiole 1–5.0 cm), length of the root 90.0 mm | 5.2/10.5, 4.0/9.6, 4.0/9.6, 4.0/9.6, 5.2/10.5 | 0.099, 0.5, 0.3, 0.333, 0.250, 0.667, 0.667, 0.667, 0.667, 0.667, | Medium 0.310 |
| 5  | Zhytomyr region, Zhytomoyskyi district, Zyrkovo Bog, quarter number 3, Reserve Poltysnya, b tog. O.O. Udov, July 20, 2008 | Stem – 4 (length 8.0 cm), capsule – 3, leaves – 12 (length with petiole 1–5.0 cm), length of the root of 90.0 mm | 1.0/8.0, 1.0/8.0, 2.0/10.0, 2.0/10.0, 1.5/12.0, 1.0/10.0, 2.0/10.0, 2.0/10.0, 2.0/10.0, 2.0/10.0 | 0.125, 0.30, 0.286, 0.286, 0.125, 0.100, 0.200, 0.182, 0.167, 0.200, 0.182, | Medium 0.196 |
TABLE 3
Anatomical characteristics and morphology of leaves of *D. x obovata*

| No | Chorology, biotope, collector, date | Anatomical characteristic | The ratio of width / length in presentation of leaves, mm | Index of roundness of the leaf |
|----|----------------------------------|--------------------------|--------------------------------------------------------|-------------------------------|
| 1  | Kharkiv region, the city of Kharkiv; marsh tract; V. Serhiiev, August 12, 1910 | The stalk is not developed, the capsule are absent, the leaves – 12 (length with petiole 1.0–6.5 cm), the length of the root 23.0 mm | 6.0/153, 5.2/13.6, 6.5/13.6, 6.0/169, 5.0/13.1, 5.1/10.8 | 0.392, 0.382, 0.382, 0.355, 0.382, 0.472, Medium 0.394 |
| 2  | Kyiv region, the outskirts of Kyiv, Lake Byrne; trembling bog; D. K. Zavov, P. Oksikt, July 22, 1921 | Stem – 3 (maximum height 21 cm), capsule of 11, 6 and 1 pc., leaves – 10 (length with petiole 1–8 cm), length of the root 47.6 mm | 4.29/7, 3.4/7.6, 6.0/15.0 | 0.433, 0.447, 0.400, Medium 0.427 |
| 3  | Volyn region, Zabolotka city; shore Lake Tur; A. I. Barbyarch, O. I. Barbyarch, July 25, 1949 | Stem – 1 (maximum height 16 cm), capsule – 6, 20 – 10 (length with petiole 1.0–6.5 cm), root length 20.0 mm | 4.4/11.6, 3.8/7.7, 5.1/10.8, 3.8/8.4 | 0.379, 0.494, 0.509, 0.452, Medium 0.459 |
| 4  | Volyn region, Maneytsyki district, village Zamostia, Chernemskyi Nature Reserve; shore Lake Redychi, June 30, 2002 | Stem – 1 (length 17.0 cm), capsule – 3, leaves – 10 (length with petiole 1–13 cm), length of the root 50.1 mm | 7.5/26.4, 7.5/21.7, 6.1/13.6, 5/13 | 0.284, 0.346, 0.449, 0.435, Medium 0.379 |
| 5  | Rivne region, Rokytyni district; shore Lake Bile; June 30, 2002 | Stem – 2 (not developed), no capsule, leaves – 13 (length with petiole 4–10 cm), root length 40.0 mm | 3.0/7.0, 2.4/5.5, 6.0/20.4, 4.0/10.0, 3.0/19.0, 2.5/20.3, 3.0/19.0, 6.0/16.0, 4.0/19.0, 4.0/18.0, 4.1/14.1, 4.0/14.0 | 0.429, 0.436, 0.294, 0.30, 0.40, 0.158, 0.152, 0.158, 0.375, 0.211, 0.222, 0.291, 0.286, Medium 0.283 |

Discussion

By morphology, the most similar to *D. anglica* and *D. intermedia* is *D. obovata* while *D. rotundifolia* is completely different. Using the mathematical methods for analysis of statistical data, for 5 variants of the index of sandrews’ leaf roundness, we determined the value of class interval (λ = (Χ max – Χ min) / k) and the variation as the mean linear deviation (d = Σ(Χi – Χ̄) / n).

The results for different taxa are as follows: λ D. longifolia = 0.051, λ D. intermedia = 0.086, λ D. obovata = 0.035, λ D. rotundifolia = 0.111, d D. longifolia = 0.071, d D. intermedia = 0.115, d D. obovata = 0.046, d D. rotundifolia = 0.136. Therefore, the value of the class interval in the review of the variation series by the average parameters of roundness of the leaf is the lowest for *D. × obovata* – 0.035, the same relates to the variability – 0.046. This indicates a slight deviation in the morphometric stability (constancy) of the parameters, and maintaining the linear parameters of the ratio of the width and length of the leaf of *D. × obovata* in comparison with other taxa of the genus, which in principle is not very characteristic of hybrids. The reliability of these results is confirmed for various physical-geographical regions (Western, Central, Eastern Polissia, Forest-Steppe). One can draw a hypothesis about distinguishing *D. x obovata* as a subspecies instead of hybrid. In our opinion, the confirmation of this may be the presence of a special morphometry, distribution separately from the mother individuals. But this issue remains rather controversial and requires further phylogenetic research.

**Carex** spp. are grown in botanical gardens (Krakov, Kyiv, Lviv, others). Earlier, there were no data on propagation and cultivation of *Drosera* L. in specially created conditions. In laboratory conditions and in specially created collection nurseries (Kremenets Botanical Garden, Kremenetskyi Hory National Park, Botanical Garden in Krakov), cultivating and propagating of sundews has been successfully demonstrated. The agrotechnique of *Drosera L. ex-situ* cultivation has been analyzed: the volume of the container for the soil is 1–2 dm cubic; substrate is peat (transition with high-moor peat) with addition of sand; sod-podzolic soil with sapropel addition, pH 5–7 (3–4); it is symbolically advisable to combine with sphagnum, Hypnum, Mniaceae mosses; watering mode is 1–2 times a week (rain water, or distilled with sugars (4.4%), traces of essential oil, vitamin C, 5% of mineral salts, malic, tartaric, succinic, benzoic), tannic and viscid substances, fats, sugars (4.4%), traces of essential oil, vitamin C, 5% of mineral salts, etc.)

**Table 4**

Anatomical characteristics and morphology of leaves of *D. rotundifolia*

| No | Chorology, biotope, collector, date | Anatomical characteristic | The ratio of width / length in presentation of leaves, mm | Index of roundness of the leaf |
|----|----------------------------------|--------------------------|--------------------------------------------------------|-------------------------------|
| 1  | Kyiv region, the outskirts of Kyiv, Lake Byrne; D. K. Zavov, July 24, 1925 | Stem – 1 (length 9.5 cm), capsule – 3, leaves – 11 (length with petiole 1–6.0 cm), length of the root 10.0 mm | 8.5/9.0, 7.3/7.3, 10.8/12.0, 7.4/7.5 | 0.944, 1.0, 0.97, Medium 0.958 |
| 2  | Rivne region, Rokytyni district, Khirliv village; shore Lake Bile; N. M. Shuya, O. O. Oklov, I. O. Bedranika, June 16, 2004 | Stem on the stages of formation, the capsules are absent, the leaves – 14 (length with petiole 1–5.5 cm), the length of the root 10.5 mm | 15.7/12.0, 12.0/10.4, 14.8/12.4, 8.9/8.9 | 1.308, 1.154, 1.194, 1.000, Medium 1.164 |
| 3  | Zhytomyr region, Ovchynskyi district, village Horodets; near the forestry, shore; D. M. Yakushenko, O. O. Oklov, June 15, 2006 | Stem on the formation stages, no capsule, leaves – 22 (length with petiole 1–5.0 cm), root length 5.0 mm | 11.5/13.0, 9.5/8.7, 8.0/1.1, 8.5/6.0 | 0.885, 1.092, 0.984, 1.417, Medium 1.096 |
| 4  | Khmelnytskyi region, Slavutskyi district; National Natural Park Male Polissia; O. Skakalska, 09.29.2014 | Stem – 1 (length 15 cm), capsule – 2, leaves – 18 (length with petiole 1–6.0 cm), length of the root 10.0 mm | 3.0/2.0, 3.0/2.0, 3.0/2.0, 2.0/1.0, 2.0/1.0, 4.0/3.0, 4.0/3.0, 4.0/3.0, 4.0/3.0 | 1.5, 1.5, 1.5, 1.5, 2.0, 1.0, 2.0, 1.333, 1.333, 1.333, 1.5, 1.333, 1.333, Medium 1.512 |
| 5  | Chernihiv region, Kozeltskyi district; Regional Landscape Park Muzhirchynyki; V. V. Konishchuk, July 20, 2015 | Stem for formation stages, no capsule, leaves – 11 (length with petiole 1–5.0 cm), root length 25.0 mm | 4.0/0.4, 5.0/4.0, 5.0/4.0, 10.0/7.0, 1.0, 1.25, 1.25, 1.129, 1.0, 1.0, 0.938, 1.143, 1.2, 0.833, 1.4, Medium 1.311 |

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Hydrophytes of the Drosera L. genus, despite being protected in a large part of the territory of the Nature Reserve Fund of Ukraine (nature reserves, national parks, Ramsar wetlands, reserves etc.) are very sensitive to the slightest negative changes in the environment (including changes in water regime) and may be an indicator of the ecological condition of the environment. As a result of succession, sylvatization of open sedge-sphagnum, hypnum marshes, reduction of trampling and cutting down of marsh plants (upper layer – phytocoenoses of Carex rostrata Huds., C. lasiocarpa Ehrh.), the sundews are displaced by other species of flora. In addition to feeding on insects – mosquitos (Culicidae), black flies (Simuliidae), syphid flies (Syripheidae), sundews use other sources (moving forms of macroelements, microelements and chemical compounds of the substrate of the pedosphere, water, photosynthesis energy, etc.), thus this specific group of plants would be more correctly termed heterotrophic rather than insectivorous species.

We have proved the possibility of growing all Drosera L. taxa of the natural flora of Ukraine ex-situ with subsequent repatriation subject to the appropriate scientific substantiation and the availability of legal support. Phytososonomic criteria for Drosera L. species are as follows: chorological, population, ecological-coenotic, florogenic, ontogenetic, pragmatic and aesthetic.

In Ukraine, the area with the most important phytososological value for sundews in Ukraine is Western Polissia (Volyn, Rivne region) (D. longifolia – 31, 20, D. intermedia – 31and 30 growing locations respectively). Round-leaved sundew is most widespread in the humid zone (Polissia, Carpathians). The vanishing taxon – D. obovata, despite its presence in Chernemskiy, Rivnensky Nature Reserves, Shatskiy National Nature Park, several reserves, is disappearing due to succession, afforestation, water regime change etc. Of 17 known locations 2 are lost. In Polissia we have reliably confirmed almost all growing locations of sundews, some have preserved autochthonous distribution for over 100 years since the onset of destructive anthropogenic impact (Western drainage-meliorative expedition, Y. L. Zhylyanski, 1873, etc.), others need clarification, conducting additional recording and monitoring, four new populations have been discovered. Some populations periodically renew, particularly D. intermedia. In some cases repatriation is needed, therefore we provide all known places of record according to the literature, herbarium data and data of field surveys. The most vulnerable ecotopes are in the Forest-Steppe and drained mires. Growing locations of D. rotundifolia were previously sited on above floodplain pine terraces of the Dnipro, Siverskyi Donets, South Bug, in the outskirts of Kharkiv, most of them are lost (Andrienko, 2010). Y. K. Panchoshky demonstrated the data on sundews in the territory of the current Kaniv reservoir, valley of Trubizh, Dnipro, which have disappeared. As a result of climate change, reduction of functions of self-regulatory ecological condition of hydrohelodroms, complete cutting down of the trees in the areas, extraction of amber, quarry development of carbonate rocks and draining of peat swamps, the ecological condition of typical biocoenoses of hydrophytes continues to deteriorate. Therefore, we suggest the inclusion of all taxa of Drosera L. in the next edition of the Red Data Book of Ukraine.

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