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PLANTAGO SEMPERVIRENS CRANTZ, A NEW SPECIES FOR THE ROMANIAN FLORA

***Mihai PUŞCAŞ*[1], *Marius BĂRBOS*[2], *Corina BAŞNOU*[2], *József-Pál FRINK*[2], *Vasile CRISTEA*[2]**
[1]Universitatea „Babeş-Bolyai", Grădina Botanică „Alexandru Borza", str. Gh. Bilaşcu, nr. 42,
RO-400015 Cluj-Napoca
[2]Universitatea „Babeş-Bolyai", Facultatea de Biologie şi Geologie, Catedra de Biologie Vegetală,
str. Gh. Bilaşcu, nr. 42, **RO-400015 Cluj-Napoca**

Abstract: This paper reports, for the first time, the presence of the species *Plantago sempervirens* Crantz in the spontaneous Romanian flora. The only locality known so far to shelter this species is the Pusta Village (Şincai Commune, Mureş County). The main population occupies a surface of approximately one hectare, being located on the slopes of one hill. The plant communities in which it develops belongs to *Botriochloetum ischaemi*, *Stipetum lessingianae* and *Festucetum valesiaco-rupicolae*. The density of the individuals within the main population is relatively high (between 10 and 46 individuals/m^2). It seems that the majority of individuals reach the reproductive stage; this can be considered an indicator of the long duration and stability of this population. Being the only locality known in Romania and located at a great distance from the populations of south-western Europe, it is proposed that the surface become a protected area. A complex study on the structure and ecology of this population is also required.

Introduction

Plantago sempervirens Crantz (*P. cynops* L. 1762, non L. 1753, *P. suffruticosa* Lam., *P. repens* Samp., *Psyllium sempervirens* (Crantz) Soják) [2,5] belongs to the *Psyllium* (Miller) Harms. subgenus, which includes all the species of the *Plantago* genus characterized by opposite leaves, situated on branched stems. The geographical distribution of this species includes the south-west of Europe (south of France, Spain and Italy) [2]. It is also present as a naturalized species in Austria, Switzerland [1,2,6] and Germany [7], in the latter case being rarely found on roadsides, as a pioneer plant integrated in *Agropyretalia* and *Xerobromion* communities.

From ecological point of view, *Plantago sempervirens* is a thermophylous and xerophylous species, being found on arid pastures, on dry and stony places [2,4,9].

This paper reports, for the first time, the presence of the species *Plantago sempervirens* Crantz in the spontaneous Romanian flora.

Discussion

The only species of the *Psyllium* subgenus so far known in Romania is *Plantago arenaria* Waldst. et Kit. (*P. indica* L., nom illegit., *P. ramosa* Ascherson, *P. psyllium* L., nom. ambig., *P. scabra* Moench, *Psyllium ramosum* Gilib) [3,8]. This is an annual plant, predominantly found on sandy soils or even on sands, sometimes on roadsides and in ruderal areas, being characteristic of the *Festucion vaginatae* and *Sisymbrietalia* communities [10]. In Romania it is especially found in the south and east of the country.

Plantago sempervirens is mainly distinguished from *P. arenaria* by the fact that it is a **perennial species**, with a much-branched stem, lignified at base (Fig. 1 and 2). It has the aspect of a dwarf shrub, which does not generally exceed the height of 40 cm. The leaves are thin (up to 1 mm wide), some of which being entire or remotely denticulate. **The inflorescence is more lax**, formed by a **smaller number of flowers** (3-12). The bracts of the inflorescence are abruptly contracted into a rigid linear apex; they are **obviously carenate** on the dorsal side, at the level of

the median vein. Also, the capsule is almost two-fold longer (4-5 mm) than that of the *P. arenaria* species, containing 2 seeds (3-4 mm long).

The species was discovered in the center of the Transylvanian Plain ("*Câmpia Transilvaniei*"), on "*Dealul lui Gherendi*", near the Pusta Village (Şincai Commune, Mureş County), in the summer of 2002 (sheet no. 655.926, Herbarium of the "Babeş-Bolyai" University of Cluj-Napoca). The whole population is located on the upper third of the hill (on the sunny slopes with western, south-western, southern and south-eastern exposure - Fig. 3); the slopes have a general inclination of 35-45°. The field researches (resumed in June 2003) show the presence of a relatively compact main population, which is located on a surface of approximately one hectare. Outside this perimeter, only several groups consisting of a small number of individuals (less than 10 individuals/group) were found.

The density of the individuals was evaluated using a 1 m^2 quadrate frame; 15 samplings were performed in all plant communities where the species were observed. The density of individuals within the main population varies between 10 and 46 individuals/m^2. The size of the plants is generally smaller (15-25 cm) than that reported in the countries of south-western Europe, which can be explained by the presence of much more intense and prolonged frosts during winter as well as by the practice of burning the pastures during autumn or spring. The majority of the individuals (70-90%) are reproductive individuals (Fig. 4). Among inflorescences of the present year, the residual floriferous stems with empty capsules of the year before can be observed.

From phytosociological point of view, *Plantago sempervirens* found in this new locality is integrated in xerophylous communities belonging to the associations *Botriochloetum ischaemi* Pop 1977, *Stipetum lessingianae* Soó (1927) 1947 and *Festucetum valesiaco-rupicolae* Csűrös and Kovács 1962 (Table 1), developed on *regosol*. The cover of vegetation is rather reduced (60-80%), which is due to the surface soil erosion processes and sheep grazing practice. All three types of plant communities have a well-individualized nucleus of characteristic species of the class and order, the differences being generated by orographic factors and anthropozoogenic disturbance. *Plantago sempervirens* is well integrated in the three above mentioned communities types (abundance-dominance values of 1-2 up to 2-3 in Braun-Blanquet scale), without being typical for a certain coenotaxon.

The vigor and density of the individuals suggest that this population is stable and sufficiently old. We cannot yet explain when and how this species reached the territory of Transylvania. Given that this is the only locality known in Romania and that this population is at a great distance and completely isolated from the populations of south-western Europe, we consider that a complex phytosociological and population biology study is required in order to constitute a botanical reserve.

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Fig. 1: ***Plantago sempervirens*** **Crantz (a) and** ***Plantago arenaria*** **Waldst. et Kit. (b) (from Hess E. H.** ***et al.*****, 1972)**

Fig. 2: ***Plantago sempervirens*** **Crantz harvested in 26 June 2003 (Pusta Village)**

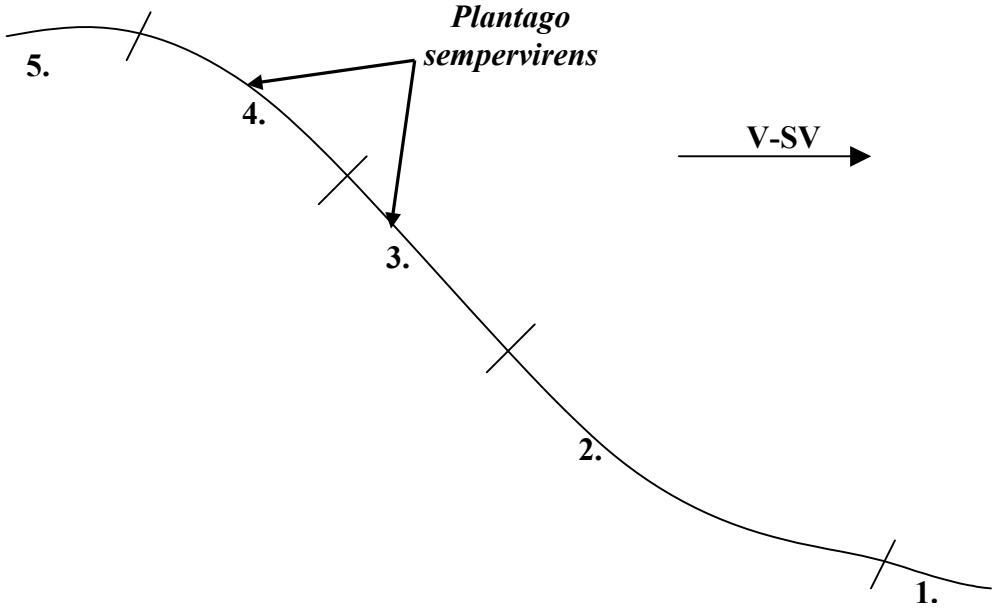

Fig. 3: Vegetation transect throught „*Dealul lui Gherendi*" (Pusta Village, Mureş County): 1. agricultural field; 2. *Festucetum valesiaco-rupicolae*; 3. *Botriochloetum ischaemi*; 4. *Stipetum lessingianae*; 5. *Festucetum rupicolae*

a)

b)

Fig. 4: *Plantago sempervirens* Crantz population located on „*Dealul lui Gherendi*" (a); a specimen from this population (b) (foto. Bărbos M.)

Table 1: Floristic composition of the phytocoenosis with *Plantago sempervirens*:
A - *Botriochloetum ischaemi* Pop 1977,
B - *Stipetum lessingianae* Soó (1927) 1947,
C - *Festucetum valesiaco-rupicolae* Csűrös et Kovács 1962.

Association	A		B		C
Relevé	1	2	3	4	5
Altitude (m)	480	480	475	470	495
Exposure	V-SV	S-SE	SV	SV	S-SE
Slope (^{0})	45	35	40	40	35
Cover (%)	80	80	70	65	75
Surface (m^2)	25	25	25	25	25
Festuco-Brometea					
Dichanthium ischaemum	3	3-4	1-2	1	1-2
Festucetalia valesiacae					
Festuca rupicola	2	+	+	2	2
Festuca valesiaca	+	1-2	1-2	+	1-2
Stipa lessingiana	1-2	1-2	3	3	+-1
Festuco-Brometea					
Achillea collina	+	-	+	-	-
Agrimonia eupatoria	+	+	-	+	+
Euphorbia cyparissias	+	+	+	+	+
Euphorbia esula	-	+	+	-	-
Hieracium pilosella	+	-	-	+	-
Plantago lanceolata	+	+	+	+	-
Plantago media	-	+	+	+	+
Potentilla cinerea	+	+	+	+	+
Sanguisorba minor	-	+	+	-	-
Tragopogon dubius	+	+	-	+	-
Poa angustifolia +, *Salvia pratensis* + (2), *Coronilla varia* + (3), *Artemisia campestris* + (4), *Potentilla argentea* + (5)					
Festucetalia valesiacae					
Asperula cynanchica	+	+	+	+	+
Centaurea biebersteinii subsp. Biebersteini	+	+	-	+	-
Eryngium campestre	-	+	+	+	+
Fragaria viridis	+-1	+	+	+	+
Hieracium praealtum subsp. Bauhinii	+	-	-	-	-
Stipa capillata	+	-	+	-	-
Thymus pannonicus	+	+	+	+	1-2
Variae					
Plantago sempervirens	***2***	***1-2***	***2***	***1-2***	***2-3***
Cichorium intybus	+	+	-	+	-
Convolvulus arvensis	+	+	+	+	+
Elymus repens	+	-	+	-	+
Medicago lupulina	-	+	+	-	-
Rosa canina	-	+	+	-	-
Salvia verticillata	+	+	+	+	+
Teucrium montanum	+	+	+	+	-
Falcaria vulgaris +, *Festuca pratensis* +, *Rubus caesius* +, *Teucrium chamaedrys* + (1), *Carduus acanthoides* +, *Euphorbia seguierana* + (2), *Astragalus austriacus* +, *Cruciata glabra* + (3), *Verbena officinalis* + (5)					

Place and date of the relevés: "*Dealul lui Gherendi*", Pusta Village – Şincai Commune, Mureş County; 26 June 2003.

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PLANTAGO SEMPERVIRENS CRANTZ, O SPECIE NOUĂ PENTRU FLORA ROMÂNIEI

(Rezumat)

Plantago sempervirens Crantz face parte din subgenul *Psyllium* (Miller) Harms., care reuneşte toate speciile genului *Plantago* caracterizate prin frunze opuse, situate pe tulpini ramificate. Arealul acestei specii cuprinde sud-vestul Europei, fiind întâlnită în sudul Franţei, Spania şi Italia [2]. De asemenea ea mai este prezentă ca specie subspontană în Austria, Elveţia [1,2,6] şi în Germania [7]. Exigenţele ecologice o desemnează ca o specie termofilă şi xerofilă, fiind prezentă în pajişti aride, pe terenuri uscate şi pietroase [2,4,9].

Prezenta lucrare semnalează pentru prima dată existenţa speciei *Plantago sempervirens* Crantz şi în cormoflora României.

Specia a fost descoperită pe "Dealul lui Gherendi" din satul Pusta (com. Şincai, jud. Mureş) în vara anului 2002 (coala nr. 655.926, Herbarul Universităţii „Babeş-Bolyai" din Cluj-Napoca). O estimare a efectivului populaţiei sale şi a ambianţei cenotice în care se dezvoltă s-a efectuat în iunie 2003. Întreaga populaţie se găseşte localizată pe versanţii însoriţi ai dealului, cu pantă accentuată, de 35-45°. A fost evidenţiată existenţa unei populaţii principale relativ compacte, fiind întâlnită pe o suprafaţă de aproximativ un hectar. În cadrul acesteia, numărul indivizilor variază între 10 şi 46/m^2, majoritatea acestora fiind în stadiul de maturitate (Fig. 4).

Sub aspect cenologic *Plantago sempervirens* se integrează aici în fitocenoze xerofile aparţinând asociaţiilor *Botriochloetum ischaemi*, *Stipetum lessingianae* şi *Festucetum valesiaco-rupicolae* (Tabel 1).

Vigurozitatea şi densitatea indivizilor ne determină să considerăm că acestă populaţie este stabilă şi suficient de veche. Având în vedere faptul că este singura localitate cunoscută din România, că populaţia se află la o distaţa mare şi este izolată faţă de populaţiile sale din sud-vestul Europei, considerăm că se impune un studiu eco-cenotic şi populaţional complex, în vederea constituirii unei rezervaţii botanice.