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NEW DATA ADDITION TO THE ROMANIAN ALIEN FLORA

OPREA ADRIAN[1], SÎRBU CULIȚĂ[2], ELIÁŠ PAVOL jun.[3], FERUS PETER[4]

Abstract: A number of seven plant taxa are presented in this paper, some of them being now for the first time reported in Romania (e. g. *Cenchrus longispinus*, *Panicum miliaceum* subsp. *ruderale*; *Panicum miliaceum* subsp. *agricolum*; *Robinia neomexicana*), while other taxa are mentioned for the first time in the flora of some historical provinces (e. g. *Oenothera parviflora* L. in Oltenia, or. *Setaria faberi* R. A. W. Herrm. in Moldavia); other taxa are newly identified in the flora of various counties (e. g. *Reynoutria* × *bohemica* in Bihor, Sălaj, Cluj, Caraş-Severin, Vâlcea, Prahova, and Bacău counties; *Reynoutria sachalinensis* in Caraş-Severin County).

Keywords: alien plant species, flora, new records, Romania

Introduction

Biological invasions of alien species are large-scale phenomena of widespread importance and represent one of the major current threats to economic value, biological diversity and function of invaded ecosystems [HULME, 2007; LAMBDON & al. 2008].

Identification and reporting of alien species entering on a certain area, and assessing their invasive character, are the first important steps in developing national or regional strategies to prevent negative effects of biological invasions.

According to LAMBDON & al. (2008) and PYŠEK & al. (2009), a constant increase in the number of neophyte species was noticed in the whole Europe, especially in the last two centuries; on average, 6.2 new alien plant species are naturalized in Europe in each year.

Similar to the situation on the European level, research conducted in recent years also showed a continuous enrichment with neophytes of the Romania's flora. According to our estimations, through the contribution of many authors (see SÎRBU & OPREA, 2011 and NEGREAN, 2011, for extensive reference lists), a number of 47 new alien plant species were registered in the Romania′s flora, after the year of 2000. This suggests that further floristic investigations are required for a better knowledge of the alien flora.

Our paper is a new contribution in this regard, including: i) newly registered taxa in Romania′s flora, and, ii) new chorological contributions of some species previously reported in the literature.

[1] "Anastasie Fătu" Botanical Garden, "Alexandru Ioan Cuza" University, 7-9 Dumbrava Roşie St., 700487, Iaşi – Romania
[2] University of Agricultural Sciences and Veterinary Medicine Iaşi, Faculty of Agriculture, 3, Mihail Sadoveanu Alley, Iaşi – Romania, e-mail: culita69@yahoo.com
[3] Slovak Agricultural University, Faculty of Agrifood Resources, Tr. A. Hlinku 2, 949 76, Nitra – Slovakia
[4] Mlynany Arboretum, Slovak Academy of Sciences, Vieska nad Zitavou 178, 95152, Slepcany – Slovakia

Materials and methods

The floristic and chorological data in this paper are based on lately field investigations, conducted in different regions and localities of Romania. For each identified species, there are given information concerning their general distribution all over the world, previously reported occurrence, as well as their current distribution in Romania′s flora.

The herbarium vouchers are deposited in the general herbarium of the University of Agricultural Sciences and Veterinary Medicine of Iaşi (IASI). The species nomenclature is given according to *Flora Europaea* [TUTIN & al. 1964-1980, 1993]. Terminology and definitions recommended by RICHARDSON & al. (2000) and PYŠEK & al. (2004) were used for establishing the status of alien plants.

Results and discussion

During our field surveys in the last six years, there have been identified other new vascular plants in the spontaneous and/or sub-spontaneous flora of Romania, as *Reynoutria × bohemica* Chrtek et Chrtková, *Reynoutria sachalinensis* (F. Schmidt) Nakai., *Panicum miliaceum* L. subsp. *agricolum* Scholz et Mikoláš, *Panicum miliaceum* L. subsp. *ruderale* (Kitag.) Tzvelev, *Robinia neomexicana* Gray, *Cenchrus longispinus* (Hack.) Fernald, *Oenothera parviflora* L., and *Setaria faberi* R. A. W. Herrm.

Among these alien taxa, two are xenophytes, being introduced accidentally (e. g. *Cenchrus longispinus* and *Setaria faberi*), while the others were intentionally introduced by humans for different uses (mainly as ornamental plants) and, subsequently, escaped from cultivation in the wild (= hemerophyte species).

Having in mind the number of localities in which these plants were identified in Romania, the following taxa show an invasive tendency, as they are: *Cenchrus longispinus*, *Reynoutria × bohemica*, *Reynoutria sachalinensis* etc.

All of these taxa are integrated into anthropogenic habitats. Some of these species, as: *Reynoutria × bohemica*, *Reynoutria sachalinensis* also penetrate into the natural habitats, as: riverbanks, river meadows, grasslands etc.

a) Newly registered taxa in Romania's flora

Cenchrus longispinus (Hack.) Fernald, *Rhodora* **45**: 388 (1943)

This species of Poaceae family is native in the United States of America and in southern parts of Canada, in Mexico, Central America and the West Indies [VERLOOVE & SÁNCHEZ-GULLÓN, 2012]. It is also naturalised in Australia, South Africa, the Mediterranean area of Europe, Asia in Middle East (Israel) and northern Africa (Morocco) [VERLOOVE & SÁNCHEZ-GULLÓN, 2012].

According to some authors [cited in VERLOOVE & SÁNCHEZ-GULLÓN, 2012] it seems that the naturalization of this species in Europe has begun on the Adriatic Sea coasts (in Italy), where it is known at least from the year of 1933, today being a fully naturalized species on a large scale. Still, the presence of this species in the European flora has been neglected until recently, being confused in literature, as well as in herbaria collections, with *Cenchrus spinifex* Cav. (*C. incertus* M. A. Curtis; *C. pauciflorus* Benth.) [VERLOOVE & SÁNCHEZ-GULLÓN, 2012].

Nowadays, in Europe, *C. longispinus* is spread in Italy, France, Greece, Croatia, Hungary and Ukraine [VERLOOVE & SÁNCHEZ-GULLÓN, 2012].

In Romania, *C. longispinus* has been identified by us on the Black Sea coasts, on sandy beaches along the seashore, at Mamaia resort (Constanța County) (leg. Oprea, 2007 & 2009); further, it has been identified in central railway station of Galați town, among the rails (leg. Sîrbu, Oprea, Eliáš, Ferus, 2011), being erroneously identified and published as *C. incertus* M. A. Curtis [SÎRBU & al. 2011].

Revision of our herbarium material collected in Romania led us to a correctly identification of this plant species, being a newly registered one in the Romanian vascular flora.

According to data in the taxonomical references on this species [CHASE, 1920; FERNALD, 1943; VERLOOVE & SÁNCHEZ-GULLÓN, 2012; WARD, 2010], *C. longispinus* differs by *C. spinifex* Cav., as it is stated in the next identification key:

Involucres with 30-50 spines, the outer ones numerous, shorter and slender (bristles-like), patents to reflexed; the inner spines longer and stout, terete, not or hardly flattened at base, at most 1 mm wide; spikelets of 5-6 mm long; plants always annuals .... *C. longispinus*

Involucres with c. 20-30 spines usually, shorter, very stout; the outer ones fewer to almost lacking, bristle-lile, reflexed; the inner ones stout, more or less conical, distinctly flattened, their bases up to 3 mm wide; spikelets of 5.8 mm long; plants annual or more often pauciennial ..... *C. spinifex*

In addition, in *Jepson Manual of Vascular Plants of California* [BALDWIN & al. 2012] there are showed other diagnemas, in order to help to discriminate between these two species (sheats strongly keeled at *C. longispinus* (Hack.) Fernald vs. sheats compressed, but not strongly keeled at *C. spinifex* Cav.).

Till now, in Romania′s flora, the species *Cenchrus incertus* M. A. Curtis (Syn. *C. carolinianus* Walter; *C. pauciflorus* Benth.) has been reported only, as being present along the Black Sea shorelines at Vama Veche [CIOCÂRLAN, 1991], Constanța harbour [CIOCÂRLAN & al. 2004], Jurilovca at Doloşman Cape (Tulcea County) [OȚEL, 1995 & 2006; DOROFTEI & al. 2011], Măcin (Tulcea County) [CIOCÂRLAN & al. 2004], Jijila (Tulcea County) [OPREA, 2005] (Fig. 1, a-d).

In *Flora Europaea* [CLAYTON, in TUTIN & al. 1980, p. 264] there are given three species of *Cenchrus*, namely: 1. *Cenchrus ciliaris* L. - originated in Africa and South-western Asia, distributed in Sicilia and Isole Lipari (Italy), only; 2. *C. incertus* M. A. Curtis – originated in tropical and warm-temperate regions of America's and naturalized in the centre of Mediterranean region (Italy, Corsica, Azores?, France?, Spain?); 3. *C. longispinus* (Hack.) Fernald – of North and Central American origins, naturalized in Southern Europe.

It is not excluded the possibility that other herbarium material collected in Romania to show the same confusion between the two species and therefore is need to be reviewed other herbarium collections.

Panicum miliaceum L. *Sp. Pl.* ed. I: **58** (1753)

(Proso) Millet is a species originating in China and Central Asia. It is an annual herbaceous, therophyte plant species, flowering in June-August.

It has been cultivated extensively in the past, before the advent of maize (*Zea mays* L.) in Romania (XVII century); at those times people prepared a kind of traditionally food made from the grains of (proso) millet, boiled in water. Nowadays, the (proso) millet is cultivated as a fodder plant, only. PRODAN (1935) cited this plant as a sub-spontaneous one in Danube Delta′s flora. It is sporadically met in many localities in Romania′s flora, being described also a plant association with this species as a dominant one, namely Ass. *Erigero canadensis-Panicetum miliacei* Ştefan 1993 [ŞTEFAN, 1993].

As a result of field surveys made in the last few years, there were identified two subspecies of *Panicum miliaceum*, one of these being a newly registered infrataxa in Romania′s flora, namely:

Panicum miliaceum L. subsp. ***agricolum*** Scholz et Mikoláš, *Thaiszia*, **1**: 33-36 (1991)

This wild subspecies of the (Proso) Millet has been described from Austria (Carinthia) [SCHOLZ & MIKOLÁŠ, 1991].

According to SCHOLZ & MIKOLÁŠ (1991), this subspecies differs of subsp. *ruderale* by relatively dense, nodding panicle, persistent glumes at maturity (glumes not disarticulating from the pedicel); from subsp. *miliaceum* (a taxa only in cultivation) it differs by fruits easily falling off at maturity, and lighter and thinner rippen cariopses.

It is distributed in the wild in Europe, as: Italy (identified early in 1842, in Herbarium Firenze, cf. SCHOLZ & MIKOLÁŠ, 1991), Austria [SCHOLZ & MIKOLÁŠ, 1991], Czech Republic [SCHOLZ & MIKOLÁŠ, 1991], Slovakia [SCHOLZ & MIKOLÁŠ, 1991], Slovenia [MELZER, cited by SCHOLZ & MIKOLÁŠ, 1991], Hungary [KOVÁCS & SZABÓ, cited by SCHOLZ & MIKOLÁŠ, 1991; TERPÓ-POMOGYI, 1976], France [SCHOLZ & MIKOLÁŠ, 1991].

In Asia it was found in Afghanistan [SCHOLZ & MIKOLÁŠ, 1991].

This infrataxa seems not to grow in South and North America (cf. SCHOLZ & MIKOLÁŠ, 1991).

This subspecies was identified in the next localities, in the Eastern part of Romania:

– Galaţi-West toward the village of Barboşi (Galaţi County), in ruderal places (leg. Sîrbu & Oprea, 01.08.2011);
– the village of Cudalbi (Galaţi County), in ruderal places (leg. Sîrbu & Oprea, 01.08.2011);
– the neighborhood of Borzeşti (Oneşti town, Bacău County), on fallow grounds (leg. Sîrbu, 09.07.2012) (Fig. 2);
– the village of Crişan (Tulcea County), in ruderal places (leg. Sîrbu & Oprea, 15.09.2011).

The genetic samples, analyzed on individuals from Slovakia, relieved the next results: 2n=36 [SCHOLZ & MIKOLÁŠ, 1991].

Flora Europaea counts only the species of (Proso) Millet (*Panicum miliaceum* L.) [CLAYTON, in TUTIN & al. 1980, p. 261].

Robinia neomexicana Gray, *Pl. Nov. Thurb*. 314 (1854) var. *neomexicana*
(Syn.: *Robinia luxurians* (Dieck) Schneid. ex Tarouca et Schneid., *R. neomexicana* var. *luxurians* Dieck, *R. neomexicana* var. *subvelutina* (Rydb.) Kearney et Peebles, *R. rusbyi* Wooton et Standl.)

New Mexican Locust, New Mexico, Southwest, Desert, Pink, or Rose Locust is a tree, up to 10 m high, often shrub; shoots glandular-hairy, with stipular-subulate spines;

leaves impari-pinnate up to 20 cm long, with (13-) 15-21 oblong-elliptical leaflets, 2-3.5 cm long, rounded or gradually acute at the apex, silky hairy on the underside, and pubescent, non-glandular rachis; flowers pink-whitish, ca 20 mm long, in multiflowers, pendent racemes, with peduncle and rachis glandulous-hairy; legumes of 6-10 cm long, glandular setaceous; V-VII.

Origins: Centre of the Northern America and Northern Mexico. Introduced in Europa.

Cultivated in Romania: the Arboretum of Gurahonț (Arad County) [ZANOSCHI & al. 2006], and the Botanic Garden "Anastasie Fătu" of Iaşi [DUMITRIU-TĂTĂRANU, 1960].

This taxa has been identified as a subspontaneous one, along the railways, in the western parts of Iaşi city, in the neighborhoods of "Canta" and "Alexandru cel Bun" [leg. Sîrbu & Oprea, 2012] (Fig. 3, a-c).

Flora Europaea does not mention this plant species in Europe [BALL, in TUTIN & al. 1968, p. 106].

b) Alien species identified in new localities of Romania

Panicum miliaceum L. subsp. ***ruderale*** (Kitag.) Tzvelev, *Zlaki S. S. S. R.* (1976)
(Syn. *P. miliaceum* L. var. *ruderale* Kitag., *P. spontaneum* Lyssov ex Zhuk., nom. illegit.)

This wild subspecies of the (Proso) Millet or Weed-Broomcorm Millet has been described from China (Manshuria), as var. *ruderale*, in 1937 [KITAGAWA, 1937]. It has structures developed for an effective natural fruit dispersal at maturity, as well as the brittle spikelets (cariopses are falling off together with the glumes), in contrast to the grains of the subsp. *miliaceum* (under cultivation in Romania, only), which are not readily falling off at their maturity [LYSSOV, 1975; BOUGH et al. 1986].

In Europe, this subspecies is distributed in the wild, in: Italy (the earliest record in Europe, in 1888) [LIPPERT, 1984], Austria [MELZER, 1982, 1983, 1984, 1987, 1988; SCHOLZ, 1983], Germany [LIPPERT, 1984], Hungary [TERPÓ-POMOGYI, 1976], Ukraine [MOSYAKIN, 1991], Czech and Slovakia [JEHLÍK, 1986]; also, probably exist in the wild flora of Poland [FREY & al. 1981], Latvia [TABAKA & al. 1988], and Lithuania [GUDZHINSKAS, in SCHOLZ & MIKOLÁŠ, 1991].

On other continents, *Panicum miliaceum* L. subsp. *ruderale* is distributed in: U. S. A. and Canada [CARPENTER & HOPEN, 1985; CAVERS & BOUGH, 1985; MOORE & CAVERS, 1985; BOUGH & al. 1986; COLOSI & al. 1988], and various Asian countries [TZVELEV, 1976].

This infrataxa has been identified also in the wild in Romania, since the early 1978-1980, when Sakamoto and Kobayashi made two field investigations in here [SAKAMOTO & KOBAYASHI, 1982a, 1982b]. These two Japanese authors cited this subspecies growing along the road from Iaşi toward the Experimental Farm of Agronomical Institute.

We also identified this infrataxa in other localities, in the Eastern part of Romania, as:

– the village of Leţcani (Iaşi County), in maize fields (leg. Sîrbu, 15.09.2007);
– between the villages of Ursoaia and Horleşti (Iaşi County), in maize fields (leg. Oprea, 24.10.2012);
– the village of Horleşti, in maize fields (leg. Eliáš, Ferus, Sîrbu, 16.08.2011);

– the village of Tăcuta (Vaslui County), in maize fields (leg. Sîrbu & Oprea, 02.08.2009) (Fig. 4).

The genetic samples, analyzed on individuals from Slovakia, relieved next results: 2n=36, and 2n=c. 36 [SCHOLZ & MIKOLÁŠ, 1991].

These three subspecies of *Panicum miliaceum* L. identified in Romania′s flora could be discriminated by the next traits (Tab. 1):

Tab. 1. Infrataxa determination of *Panicum miliaceum* L. (cf. Scholz & Mikoláš 1991):

Specifications	subsp. ***ruderale***	subsp. ***agricolum***	subsp. ***miliaceum***
panicle	erect, with branches erect-patent, lax	relative densely, nodding	densely, nodding
glumes	falling off	persistent	persistent
fruits	falling off	falling off, smaller	persistent, greater

Oenothera parviflora L. *Syst. Nat.* ed. 10, **2**: 998 (1759)

(Syn.: *Oenothera cruciata* Nutt. ex G. Don)

Small-flowered evening-primrose is a herbaceous biennial or short-lived perennial species, up to 2 m high, originated in North America [RAVEN, in TUTIN & al. 1968], introduced in Europe early in 1871 (in England) [MIHULKA & PYŠEK, 2001]. It is an adventive plant in ex-Czechoslovakia, France, Germany, Netherland, Hungary, Italy, Norway, Poland [RAVEN, in TUTIN & al. 1968], Great Britany (rare nowadays) [ROSTAŃSKI, 1982; SELL & MURRELL, 2009], R. of Moldova [BURAC & MITITELU, 1995]. On other continents, it is spread in Asia, Southern Africa and New Zealand [HOCH & WAGNER, 2007].

It grows in open habitats, disturbed grounds [WEAKLEY, 2007], along the roads, from the sea level to ca 1000 m alt. (in China) [HOCH & WAGNER, 2007].

In Romania′s wild flora, *O. parviflora* was previously reported in some localities from Danube Delta (Tulcea County), Moldavia, Maramureş, and Transylvania [different authors, cited by SÎRBU & OPREA, 2011].

However, as it was shown in some references of the romanian literature [e.g. SÎRBU & OPREA, 2011a], the name of *O. parviflora* is an misapplied synonyme for *O. muricata*. This is a reason for uncertainity of the presence and chorology of these two species in Romania.

It is a newly identified species for the historical province of Oltenie, in the villages of Stolniceni and Marcea (Vâlcea County) [leg. Sîrbu & Oprea, 2012] (Fig. 5).

A reliable identification key for all species of *Oenothera* in European flora is presented in a paper of ROSTAŃSKI (1982), while an identification key for all alien species of *Oenothera* in Romania′s flora is given in SÎRBU & OPREA (2011a).

O. parviflora is a diploid plant species (2n=14) [CIOCÂRLAN, 2009].

Setaria faberi R. A. W. Herrm. *Beitr. Biol. Pflanzen*, **10**: 51 (1910) (as "*faberii*")

The giant foxtail (Chinese foxtail, Chinese millet, giant bristlegrass, nodding foxtail) is a neophyte grass, originated in East Asia. It is distributed as an alien plant in Northern and Central America, Central Europe and Russia [HITCHCOCK, 1950; ZHENG-YI & RAVEN, 1994; DARBYSHIRE, 2003; NURSE & al. 2009].

S. faberi entered accidentally into European flora in the beginning of the last century, being mentioned till now from Czech Republic (1961) [PYŠEK & al. 2002], Belgium (1977) [VERLOOVE, 2006], Austria (1981) [ESSL & RABITSCH, 2002], Ukraine [MOSYAKIN & YAVORSKA, 2002], Greece and Creta [BERGMEIER, in GREUTER & RAUS, 2007], European part of Russia (1985), Lithuania (1988), Germany and Sweden [NOBANIS], France, Italy, Portugal, Slovenia, Spain (naturalized), Azore Islands, Great Britany, and Slovakia (as casual) [DAISIE], etc.

In Romania, it has been mentioned for the first time by COSTEA (1996), from the harbour of Constanța and along the railway between Medgidia and Constanța (leg. 1993-1995). Further on, it has been identified, also, in Brăila county [CIOCÂRLAN, 2000]. Giving its resemblance to the species of *S. viridis* [HITCHCOCK, 1950; ZHENG-YI & RAVEN, 1994; NURSE & al. 2009; CIOCÂRLAN, 2009], it is possible that its distribution in Romania′s flora is much larger actually, but remained unnoticed in the recent times (*S. faberi* has scabrid leaves on both parts, with long hairs on the above part; *S. viridis* is scabrid on the upper part of the leaves, only [CIOCÂRLAN, 2009].

S. faberi is an annual, polyploid species (2n=36) [NURSE & al. 2009].

It is a newly identified species for the historical province of Moldavia (being identified in the railway station of Bacău town [leg. Sîrbu, Oprea, Ferus, 2012]) (Fig. 6), as well as for Buzău County (it has been identified in the railway station of Buzău town [leg. Sîrbu, Oprea, Ferus, 2012]).

Flora Europaea does not mention this plant species [CLAYTON, in TUTIN & al. 1980, p. 263-264].

S. faberi is a tetraploid species (2n=36) [CIOCÂRLAN, 2009].

Reynoutria* × *bohemica Chrtek et Chrtková, *Čas. Nár. Muz. Praha*, *Ser. nat*., **152**: 120 (1983)

It is a perennial species, of hybrid origin, between *R. japonica* and *R. sachalinensis* [WEBB, in TUTIN & al. 1964], relatively newly described as a taxa, from Central Bohemia (Czech Republic) by CHRTEK & CHRTKOVÁ (1983). Nowadays, this taxa is one of the most invasive alien plant in Europe [PYŠEK & al. 2002; MANDÁK & al. 2004; SÎRBU & OPREA, 2008, 2011b], as well as in North America [ZIKA & JACOBSON, 2003; BARNEY & al. 2006; FNA].

R. × *bohemica* is known for some time in Romania, having already been identified in dozens of localities in the historical provinces of Tranylvania, Muntenia, Moldavia, and Oltenia [SÎRBU & OPREA, 2011a], being designed as a recogniton species (together with *R. japonica*) for the synanthropic perennial vegetation of humid habitats (*Galio-Urticetea*), of type "*Fallopia japonica* agg. DC." [KOVÁCS, 2004, 2006; FENESI, 2004].

This species is largely distributed as invasive in Romania′s flora, as it has been stated in many papers [In: SÎRBU & OPREA, 2011a].

It is a newly identified taxon in the following counties of Romania:

– Bihor County: Ștei, Petrileni, Sudrigiu, Beiuş, Răbăgani, Băile Felix, and Vaşcău (leg. Sîrbu & Oprea, 2012);
– Sălaj County: Jibou and Gârbou (leg. Sîrbu & Oprea, 2012);
– Cluj County: Frăsinet, Valea Ierei, Cerc, Caps, Buru (leg. Sîrbu & Oprea, 2012], Dej [leg. Sîrbu, 2012);
– Caraș-Severin County: Oțelu Roşu and Rusca Montană (leg. Sîrbu & Oprea, 2012);

– Vâlcea County: Râmnicu Vâlcea, Stolniceni (Fig. 7), and Munteni (leg. Sîrbu & Oprea, 2012);
– Prahova County: Comarnic, Valea Sarului, Sinaia, Azuga, and Buşteni (leg. Sîrbu, 2012);
– Vrancea County: West of Focşani (at the crossroad towards Odobeşti, Câmpineanca and Vidra) (leg. Sîrbu, Oprea & Ferus, 2012);
– Bacău County: Căiuți (leg. Sîrbu, 2012).

Reynoutria sachalinensis (F. Schmidt) Nakai, in Mori, *Enum. Pl. Cor.* **135** (1922) (Syn.: *Polygonum sachalinense* F. Schmidt; *Fallopia sachalinensis* (F. Schmidt) Ronse Decr.)

Giant Knotweed or Sakhalin Knotweed is a native species to East Asia (Sakhalin Islands, Kurile, Hokkaido, Honshu, Ullung-do, Korea) [MANDÁK & al. 2004; WITTENBERG, 2005; PYŠEK, 2006; ALBERTERNST & BÖHMER, 2006], similar to *R. japonica* var. *japonica* in many aspects, but is more vigorous (4-5 m height), with leaves much larger (up to 43 cm long and 27 cm wide), cordate at base, with multicells hairs on the lower side [BAILEY & al. 1996; ALBERTERNST & BÖHMER, 2006; BARNEY & al. 2006, etc.].

It is nowadays a naturalised or invasive alien species in most of Europe [WITTENBERG, 2005; MANDÁK & al. 2004; ALBERTERNST & BÖHMER, 2006], as well as in North America [ZIKA & JACOBSON, 2003; WESTON & al. 2005]

In Romania, this species is less known, being introduced early in 1901 (at Herăstrău, in Bucharest) [GRINȚESCU, in SĂVULESCU, 1952]. It was reported, till now, as an alien plant, in some localities from Transylvania [ȚOPA, 1947; OROIAN, 1998, cited by KOVÁCS, 2006; SĂMĂRGHIȚAN, 2000, 2005], South-West of Romania (in Mehedinți County) [MATACĂ, 2005], and North-East of Romania (Iași County) [SÎRBU & OPREA, 2011a].

R. sachalinensis is a newly identified species in the following county:
– Caraş-Severin: the villages of Rusca Montană, Ruşchița (and along the road between these two villages) (Fig. 8, a-c), and Vama Marga (along the railways) [leg. Sîrbu & Oprea 2012].

Flora Europaea mention this species as naturalized from gardens as *R. japonica*, but much less frequently [WEBB, in TUTIN & al. 1964, 1993].

A reliable identification key for the species of *Reynoutria* from the Romania's flora is given in SÎRBU & OPREA (2011a).

Conclusions

All the taxa presented in this paper are alien plants (neophytes, xenophytes and hemerophytes). Some of them are new for the Romania's flora (as *Cenchrus longispinus* (Hack.) Fernald; *Panicum miliaceum* L. subsp. *agricolum* Scholz et Mikoláš; *Robinia neomexicana* Gray), while the others (*Panicum miliaceum* L. subsp. *ruderale* (Kitag.) Tzvelev; *Oenothera parviflora* L.; *Setaria faberi* R. A. W. Herrm.; *Reynoutria* × *bohemica* Chrtek et Chrtková; *Reynoutria sachalinensis* (F. Schmidt) Nakai) have been identified in other regions and counties of Romania.

Some of them have an invasive character in Romania (e. g. *Reynoutria* × *bohemica* Chrtek et Chrtková; *Reynoutria sachalinensis* (F. Schmidt) Nakai; *Cenchrus longispinus* (Hack.) Fernald), while the others could become invasive in near future (*Panicum*

miliaceum L. subsp. *ruderale* (Kitag.) Tzvelev; *Panicum miliaceum* L. subsp. *agricolum* Scholz et Mikoláš; *Robinia neomexicana* Gray).

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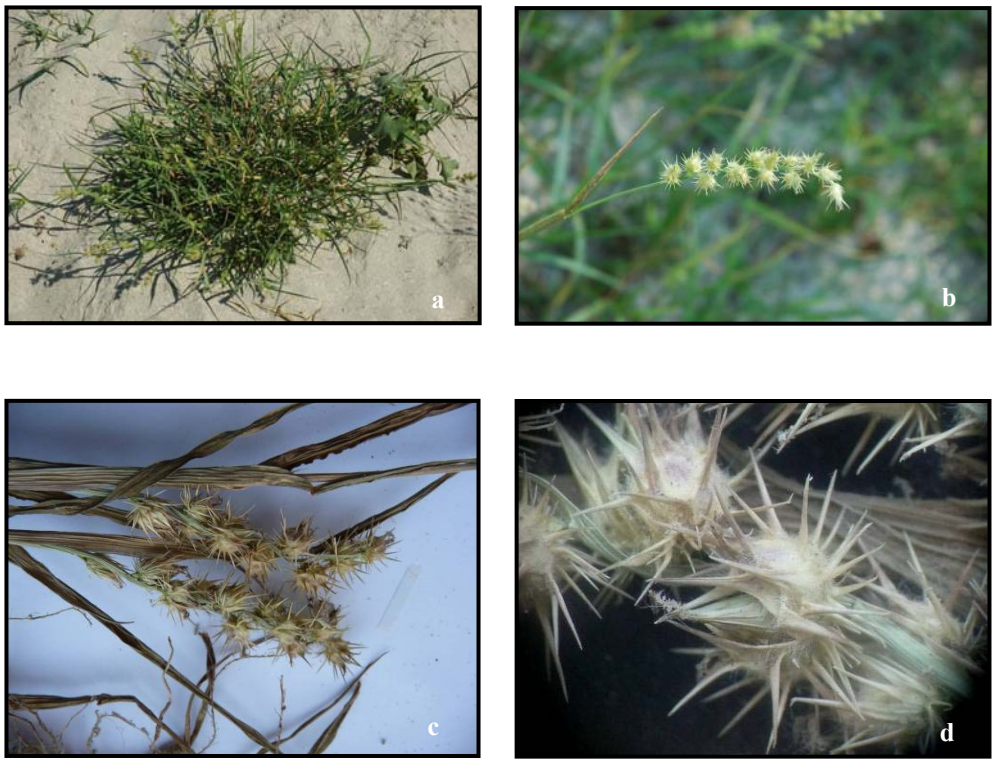

Fig. 1. *Cenchrus longispinus* (Hack.) Fernald at Mamaia (Constanța County), on sandy beaches
a. general habitus; b-c. panicle-like inflorescences; d. burs

Fig. 2. *Panicum miliaceum* L. subsp. *agricolum* Scholz et Mikoláš at Borzeşti (Bacău County), on fallow grounds

Fig. 3. *Robinia neomexicana* Gray var. *neomexicana* in Iaşi city
a. general habitus; b. shoots; c. racemes

Fig. 4. *Panicum miliaceum* L. subsp. *ruderale* (Kitag.) Tzvelev at Tăcuta village (Vaslui County), in maize crops

Fig. 5. *Oenothera parviflora* L. at Stolniceni village (Vâlcea County)

Fig. 6. *Setaria faberi* R. A. W. Herrm. in railway station of Bacău town

Fig. 7. *Reynoutria* × *bohemica* Chrtek et Chrtková at Stolniceni village (Vâlcea County)

Fig. 8. *Reynoutria sachalinensis* (F. Schmidt) Nakai between Rusca Montană and Ruşchița villages (Caraş Severin County)
a. general habitus; b-c. leaves