A NEW CONTRIBUTION ON THE VASCULAR FLORA OF ROMANIA

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Abstract: As a result of our field floristic studies in the recent years (2012 and 2013), we recorded some new data on the occurrence and chorology of three vascular plant species in Romania. Two of these are alien plants, invasive in many geographic regions of the world, namely: *Acroptilon repens* (an Asian species, reported as a newcomer in the flora of Romania, in this paper), and *Picris echioides* (a Mediterranean species, which is reported now in new localities). The third species, *Pedicularis sylvatica*, is a quite rare indigenous plant, critically threatened in Romania, reported here for the first time in the flora of Moldavia (eastern Romania).

Key words: *Acroptilon*, flora, new records, *Pedicularis*, *Picris*

Received 15 October 2013
Revision accepted 25 October 2013

Introduction

A continuous enrichment of the flora of Romania was recorded in the last decades, particularly due to the continuous arrival of some plant species native in other geographic regions, but also due to the intensification of botanical research in different less studied areas of the country.

In the attempt to update the floristic inventory of the country, some synthetic floristic works have been published, in the last years (Oprea 2005, Ciocărlean 2009, Sârbu et al. 2013), and the number of alien vascular taxa was recently estimated at 671 species (Sîrbu & Oprea 2011). However, the inventory of the vascular flora of Romania could never be considered a closed process. New records of both alien and indigenous plant species are in progress, due to the research efforts made by many field investigators. This paper is another contribution in this regard, including: i) a new registered taxon in the Romania’s flora, and, ii) new chorological contributions of some species previously reported in the literature.

Material and methods

The floristic and chorological data are based on our recent field studies (2012 and 2013), conducted in different localities from eastern Romania. For the identified species, herbarium specimens were collected and inserted in the general herbarium of

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the University of Agricultural Sciences and Veterinary Medicine "Ion Ionescu de la Brad" Iaşi (IASI). The geographical coordinates were recorded using an eTrex Legend HCx GPS system. For the identification of species, the morphological characters were analyzed on the specimens collected from the field and compared with the data from relevant literature sources (Anghel et al. 1972, Czerepanov 2001/1963, Ciocârlan 2009, Tutin et al. 2010, Sârbu et al. 2013). For each species, there are given information concerning their general distribution all over the world, previously reported occurrence, as well as their current distribution in Romania. The nomenclature of species is given according to Tutin et al. (2010).

Results and discussion
During our field studies in the recent years (2012-2013), we recorded some new data on the occurrence and chorology of three vascular plant species in Romania. Two of these are aliens, known as invasive in many geographic regions of the world (*Acroptilon repens* (L.) DC. and *Picris echioides* L.), while one is a quite rare indigenous plant, critically threatened in Romania (*Pedicularis sylvatica* L. subsp. *sylvatica*).

*Acroptilon repens* (L.) DC. (*Centaurea repens* L.; *C. picris* Pall.; *Acroptilon picris* (Pall. ex Willd.) C.A.M.; *Rhaponticum repens* (L.) Hidalgo) (Fig. 1)

*Fig. 1. Acroptilon repens*, to the east of Socola railway station, Iaşi County (original)

It is a species originating in Central and Western Asia (Czerepanov 2001/1963), from where it was accidentally introduced to North America (Moore & Frankton 1974,
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Watson 1980, DiTomaso & Healy 2007), South America (Gajardo et al. 2004), East Asia, Australia (Kravchenko 2008), as well as in a large part of Europe, where it is generally considered a casual alien species, rarely naturalized: Belgium (casual) (Verloove 2006), Austria (casual) (Essl & Rabitsch 2002), Spain (naturalized, with a limited invasive potential) (López-Alvarado et al. 2011), Great Britain (naturalized) (Stace 2010), Czech Republic (casual) (Pyšek et al. 2002), Slovakia (casual) (Medvecká et al. 2012), France (Kerguélen 1993), Crimea, European Russia (lower Don and Volga rivers, Trans-Volga, Caucasus) (Czerepanov 2001/1963), Ukraine (Mosyakin & Yavorska 2002) (indigenous there, according to Greuter 2006-2009), Italy (South Tyrol) (Fischer et al. 2008), Luxembourg, Germany (naturalized), Latvia, Lithuania, Poland, Belarus (casual) (Greuter 2006-2009).

Although we used here the accepted names in the Flora Europaea for this species (Dostál 2010), we must mention that some recent taxonomic research, on molecular and morphological bases, support the inclusion of the Acroptilon Cass. species in the frame of the genus Rhaponticum Vaill. (Hidalgo et al. 2006, López-Alvarado et al. 2011).

We identified a small population of Acroptilon repens in the surroundings of Iași city, in the eastern part of the Socola railway station, in a disturbed place along the railroad leading to the Republic of Moldova (leg. Sîrbu & Oprea; 15.07.2012; 47°08’25.13”N, 27°37’27.69”E; 38 m. a.s.l.), accompanied by other ruderal species, as: Ambrosia artemisiifolia L., Artemisia absinthium L., Centaurea micranthos S.G. Gmel. ex Hayek, Elymus repens (L.) Gould., Hordeum murinum L., Lepidium virginicum L., Panicum capillare L., Poa angustifolia L., and so on. This is the first record of Acroptilon repens in Romania. However, previous references concerning this species are already made in Romanian botanical literature, by Anghel et al. (1972). In a chapter on quarantine weeds, these authors have presented a brief description of the species (including a figure), indicating that this plant has not been reported in Romania.

We watched this species in the mentioned place during the years of 2012 and 2013, noting that the plant has not spread all this time on the surrounding areas. We were not able to find seedlings. In addition, the seeds collected from the mature individuals in the autumn of 2012, proved to be completely devoid of germination capacity. However, it is worth to be mentioned that although the aerial stems were destroyed in the spring of this year by the railroad workers, the plants were subsequently regenerated by root suckers, managing to flourish and fructify until the autumn. The species was probably introduced in north-eastern Romania via the railway, from the Republic of Moldova or from Ukraine.

Concerning the biology and ecology of this species, invaded habitats, as well as the means of prevention and control of its invasion, consistent data have been published by Watson (1980), but also by many other authors, such as: Anghel et al. (1972), Moore & Frankton (1974), Czerepanov (2001/1963), Grant et al. (2003), Laufenberg et al. (2005), DiTomaso & Healy (2007), Sheley et al. (2007), Koloren et al. (2008), Kravchenko (2008), Callaway et al. (2012) etc. A brief analysis of these data in the literature indicates that Acroptilon repens is a perennial weed, having a high capacity for vegetative propagation (by root suckers), with a wide ecological tolerance and a high capacity of competition, especially in disturbed habitats. In addition, it is toxic for cattle, has a major impact on the invaded communities, and whenever it invades a
certain territory, it is very difficult to control. For these reasons, *Acroptilon repens* is considered a major weed, both in its natural range (Koloren et al. 2008, Kravchenko 2008), and in North America (Moore & Frankton 1974), and it is declared as a quarantine weed in some regions: Canada, USA (Watson 1980), Russia, Ukraine, Kazakhstan (Kravchenko 2008), Romania (Anghel et al. 1972) etc. Therefore, we consider necessary to draw attention on the need of surveillance and eradication of this species in Romania, before it become a widespread and uncontrollable weed. It is possible that *Acroptilon repens* to be identified in other localities in Romania, but its presence may have been ignored because of its similarity with some species of *Centaurea*.

**Picris echioides** L. (*Helminthia echioides* (L.) Gaertn.; *Helminthoteca echioides* (L.) Holub) (Fig. 2)

It is a native species in Central and South Europe, alien in other regions (Sell, in Tutin et al. 2010). In Romania, it is known from the middle of the nineteenth century, being recorded initially in Transylvania ([Landoz 1844, cited by Simonkai 1886], and subsequently, in the last century, in other provinces of the country (Anghel et al. 1960, Nyárády 1965, Sirbu & Oprea 2011), but without becoming very common (in total, it has been cited from 42 localities, till now) (Sirbu & Oprea 2011). In Moldavia, it was reported recently by us in a single locality (namely Codăiești village, Vaslui County) (Sirbu & Oprea 2010, 2011). We also identified this species near the village of Breazu, Iași County, where it was found in a degraded grassland, dominated by *Dichanthium*.
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**ischaemum** (L.) Roberty (leg. Sîrbu, 03.10.2013; 47°12’47.48”N, 27°31’39.48”E, 161 m. a.s.l.).

**Pedicularis sylvatica** L. subsp. *sylvatica* (Fig. 3)

This is a Central and West European taxa, extending northward to Central Sweden and eastward to Lithuania and West Ukraine, and it grows on bogs, heaths, moors and woods, on peaty soils [Mayer, in Tutin et al. 2010].

![Pedicularis sylvatica](image1)

**Fig. 3. Pedicularis sylvatica**, at Plaiul Șarului, Suceava County (original)

According to Dihoru & Negrean (2009), *Pedicularis sylvatica* is a rare species in Romania’s flora, critically threatened. So far, it was known in eastern Transylvania only, where it was already cited in the nineteenth century (Baumgarten 1816, Schur 1866, Fuss 1866). Simonkai (1886) did not recognize the existence of this species in Transylvania, considering that the data published by previous authors must be reported to the species *Pedicularis verticillata* L.. However, the presence in Transylvania (the depressions of Eastern Carpathians) of *Pedicularis sylvatica* was subsequently confirmed (Borza 1947, Paucă & Nyárády 1960), and other new chorological data have been published from the region (Kovács 1968, Ştefureac et al. 1982, see also Oprea 2005, Ciocărlan 2009, Dihoru & Negrean 2009, Sârbu et al. 2013).

We have identified this species at Plaiul Șarului (Suceava County), near the station of practical works, belonging to the University of Agricultural Sciences and Veterinary Medicine „Ion Ionescu de la Brad”, Iași (leg. Sîrbu, 04.07.2013; 47°18’38.96”N, 25°22’48.50”E, 845 m. a.s.l.), on the occasion of the annual meeting of
the Romanian Society of Grasslands. On that locality, *Pedicularis sylvatica* grows on a northwest slope, slightly inclined, under not very prosperous conditions, on relatively humid grassland, slightly degraded, with skeletal substrate, and where a drainage ditch was dug, some time ago. Among the accompanying species, we noticed the following ones: *Agrostis capillaris* L., *Cirsium heterophyllum* (L.) Hill, *Festuca ovina* L., *Festuca rubra* L., *Nardus stricta* L., *Thymus pulegioides* L., *Veronica officinalis* L., etc. This is the first report of this species in Moldavia (Eastern Romania).

**Conclusions**

In this paper, we presented some new data on the occurrence and chorology of three vascular plant species in Romania. Among these species, one is now mentioned for the first time in Romania (*Acroptilon repens*), one is reported for the first time in Moldavia (*Pedicularis sylvatica*) and one is reported from new localities (*Picris echioides*).

**References**


