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Gentiana pneumonanthe L., a rare plant in the flora of Vojvodina

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ABSTRACT: A review of the species *Gentiana pneumonanthe*, a rare plant in the flora of Vojvodina, is given.

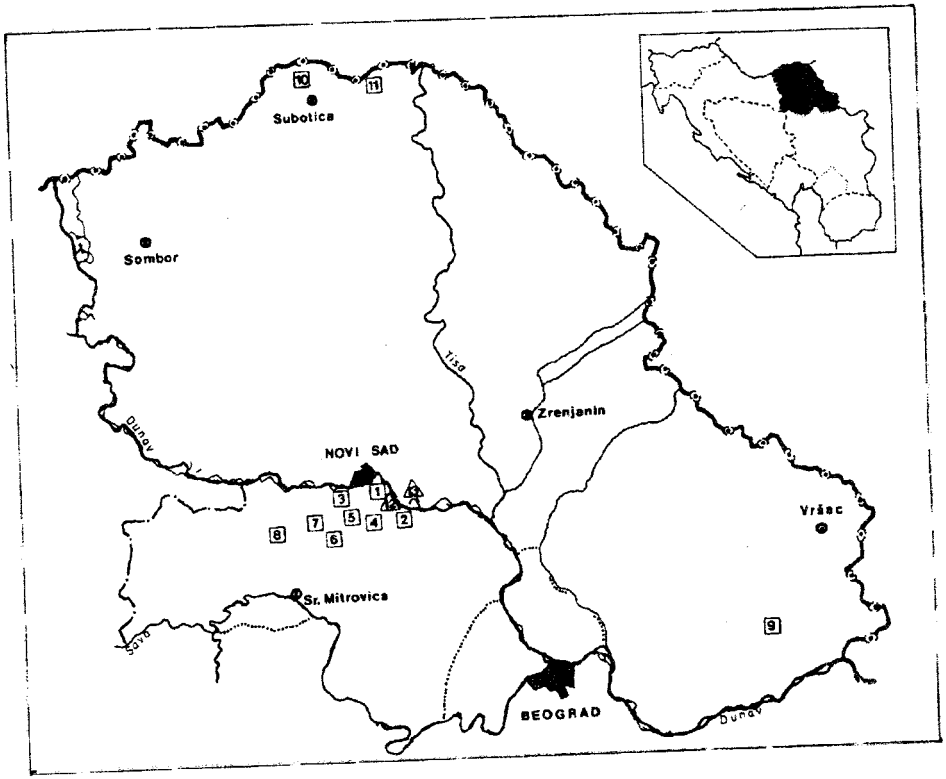
KEYWORDS: *Gentiana pneumonanthe*, rare plants, syntaxonomy, Serbia

A tremendous economic and urban development in the last three decades caused an unavoidable consequence of extensive degradation, curbing and reduction of the authentic nature in Vojvodina. Great changes arose especially after the regulation of rivers and meliorations of floody areas, when complete swampy areas dissapeared. Through the destruction of swampy-marshy biotopes, the distribution of *Gentiana pneumonanthe* in Vojvodina became even poorer, being already disjunctive.

These days, we are witnessing the violation of one of the last refuges in Srem - The Petrovaradin swamp, where this beautiful plant still survives. This, as well as the fact that this species is listed in "The Red Book of Serbia", urged me to write this paper.

G. pneumonanthe, is a plant of plains and mountains. According to GAJIĆ (1980) it belongs to the Euro-Asian geoelement, while SOÓ (1966) to this adds also a mediterranean significance. Its overall distribution is Euro-asian (JÁVORKA 1925, JOVANOVIĆ-DUNJIĆ 1973). According to stated florogeographic features, it should be widely distributed, as mentioned by DOMAC (1973) for the flora of Croatia.

In Serbia, as stated in the work "Flora of Serbia" (JOVANOVIĆ-DUNJIĆ 1973), it was ascertained in the hilly parts of Serbia (Zlatibor,



☐ KNOW LOCALITIES:
1. PETROVARADINSKI RIT (Tekije)
2. SR. KARLOVCI
3. LEDINCI
4. BUKOVAC
5. KARAGAĆ
6. BRANKOVAC
7. KATANSKE LIVADE
8. LEŽIMIR
9. DELIBLATSKA PEŠĆARA
10. SUBOTIČKO–HORGOŠKA PEŠĆARA
11. SELEVENJSKA ŠUMA

△ NEW LOCALITIES:
12. PETROVARADINSKI RIT (Carinova bara)
13. KOVILJSKI RIT

Fig. 1. Distribution of *G. pneumonanthe*L. in Vojvodina province.

Vlasina, Gornji Milanovac, Kragujevac), in the Province of Kosovo at Peć, and in Vojvodina only on Fruška Gora. The latest volumes of this Flora (IX, 1977 and X, 1986) do not give any additional data concerning its distribution, although in floristic and phytosociological literature, some other localities are also mentioned. Thus, TATIĆ records this rare plant in association *Molinietum caeruleae* W. Koch on Mt. Studena, and according to his personal report (TATIĆ 1990) it grows

on similar habitats also in the gorge of Ibar.

Data of botanists from the last century indicate that this plant was found around the river Danube near Novi Sad, Karlovci (KANITZ ap. SCHLOSSER et VUKOTINOVIĆ, 1869), Ratno Ostrvo, Karlovci (ZORKÓCZY, 1986). In Petrovaradin, Sremski Karlovci and Ledinci it was ascertained by BABIĆ (1955). OBRADOVIĆ (1966) found it at the following localities in Fruška Gora: Bukovac, Karagač, Brankovac, Katanske Livade and Ležimir. Most probably these data were interpreted in "The Flora of Serbia" (JOVANOVIĆ-DUNJIĆ 1973) as a general record for Fruška Gora. Data given by BUTORAC (1972, ms.) have not been published up to now. The species occurs in the Petrovaradin marsh at floody meadows below Tekije, the shores of Carin bara, and the shores of "Svinjaruša" swamp. In the phytocoenological treatment of meadows at Tekije (ČAPAKOVIĆ 1979), *G. pneumonanthe* is mentioned as an integral element of the association *Carex gracilis - Poa palustris* Ilijanić 1968 (alliance *Molinion caeruleae*, order *Molinietalia* and class *Molinio-Arrhenatheretea*). BUTORAC (1981) states that the analysed species is still present on meadows in Petrovaradin marsh and around Carin bara, but that it dissapeared from the shore vegetation of "Svinjaruša" marsh, since its natural habitat was disturbed by a plantation of canadian poplar. This has not been published either, as well as the findings of MARČETIĆ (1953) in the meadows of Kovilj swamp. Investigations during the year 1990 indicate that by the construction of a protective embankment dam (still being built, the survival of *G. pneumonanthe* is problematic in the area of whole Petrovaradin marsh, due to the changes in the water regime of its habitat. This species, according to the data in botanical literature in Vojvodina, is also known in the flora of Subotica-Horgoš sandy territory (OBRADOVIĆ and BOŽA 1986), and the flora of Deliblato sands (ANONYMUS 1986, STJEPANOVIĆ-VESELIČIĆ 1953).

The latter author mentions it as a component of the association *Molinietum caeruleae* (*Molinion caeruleae*, *Molinietalia*, *Molinio-Arrhenatheretea*), confined to the depressions between the dunes in the south and southeast, in the lower part of sands.

Analysing the analogous comunities in the easternmost region of the Subotica-Horgoš sandy region, and the depressions in the Salavenj forest, PARABUĆSKI and BUTORAC (1988) describe within the association *Molinietum caeruleae* the subassociation *achilletosum asplenifoliae* but report that even in the period (when *G. pneumonanthe* is in flower) they failed to find it. This represents a difference from the Deliblato sandy region. However, ŠAJINOVIĆ and ŠTURC (1978),

as well as GAJIC (1986), mention this plant from Selevenj forest (Fig. 1).

The recent research in 1990 lead to the conclusion that this species grows in some communities of the association *Molinietum caeruleae achilleetosum asplenifoliae* in the depressions of Selevenj forest clearings, but in very small numbers, while in some other communities of this phytocenosis, especially at the forest fringes, it is not found. It should be mentioned that lot of this plant, in the mentioned area, were ascertained on places covered by ass. *Scirpo-Phragmitetum*.

In future, special attention should be paid to the ecology of this species. According to SOÓ (1966) this is a calciphilous plant, growing on wet ground, or on habitats having a changing water level. They are usually rich in bases, on clayey, peaty, loessy or sandy substrates.

The fact that we have ascertained this species in two communities from different classes (*Molinio-Arrhenatheretea* and *Phragmitetea*), as well as the fact that some authors report it to grow in phytocenoses of different syntaxonomic position, should receive some attention. For instance, in Slovenija, ILIJANIĆ 1979 finds the species *G. pneumonanthe* within the association of *Rhynochosporetum albae* W. Koch 1926 of *Rhynochosporion albae* (class *Scheuchzerio-Caricetea fuscae*), while PETKOVŠEK and SELIŠKAR 1989 in the ass. *Deschampsio-Plantaginetum altissimae* Ilijanić 1979 (*Molinion caeruleae*, *Molinietalia*, *Molinio-Arrhenatheretea*).

In the regions of Croatia, the species analysed was ascertained in Turopolje peat (HULINA 1989). The same author (1973) mentions it as a characteristic species of the alliance *Molinion*. However, it was found in the vegetation of this region within the community of *Deschampsietum caespitosae* H-ić 1930, (*Deschampsion caespitosae*, *Deschampsietalia*, *Molinio-Arrhenatheretea*), remarking that the region in question represents a contact zone between the alliances *Molinion* and *Deschampsion*.

In analysing the vegetation of north-eastern Croatia, RAUŠ, ŠEGULJA and TOPIĆ (1985), in the part of Baranja closest to Vojvodina, record the communities *Serratulo-Plantaginetum altissimae* Ilijanić 1967 and *Ventenato-Trifolietum pallidi* Ilijanić 1967, classifying it the Central European alliance *Cnidion venosi* (*Molinietalia*). The above authors also report *G. pneumonanthe* as a characteristic species of *Molinietalia*.

All the data given in this paper indicate an almost neccessity to continue monitoring of the distribution of this species, to recognize its autecological features and the synecological circumstances in the biotopes

where it grows. This will enable us to make a comparison of the cenological position of this species, which probably will indicate its real place and importance.

Summary

Data given in this paper represent an addition to "The Flora of Serbia" and a basis to make a review of the species *G. pneumonanthe* in the monograph "The Red Book of Serbia".

Taking into consideration that nowadays *G. pneumonanthe* is in the last phase of its retreat, we suggest it should be protected by law as a natural rarity. The real cause of its endangerment is the reduction of areas with natural marshy vegetation and floody meadows, which, if they exist at all, are representing only fragments of the autochthonous plant cover. Moreover, proper solutions have to be accepted for the legal and real protection of its habitat, biotopes of marshy and swampy ecosystems as a whole, because of their specific vegetation and fauna, in order to protect at least partially the authentic nature, whose unseparatable part is *G. pneumonanthe.*

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