

## ***Elodea nuttallii* (Planch.) H. St. John, *Myosotis laxa* Lehm. and *Pyrus austriaca* Kern., new for Slovenia, as well as other floristic records**

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**Abstract:** Present study discusses *Elodea nuttallii*, *Myosotis laxa* and *Pyrus austriaca* found as new species for the Slovenian flora. Authors describe the difficulties of the identification, occurrence and habitat characteristics of these species in the territory of Slovenia. In addition field records of further interesting taxa (*Aegilops triuncialis*, *Artemisia verlotiorum*, *Crepis setosa*, *Fumaria officinalis* subsp. *wirtgenii*, *Senecio inaequidens*) are also published.

**Izvešček:** V pričujočem prispevku so vrste *Elodea nuttallii*, *Myosotis laxa* in *Pyrus austriaca* navedene kot nove za ozemlje Slovenije. Avtorji opozarjajo na težave pri identifikaciji teh vrst, obravnavajo njihovo razširjenost in značilna rastišča v vzhodnem delu Slovenije. V članku so predstavljene tudi nekateri drugi zanimivi taksoni: *Aegilops triuncialis*, *Artemisia verlotiorum*, *Crepis setosa*, *Elodea nuttallii*, *Fumaria officinalis* subsp. *wirtgenii*, *Senecio inaequidens*.

### **1 Introduction**

In the spring 2007 three short field excursions were executed by the authors in the northern part of Slovenia (surroundings of Maribor and Prekmurje region). Data of three species new for Slovenia and further 5 interesting taxa are presented. The nomenclature follows the work of MARTINČIČ & al. (1999) and the taxa are listed in alphabetical order. Localities were described and as an estimation of geographic position, MTB grid was used. Voucher specimens collected during the field studies can be found in the private herbaria of the authors and each new species for the Slovenia flora is represented by a voucher deposited in LJU.

### **2 Results**

#### ***Aegilops triuncialis* L.**

**9459/2**, Slovenija, Štajerska, Maribor, main railway station, between the railway tracks in ruderal weed associations, accompanied by *Geranium purpureum*, *Microrrhinum littorale*, *Senecio inaequidens* (A. MESTERHÁZY & G. KIRÁLY ined., 2007)

In Slovenia formerly this species was known exclusively from the Adriatic Coast (NW part of Istria) (JOGAN ap. MARTINČIČ & al. 1999, JOGAN 2001). In Croatia (according to JÁVORKA 1925 and the Flora Croatica Database) is it only known from the Adriatic coast.

#### ***Artemisia verlotiorum* Lamotte**

**9463/1**, Slovenija, Prekmurje, Dokležovje, south of the settlement close to the River Mura, on the bank of a gravel-pit, a clone of about 2 m<sup>2</sup> (G. KIRÁLY, A. MESTERHÁZY & B. BAKAN, ined., 2007)

An adventive species originated from East Asia, which has several localities in Slovenia (see WRABER ap. MARTINČIČ 1999, JOGAN 2001), but has not been recorded in the territory of Prekmurje yet (BAKAN 2006). It also occurred in Austria (FISCHER & al. 2005) and Croatia (PANDŽA & al. 2001), interestingly it has no data from Hungary so far.

***Crepis setosa* Haller f.**

**9363/4**, Slovenija, Prekmurje, Lipa – Beltinci, near the road, in ruderal association (B. BAKAN, ined., 2007)

**9463/1**, Slovenija, Prekmurje, Melinci, on the bank of a gravel-pit, west of the settlement, in dry weed association (G. KIRÁLY, A. MESTERHÁZY & B. BAKAN, ined., 2007)

From the northern part of Slovenia the only so far published records are along the Drava River (JOGAN 2001), neither BAKAN (2006) found it in the territory of Prekmurje. In West Hungary it is a spreading weed, it exists mainly in dry ruderal associations, on stubbles.

***Elodea nuttallii* (Planch.) H. St. John**

**9261/1**, Slovenija, Slovenske Gorice, Muretinci and Stojnci, River Drava, south of the settlements, accompanied by *E. canadensis* (A. MESTERHÁZY, ined., 2007)

**9465/3**, Slovenija, Prekmurje, Benica, south-east to the settlement in a distance of 2 km, along the part of the River Lendava running on the frontier, in the company of *Elodea canadensis*, *Nuphar lutea*, *Potamogeton crispus*, *P. nodosus*, *P. pectinatus* (G. KIRÁLY & A. MESTERHÁZY, ined., 2007)

An invasive macrophyte, which appeared in the Carpathian Basin at the beginning of the 1990s for the first time, has already displaced the formerly established *E. canadensis* on several localities (STETÁK 2006). *E. nuttallii* differs from *E. canadensis* in the following characteristics: the leaves are narrower (linear or linear-lanceolate) and generally strongly recurvate and curled. Sometimes the leaves of *E. canadensis* are narrow but never recurvate. Neither the work of MARTINČIČ (1999) nor JOGAN (2001) report the occurrence of *E. nuttallii* from Slovenia, as well as BAKAN (2006) mentions it only with a question-mark from the territory of the country. Its discovery was expectable as it exists in Hungary along the River Mura in several localities, in ox-bows and abandoned gravel-pits. It was expected to occur also along the Slovenian part of the River Mura. The point of interests of the Slovenian localities is the simultaneous occurrence of both *Elodea* species in the same place, since in Hungary always only one species can be found in each locality. Possibly *E. nuttallii* is a newly establishing species here, and in the future may displace the other *Elodea* species.

***Fumaria officinalis* L. subsp. *wirtgenii* (Koch) Archangeli**

**9459/2**, Slovenija, Štajerska, Maribor, in the south-eastern slopes of Mountain „Piramida”, in the gaps of a dry stone-wall (G. KIRÁLY, A. MESTERHÁZY & B. BAKAN, ined., 2007)

An insufficiently known representative of the *Fumaria officinalis* group, whose distribution range in most of the Central European countries is not cleared up. Although in Slovenia JOGAN (2001) published only one occurrence of this species, owing to WRABER ap. MARTINČIČ (1999) this data needs to be revised. The specimens collected by us in Maribor bears all the diagnostic characteristics of the subspecies (see WRABER ap. MARTINČIČ l.c., JÄGER & WERNER 2002, FISCHER & al. 2005): the inflorescence is loose (of about 20 flowers), sepals are about 1 mm wide and the colour of the flowers is pale wine.

***Myosotis laxa* Lehm. [syn.: *M. laxa* Lehm. subsp. *caespitosa* (C. F. Schultz) Hyl., *M. caespitosa* C. F. Schultz]**

**9463/1**, Slovenija, Prekmurje, Melinci, on the shore of a gravel-pit, west of the settlement, numerous specimens, accompanied by *Alopecurus aequalis*, *Centaurium pulchellum*, *Eleocharis acicularis*, *Mentha pulegium*, *Veronica scutellata* (G. KIRÁLY, A. MESTERHÁZY & B. BAKAN, ined., 2007)

**9463/4**, Slovenija, Prekmurje, Razkrižje, on the shore of a larger gravel-pit, abundant (B. BAKAN, ined., 2007)

An biennial species belonging to the *Myosotis palustris* group, which differs from the other Central European representatives by its furcated calyx divided half way to base at flowering and the short (<1,5 mm) style on the fruit (FARKAS 1999, JÄGER & WERNER 2002, DICKORÉ ap. FISCHER & al. 2005). Although the bracts situated in the lower part of the inflorescence are also considered important characteristics by several authors (i.e. SIMON 2000), these cannot be observed in all the specimens.

In Soó (1968) swamp meadows and tall sedge communities are given as typical habitats of this species. According to our experiences in West Hungary *Myosotis laxa* occurs more frequently on pioneer moist surfaces (such as clayey or gravelly banks), where the covering of the vegetation is low.

Although it has had no data from Slovenia so far, its discovery along the Mura is not surprising, and discovery of further localities is also expected. Formerly in West Hungary it was found in several places and the closest occurrence to the Slovenian border is situated near Kerkafálva (KÁROLYI & al. 1970). Currently about 20 localities are known, mainly to the north of Szombathely, and also along the Drava (KIRÁLY & KIRÁLY 2005) and Mura River (KIRÁLY & MESTERHÁZY ined.). In Austria (MAURER 1998) it was found in South Carinthia and in Burgenland, and its presence is probable even in Styria (DICKORÉ ap. FISCHER & al. 2005). The sites near Melinci and Razkrižje are similar to the ones in West Hungary; furthermore it is accompanied by the same plant species.

### ***Pyrus austriaca* Kern.**

**9163/1**, Slovenija, Prekmurje, Markovci, Hrvatin breg, 360 m s. m. in orchards with mowed grass, several old trees, next to *P. communis* (KIRÁLY & KIRÁLY 1998, G. KIRÁLY & A. MESTERHÁZY ined., 2007)

*Pyrus austriaca* is a taxon of hybrid origin, whose range is limited to the eastern forefront of the Alps. According to some authors (i.e. TERPÓ 1958) it is a stable hybrid of *P. nivalis* and *P. pyraeaster*. It can be supposed that this species is an ancient cultivated taxon, since it exists mostly in orchards and vineyards. Its identification is difficult, as it is not separated from *P. nivalis* whose former data in East Austria refer to *P. austriaca* probably (KIRÁLY 2000).

According to the identification books (SIMON 2000, FISCHER & al. 2005) *P. austriaca* differs from *P. nivalis* in its glabrous style. On the bases of our field experiences in Hungary they can be identified easily also in the vegetative period. *P. austriaca* can be a 15(–20) m high tree (*P. nivalis* is not taller than 5 m) and never develops root suckers (*P. nivalis*, and *P. × pannonica*, which is its primer hybrid with *P. pyraeaster* form large polycormons). Its leaves are generally at least 4–5 cm long (in case of *P. nivalis* the leaves are seldom longer than 4 cm), dark green, and have yellowish felt on its lower surface (the leaves of *P. nivalis* are pale green, with white felt).

In orchards and roadsides of West Hungary and the Őrség region *P. austriaca* is not rare, it is a cultural relict connected to the extensive management forms. In the neighbouring territory of Slovenia, close to Markovci it was found in 1997 (see KIRÁLY 2000), its occurrence was confirmed in the same place also in 2007. Formerly in the territory of Slovenia only *P. nivalis* had been recorded in two different phytogeographic regions (MARTINČIČ ap. MARTINČIČ 1999) and JOGAN (2001) reports only one locality of this species. Although ŠIFTAR (2005) mentions further occurrences of *P. nivalis* from new localities, these undoubtedly refer to *P. austriaca*. In the northern part of Prekmurje, where extensive traditional orchards still exist, *P. austriaca* occurs undoubtedly in several places.

### ***Senecio inaequidens* DC.**

**9459/2**, Slovenija, Štajerska, Maribor, main railway station, between the tracks in ruderal weed associations, in the company of *Aegilops triuncialis*, *Geranium purpureum*, *Microrrhinum littorale* (A. MESTERHÁZY & G. KIRÁLY ined., 2007)

South-African species spreading in Central-Europe in west-east direction, and also from the Mediterranean towards North. Although by the end of the 1990s it reached Hungary (DANCZA & KIRÁLY 2000), at the beginning only sporadic populations were established in the surroundings of Győr and Budapest. Its first occurrence in Slovenia was detected by KALIGARIČ (1992) at the coast of the Adriatic, in the boundary of Strunjan and Podpeč. PAVLETIČ – TRINAJSTIĆ (1994) found it around oil-containers near Koper and along the Koper – Piran – Portorož highway, while according to WRABER in MARTINČIČ (1999) it exists in the Istrian Peninsula and the neighbouring lower mountainous area. North of these sites no record can be found on the map of JOGAN (2001). Although it has been found in further localities since then (DAKSKOBLER ex litt.), the occurrence of Maribor represents still a limit point of its range.

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