Зборник Матице српске за природне науке / Proceedings for Natural Sciences, Matica Srpska Novi Sad, № 104, 61—81, 2003

UDC 582.739(497.113)

Božа P. Pal[1], *Ružica S. Igić*[1], *Borivoj Đ. Krstić*[1], *Vojislav M. Mihailović*[2], *Goran T. Anačkov*[1], *Dragana M. Vukov*[1], *Aleksandar M. Mikić*[2]

[1] Faculty of Natural Sciences, Department of Biology and Ecology,
Trg Dositeja Obradovića 2, 21 000 Novi Sad, Serbia and Montenegro
[2] Institute of Field and Vegetable Crops,
Maksima Gorkog 30, 21000 Novi Sad, Serbia and Montenegro

DISTRIBUTION OF THE *Lathyrus* L. 1753 (Fabales, Fabaceae) SPECIES IN THE VOJVODINA PROVINCE

ABSTRACT: Most of the *Lathyrus* species of the Vojvodina Province are cultivated for fodder. They are protein-containing herbs which easily recover after grazing. Some perennial species survive in grassland communities for ten years or more. Certain species are important melliferous plants. In the Vojvodina Province, they inhabit different habitats like forests and grasslands, dry and wet sites, thus showing a wide distribution range. Besides their floristic and vegetation aspects, their role as green and dry fodder crops should be emphasized.

KEY WORDS: floral element, fodder crop, *Lathyrus* species, range, UTM grid, the Vojvodina Province

INTRODUCTION

The genus *Lathyrus* includes about 120 species. They occur mainly in the Northern Hemisphere, from the extreme north to tropic African and South American regions. Annual herbs grow mostly in the Mediterranean and Front Asia (G a m s, 1964). About 55 species have been recorded in the European flora (B a l l, 1968). Of about 30 species recorded in the Serbian flora (K o j i ć, 1972), 16 can be found in the Vojvodina Province. This paper deals with their distribution in the Vojvodina Province, habitat types, essential ecological characteristics, floral elements, and economic importance.

MATERIAL AND METHODS

Literature data, dried plant material (herbarium of the Department of Biology and Ecology, BUNS), and field surveys served as the basis for the deve-

lopment of UTM grid maps showing distribution of the *Lathyrus* species in the Vojvodina Province. The charts were developed by the indirect mapping puncturing method (Walter and Straka, 1970). UTM codes, literature sources, and the specified sites are presented. Literature data cover the period of approximately 140 years. Besides distribution, floral elements and habitat types (Soó, 1966), distinction between annual and perennial taxa and possible economic importance of species (Федченко, 1948) are discussed.

RESULTS AND DISCUSSION

Sect. Aphaca (Adans.) Rchb. 1832 Fl. Germ etc. 533

Lathyrus aphaca L. 1753 Sp. Pl. Ed 1: 729

Distribution in the Vojvodina Province (Figure 1):

Bačka region: the Titelski Hill DR 31 (Stanojev, 1981; Djurčjanski, 1980); Mošorin DR 31 (Stanojev, 1981; Djurčjanski, 1980); Kovilj DR 20 (Prodán, 1916); Futog CR 91 (Prodán, 1916); Rumenka DR 01 (Kupcsok, 1929); Novi Sad—Liman DR 01 (HIB; Budak, 1998); Žabalj DR 22 (Djurčjanski, 1980; Budak, 1978); Bečej DR 25 (Petrović, 1978); Subotica CS 90 (Tóth, 1975; Prodán, 1916); Čantavir DR 08 (Prodán, 1916); Žednik CR 98 (Igić, 1991); Orešković CR 87 (Igić, 1991); Lok DR 30 (Stanojev, 1983); Kanjiža DS 20 (Andrejević, 1976; Budak, 1998); Horgoš DS 11 (Andrejević, 1976); Bačka Palanka CR 71 (Budak, 1998); Sombor CR 57 (Grdinić, 1995); Sonta Velika Bara CR 55 (Grdinić, 1995); Kać DR 11 (Babić and Parabućski, 1971); Vilovo DR 31 (Babić and Parabućski, 1971); Vajska CR 53 (Prodán, 1916); Crvenka CR 85 (Kupcsok, 1929); Doroslovo CR 55 (Purger, 1993); Bečej DR 25 (Kovács, 1915).

Banat region: Sajan DR 47 (Andrejević, 1976); Sečanj DR 82 (Vučković, 1980, 1982); eastern part of the Tamiš River basin DR 82 (Vučković, 1985); Konak DR 91 (Knežević, 1990); Novi Bečej DR 35 (Knežević, 1990); Starčevo DQ 76 (Knežević, 1990); Banatska Dubica DR 81 (Knežević, 1990); Sekuš DQ 99 (Knežević, 1990); Alibunar DQ 99 (Knežević, 1990); Vatin ER 11 (Knežević, 1990); Kuštilj EQ 28 (Seležan 1973); Tomaševac—Botoš DR 71 (Savić, 1993); Deliblato Sands EQ 07 (Diklić, Vasić, 1983); Bočar DR 46 (Knežević, 1990); Novi Bečej DR 35 (Knežević, 1990); Seleuš DQ 99 (Knežević, 1990); Orlovat DR 61 (Drašković, 1996).

Srem region: Petrovaradin DR 11 (Vučković, 1972; Rajačić, 1971; HPM[1]); Mutinci and Gornji Karaš DR 20 (HPM); Belješevo CR 90 (HPM); Obrež DQ 16 (Acević, 1973); Kamenica DR 10 (Zorkóczy, 1896); Venac DQ 09 (HPM); Testera CR 90 (HPM); Čerević CR 90 (Obradović, 1966); Vrdnik DQ 09 (Igić, 1999); by the railroad track Čortanovci—Beška

[1] HPM — Herbarium of Museum of Natural History of the Vojvodina Province, Novi Sad, today Herbarium of Institute of Nature Protection of Serbia, Novi Sad.

DQ 29 (B u t o r a c, 1981); Beška DQ 29 (B u t o r a c, 1981); Stari Slankamen DQ 49 (B u t o r a c, 1981).

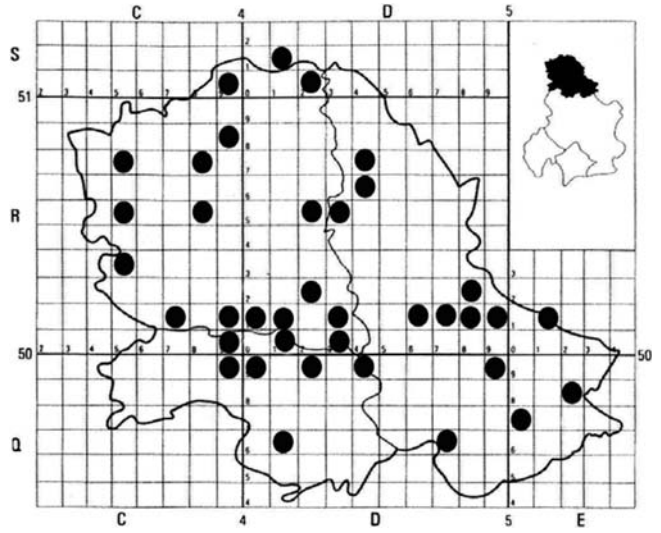

Fig. 1: Distribution *Lathyrus aphaca* in The Vojvodina Province

A sub-Mediterranean, namely, south Eurasian species of east Mediterranean origin. Occurs on warm and rich substrata, humose, neutral, argillaceous and loess soils, cultivated ground, in stubble, in cropped fields, in fallow fields and in weed communities. Rare in wet grasslands. Annual herb cultivated for fodder. Frequent in the Vojvodina Province. Chromosome number n = 7.

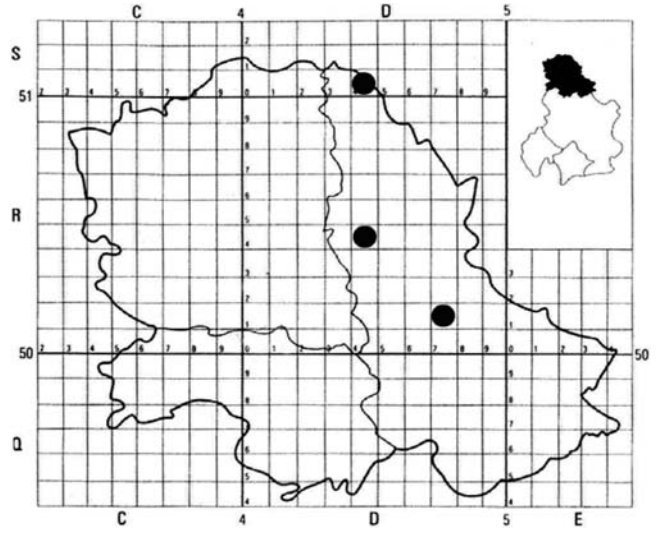

Fig. 2: Distribution *Lathyrus aphaca* var. *aphaca* f. *laetus* in The Vojvodina Province

***L. aphaca* L. var. *aphaca* f. *laetus* Posp. 1898 in Soó Syn. Syst. Gerb. Fl. Veg. Hung. 2: 370**

Distribution in the Vojvodina Province (Figure 2):

Banat region: Mali Siget—Veliki Siget DS 40; Melenci—Rusanda DR 44; Jarkovac DR 7140 (K n e ž e v i ć, 1990).

***Sect.* Nissolia (Adans.) Rchb. 1832 Fl. Germ etc. 533**

***Lathyrus nissolia* L. 1753 Sp. Pl. Ed 1: 729**

Distribution in the Vojvodina Province (Figure 3):

Bačka region: Kovilj DR 20 (Z o r k o c z y, 1896); Šajkaš DR 21 (Z o r k o c z y, 1896); Stari Futog CR 91 (P r o d á n, 1916); Sombor CR 57 (P r o d á n, 1916;); Novi Sad DR 01 (R a j a č i ć, 1971); Deronje CR 63 (P r o d á n, 1916); Apatin—Kurjačica CR 45 (G r d i n i ć, 1996).

Banat region: Kuštilj EQ 28 (S e l e ž a n, 1973); Mokrin DR 58 (K n e ž e v i ć, 1994); Vatin ER 11 (K n e ž e v i ć, 1994); Tomaševac DR 71 (S a v i ć, 1993); Deliblato Sands EQ 07 (D i k l i ć , V a s i ć, 1983); Mesić EQ 39 (V u č k o v i ć, 1991); Markovac EQ 39 (V u č k o v i ć, 1991); Sočica EQ 39 (V u č k o v i ć, 1991); Jablanka EQ 39 (V u č k o v i ć, 1991); ther Vršac Mountain—Karaula EQ 39 (V u č k o v i ć, 1991); Široko bilo EQ 29 (P a n j k o v i ć, 1983; V u č k o v i ć, 1991); Guzajna EQ 39 (P a n j k o v i ć, 1983; V u č k o v i ć, 1991); Vršačka kula (P a n j k o v i ć, 1983).

Srem region: Rivica DQ 09 (S t e v a n o v i ć, 1984); Neštin CR 70 (S t e v a n o v i ć, 1984); Koševac DR 30 (S t e v a n o v i ć, 1984); Kalakač DQ 29 (S t e v a n o v i ć, 1984); Glavica—Širine DR 10 (S t e v a n o v i ć, 1984); Čerević CR 90 (S t e v a n o v i ć, 1984; O b r a d o v i ć, 1966); Banoštor CR 90 (S t e v a n o v i ć, 1984); Grgurevci CQ 99 (S t e v a n o v i ć, 1984); Sremski

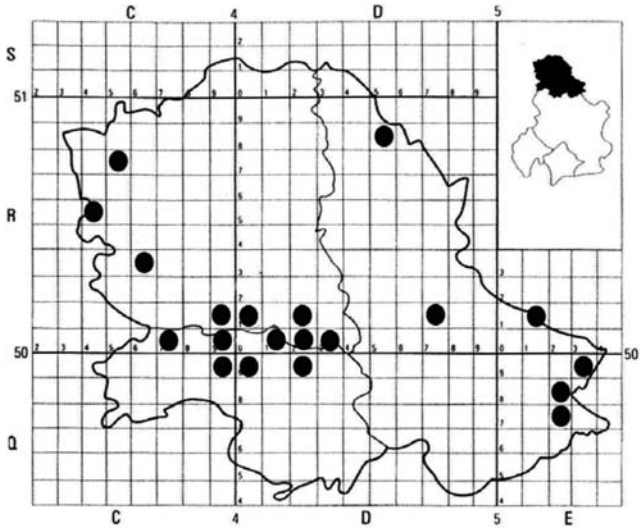

Fig. 3: Distribution *Lathyrus nissolia* in the Vojvodina Province

Karlovci DR 10 (Z o r k ó c z i, 1896); Beleševo CR 90 (HPM); Stražilovo DR 10 (HPM).

An Atlantic-Mediterranean species. Occurs on warm, dry, and rich substrata, humose, neutral, argillaceous and loess soils, in grasslands, in thinned forests, in scrubs, on cultivated ground and saline soils. Rare in marshes and boggy regions. An annual herb without economic importance. Grown scattered, mostly on the Fruška Gora Mountain and the Vršac Mountain while rare elsewhere. Chromosome number n = 7.

***Sect.* Cicercula (Medik.) Gren. Et Godr. 1848 Fl. Franc. 1: 481**

***L. cicera* L. 1753 Sp. Pl. ed 1: 730**

Distribution in the Vojvodina Province (Figure 4):

Srem region: Petrovaradin DR 11 (Z o r k ó c z i, 1896); Sr. Kamenica DR 00 (Z o r k ó c z i, 1896); around the Manđelos Brook CQ 89 (B u t o r a c, 1989).

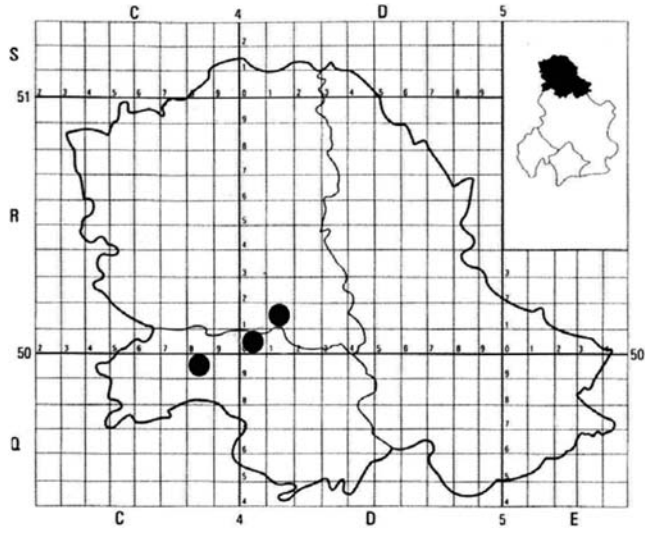

Fig. 4: Distribution *Lathyrus cicera* in the Vojvodina Province

A Mediterranean species, rarely cultivated. No data on its occurrence in natural flora and vegetation. Subspontaneous only on the Fruška Gora Mountain (3 sites). An annual herb cultivated for fodder. Chromosome number n = 7.

***L. sativus* L. 1753 Sp. Pl. ed 1: 730**

Distribution in the Vojvodina Province (Figure 5):

Bačka region: Telečka CR 77 (I g i ć, 1991); Čantavir DR 08 (I g i ć, 1991); Titel DR 40 (S t a n o j e v, 1983); Lok DR 30 (S t a n o j e v, 1983).

Srem region: Stražilovački breg DR 10 (HPM); Susek CR 80 (B u g a r s k i, 1979); Sr. Kamenica DR 00 (Z o r k ó c z i, 1896); Iriški venac DR

00 (HPM); Paragovo DR 10 (Obradović, 1966); Sviloš CR 80 (Obradović, 1966).

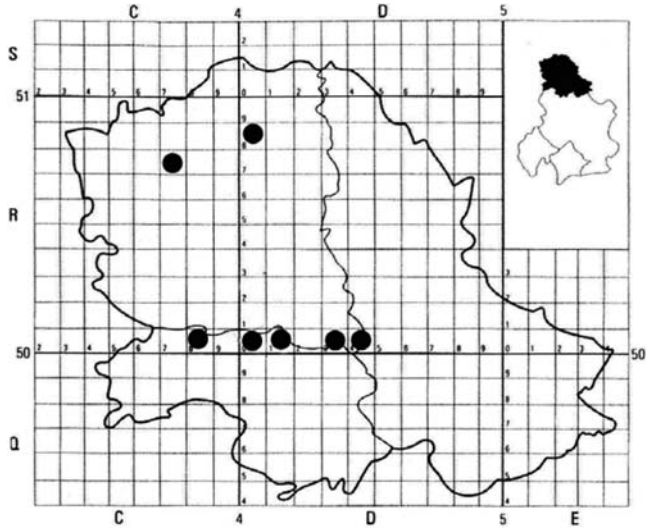

Fig. 5: Distribution *Lathyrus sativus* in the Vojvodina Province

An East Mediterranean neophyte. Rare in natural flora and vegetation, cultivated for fodder, vegetable plant. Subspontaneous on warm, fixed, argillaceous and saline soils, in scrubs and in weed communities. An important annual, melliferous, protein-rich herb cultivated for fodder. Rare in the Vojvodina Province. Chromosome number n = 7.

***L. hirsutus* L. 1753 Sp. Pl. ed. 1: 732**

Distribution in the Vojvodina Province (Figure 6):

Bačka region: Ratno ostrvo DR 01 (Zorkóczi, 1896); Rumenka DR 01 (Kupcsok, 1915); Bečej DR 25 (Kovács, 1929); Veternik—Futog DR 01-CR 90 (BUNS); Žabalj DR 22 (Djurčjanski, 1980; Budak, 1978); Novi Sad DR 01 (Prodán, 1916; Budak, 1998); Kovilj DR 20 (Budak, 1978); Mošorin DR 31 (Stanojev, 1983); Bačka Palanka CR 71 (Budak, 1986, 1998); Bačko Gradište DR 24 (Budak, 1998); Apatin CR 45 (Prodán, 1916); Doroslovo CR 55 (Purger, 1993); Sonta—Velika Bara CR 55 (Grdinić, 1995); the Titel Hill DR 31 (Babić and Parabućski, 1971); Subotica CS 90 (Prodán, 1916).

Banat region: Kuštilj, 31. V 1973. EQ 28 (Seležan, 1975); Novi Kneževac DR 39 (Knežević, 1990); Čoka DR 38 (Knežević, 1990); Bočar DR 46 (Knežević, 1990); Aradac DR 42 (Knežević, 1990); Ečka DR 51 (Knežević, 1990); Vlajkovac EQ 19 (Knežević, 1990); Tomaševac—Botoš DR 71 (Savić, 1993); Jablanka EQ 39 (Vučković, 1991).

Srem region: Karlovčić DQ 26 (Stanojević, 1996); Petrovaradin DR 11 (Zorkóczi, 1896; Rajačić, 1970); Sremska Kamenica DR 10 (Zor-

kóczi, 1896); Čortanovci DQ 29 (Kupcsok, 1914); Stražilovački breg DR 10 (Obradović, 1966); Susek CR 80 (Bugarski, 1975); Koruška CR 80 (Bugarski, 1975); Dolina Kukavica DQ 19 (Butorac, 1989); Sremski Karlovci DR 10 (Kupcsok, 1914; Hirc, 1919); Ribnjak DR 11 (Obradović, 1966); Sremski Karlovci DR 10 (Butorac, 1981); Banstol DR 10 (Butorac, 1981); Krčedin DQ 39 (Butorac, 1981).

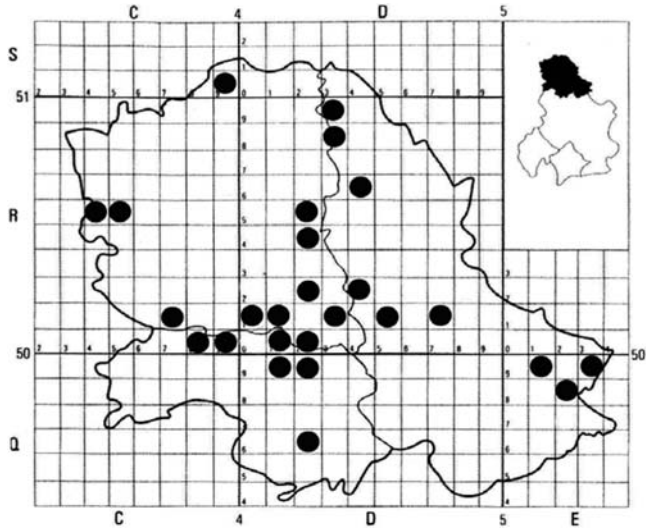

Fig. 6: Distribution *Lathyrus hirsutus* in the Vojvodina Province

A south (-central) Eurasian species of sub-Mediterranean importance. Occurs on dry, porous and rich substrata, on argillaceous, loess and sandy soils, on cultivated ground, in crops, in scrubs, on embankments, along roadways, and in dry saline grasslands. A soil-fixing, long-lived, annual herb cultivated for fodder. Scattered in the Tisza River basin and on the Fruška Gora Mountain while rare elsewhere. Chromosome number n = 7.

Sect. Eulathyrus Ser. in DC 1825 Prodr. 2: 369

L. tuberosus L. 1753 Sp. pl. ed 1: 730

Distribution in the Vojvodina Province (Figure 7):

Bačka region: Vrbas CR 94 (Prodán, 1916); Sombor CR 57 (Prodán, 1916); Bajša CR 87 (Božа, 1976; Igić, 1991); Zobnatica CR 97 (Parabućski, 1982); Bačka Topola CR 97 (Igić, 1991; Dudaš, 1996); Mošorin DR 31 (Stanojev, 1981; Budak, 1978, 1986); Žabalj DR 22 (Djurčjanski, 1980; Budak, 1978, 1998); Kisač DR 02 (Kupcsok, 1915; Budak, 1978); Novi Sad DR 01 (BUNS); Kać DR 11 (Babić and Parabućski, 1971; HIB); Gospođinci DR 22 (Babić and Parabućski, 1971); Čurug DR 23 (Babić and Parabućski, 1971); Titel DR 40 (BUNS); Kovilj DR 20 (Djurčjanski, 1980; Budak, 1978); Rumenka

DR 01 (Djurčjanski, 1980; Budak, 1978); Futog CR 91 (Djurčjanski, 1980); Bečej DR 25 (Kovács, 1929; Petrović, 1979); Subotica CS 90 (Cekuš, 1975; Sabić, 1975.); Senta DR 28 (Marić, 1979); Crvenka CR 85 (Igić, 1991); Kula CR 85 (Budak, 1986; Igić, 1991; Grdinić, 1996); Karavukovo CR 53 (Grdinić, 1996); Sombor CR 57 (Grdinić, 1996); Doroslovo CR 55 (Grdinić, 1996); Apatin—Kurjačica CR 45 (Grdinić, 1996); Lalić CR 74 (Grdinić, 1996); Bački Monoštor CR 37 (Grdinić, 1996); Stanišić Cr 58 (Grdinić, 1996); Deronje CR 63 (Grdinić, 1996); Bač CR 62 (Grdinić, 1996); Kruščić CR 75 (Grdinić, 1996); Odžaci CR 64 (Grdinić, 1996); Sonta—Velike bare CR 55 (Grdinić, 1996); Čonoplja CR 67 (Grdinić, 1996); Sivac CR 76 (Igić, 1991; Grdinić, 1996); Lipar CR 86 (Igić, 1991); Đurđin CR 88 (Igić, 1991); Mali Iđoš CR 96 (Igić, 1991); Lovćenac CR 95 (Igić, 1991); Svetozar Miletić CR 67 (Igić, 1991); Riđica CR 59 (Budak, 1998); Ruski Krstur CR 74 (Budak, 1998; Grdinić, 1996); Srpski Miletić CR 54 (Budak, 1998); Bačka Palanka CR 71 (Budak, 1998; Radonić, 1979); Bačko Gradište DR 14 (Budak, 1998); Senćanski Trešnjevac DR 29 (Budak, 1998).

Banat region: Horgoš DS 11 (Andrejević, 1976); Kanjiža DS 20 (Andrejević, 1976); Sajan DR 47 (Andrejević, 1976); Zrenjanin DR 52 (Vukov, 1999); Kuštilj EQ 28 (Seležan, 11. 06. 1973.); Sajan DR 47 (Knežević, 1990); Banatsko Aranđelovo DS 40 (Knežević, 1990); Zrenjanin DR 52 (Knežević, 1990); Mali Siget—Veliki Siget DS 40 (Knežević, 1990); Filić DR 39 (Knežević, 1990); Bočar DR 46; Mokrin DR 58; Torda DR 54; Banatski Dvor DR 64; Melenci—Ostrvo DR 44; Melenci—Rusanda DR 44; Melenci—Aradac DR 44—42; Perlez DR 50; Jazovo DR 38; Boka DR 82; Konak DR91; Alibunar DQ 99; Pavliš EQ 19; Vršac EQ 29; Vatin ER 11 (Knežević, 1990); Tomaševac DR 71 (Savić, 1993); Orlovat DR 61 (Savić, 1993; Drašković, 1996); Jarkovac DR 71 (Savić, 1993); Deliblatska peščara EQ 07 (Diklić, Spasić, 1983; Deliblatski pesak, 1970); Stari Lec DR 91 (Knežević, 1990); the Vršac Mountain — Karaula EQ 39 (Vučković, 1991); Mesić EQ 39 (Vučković, 1991); Pančevo DQ 76 (Budak, 1998); Malo Središte EQ 39 (Panjković, 1983; Vučković, 1991); Markovac EQ 39 (Panjković, 1983; Vučković, 1991); Guzajna EQ 28 (Panjković, 1983; Vučković, 1991); Gudurica ER 30 (Panjković, 1983; Vučković, 1991); Široko Bilo EQ 39 (Panjković, 1983).

Srem region: Karlovčić DQ 26 (Stanojević, 1996); Petrovaradin DR 11 (HPM; Crnčević, 1994); Čortanovci DQ 29 (HPM); Petrovaradin—Tekije DR 11 (Butorac, 1981); Beška DQ 29 (Butorac, 1981); Kalakač DQ 29 (Butorac, 1981); Pećinci DQ 17 (Acević, 1973); the Fruška Gora Mountain — Kukavica Valley DQ 19 (Butorac, 1989); between Bačinci and Erdevik CQ 69—79 (Butorac, 1989); Čerević CR 90 (Obradović, 1966); Bukovac — Iriški venac DR 00—10 (Crnčević, 1994); Jančikovac CQ 99 (Crnčević, 1994); Vetrenjača CQ 99 (Crnčević, 1994); Divoš CQ 89 (Crnčević, 1994); along the Rovača Brook DQ 09 (Crnčević, 1994); along the Mutalj Brook CQ 99 (Crnčević, 1994); between Divoš estate and the Jaroš Brook CQ 89 (Crnčević, 1994).

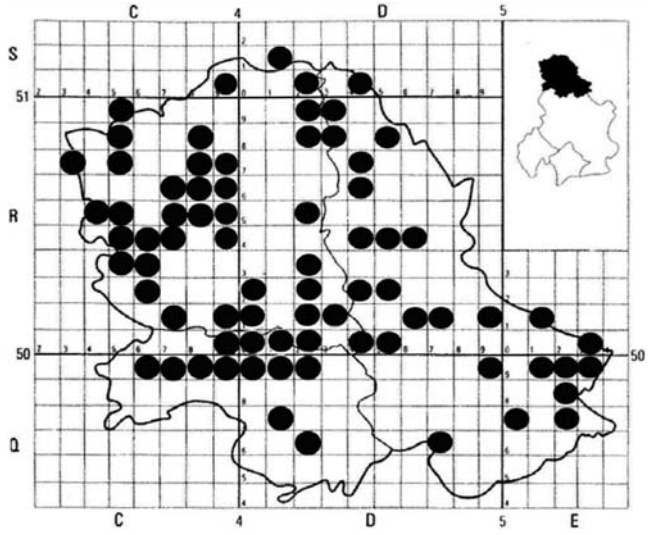

Fig. 7: Distribution *Lathyrus tuberosus* in the Vojvodina Province

A Eurasian (-Mediterranean) species. Occurs on calcareous, warm, dry and rich substrata, on neutral, humose, argillaceous and loess soils, in crops, grassland, weed phytocoenoses, barrens; infrequent in wet places. A perennial herb cultivated for fodder. Frequent in the Vojvodina Province. Chromosome number n = 7.

***L. latifolius* L. 1753 Sp. pl. ed 1: 733**

Distribution in the Vojvodina Province (Figure 8):

Bačka region: Bečej DR 25 (K o v á c s, 1929); Titel DR 40 (S t a n o j e v, 1983; P r o d á n, 1916); Futog CR 91 (P r o d á n, 1916); Lok DR 30 (S t a n o j e v, 1980); Deronje CR 63 (P r o d á n, 1916); Lok — Vilovo DR 30—31 (S t a n o j e v, 1983).

Banat region: Vršački breg — Babin do EQ 39 (P a n j k o v i ć, 1983); the Vršac Mountain — Karaula EQ 39 (V u č k o v i ć, 1991); Magareći vrh EQ 29 (V u č k o v i ć, 1991).

Srem region: Karlovčić DQ 26 (S t a n o j e v i ć, 1996); Sremski Karlovci DR 10 (H i r c, 1919); Lipje DQ 09 (H i r c, 1919); Stražilovo DR 10 (HPM); Beleševo CR 90 (HPM); Širine DR 10 (HPM); Čortanovci DQ 29 (B u t o r a c, 1981; O b r a d o v i ć, 1966); Čortanovci — Beška DQ 29 (B u t o r a c, 1981); Venac DQ 09 (HPM); Sviloš CR 80 (O b r a d o v i ć, 1966); Banstol DR 10 (H i r c, 1919); Ledinci DR 00 (H i r c, 1919); Stražilovački breg — Lipe DR 10 (S t e v a n o v i ć, 1984); Glavica — Širine DR 00 (S t e v a n o v i ć, 1984); Bukovac DR 10 (S t e v a n o v i ć, 1984); Čerević CR 90 (S t e v a n o v i ć, 1984); Selište — Direk DR 10 (S t e v a n o v i ć, 1984); Banoštor CR 90 (S t e v a n o v i ć, 1984).

A sub-Mediterranean species. Cultivated as ornamental plant in the past. Occurs on calcareous, warm, dry or wet, porous, rich substrata, on neutral,

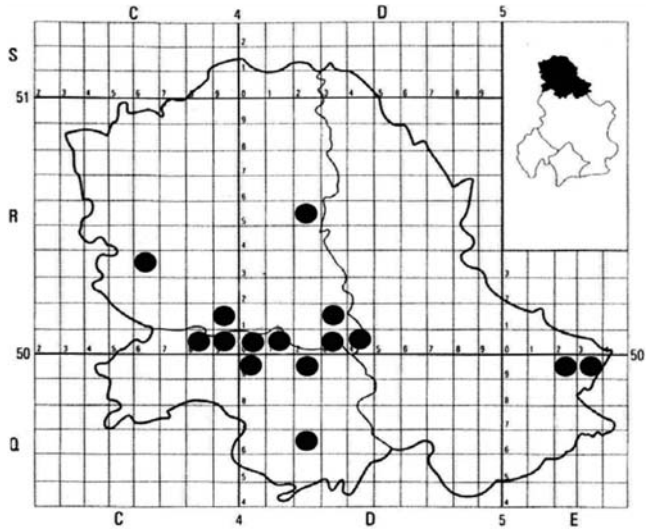

Fig. 8: Distribution *Lathyrus latifolius* in the Vojvodina Province

humose, argillaceous, loess and sandy soils, in barrens, mountain grassland scrubs, thin and dry oak forests, vineyards, rare on cultivated ground and along roadways. A perennial herb of no economic importance. Could be cultivated for fodder and as a melliferous species. Chromosome number n = 7.

***L. silvestris* L. 1753 Sp. pl. ed 1: 733**

Distribution in the Vojvodina Province (Figure 9):

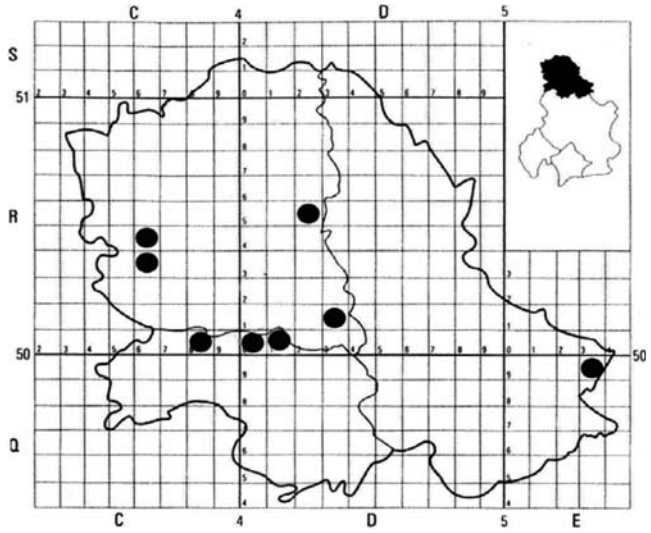

Fig. 9: Distribution *Lathyrus silvestris* in the Vojvodina Province

Bačka region: Bečej DR 25 (K o v á c s, 1929); Deronje CR 63 (P r o d á n, 1916); Mošorin DR 31 (S t a n o j e v, 1981); Bački Gračac CR 64 (G r d i n i ć, 1995).

Banat region: Vršački breg EQ 39 (BUNS).

Srem region: Sremski Karlovci DR 10 (O b r a d o v i ć, 1966); Susek CR 80 (B u g a r s k i, 1979); Venac DR 00 (O b r a d o v i ć, 1966); Karlovčić DQ 26 (S t a n o j e v i ć, 1996).

A European (-Mediterranean) species. Occurs on calcareous, warm, semi-dry or wet substrata and on neutral, humose, argillaceous and sandy soils, on edges of oak forests and hornbeam and European chestnut forests. A soil-fixing species. An important melliferous perennial containing up to 21% proteins, cultivated for fodder. Rare in the Vojvodina Province. Chromosome number n = 7.

Sect. Orobastrum Bois. 1872 Fl. or. 2: 601

L. sphaericus Retz. 1785 Observ. bot. 3: 39

Distribution in the Vojvodina Province (Figure 10):

Bačka region: Novi Sad DR 00

Banat region: northeastern slopes of the Titel Hill DR 41 (I g i ć et al., 1999)

Srem region: between Kamenica and Venac DR 00 (Z o r k ó c z i, 1896); Zmajevac DR 00 (BUNS); Širine DR 19 (HPM); Brankovac CR 90 (O b r a d o v i ć, 1978); Andrevlje CR 90 (O b r a d o v i ć, 1978).

A south (-central) Eurasian species of sub-Mediterranean importance. Occurs on calcareous, warm, dry, porous and argillaceous soils, in barrens, on

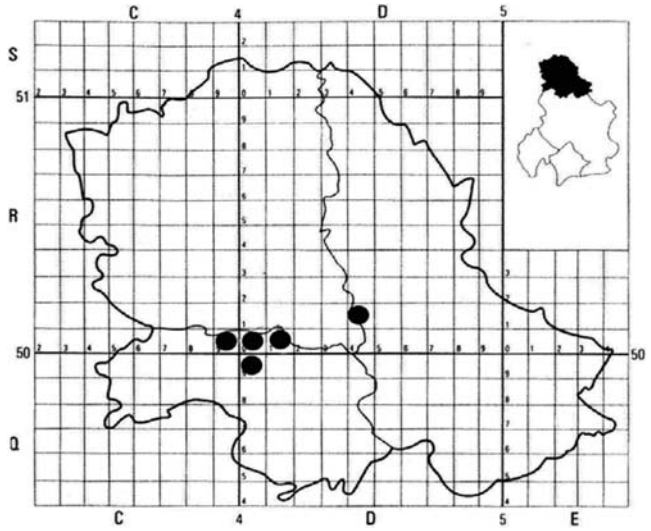

Fig. 10: Distribution *Lathyrus sphaericus* in the Vojvodina Province

rocky slopes. An annual herb of no economic importance. Could be cultivated for fodder.

***L. pratensis* L. 1753 Sp. pl. ed. 1: 743**

Distribution in the Vojvodina Province (Figure 11):

Bačka region: Kovilj DR 20 (Zorkóczi, 1896); Ratno ostrvo DR 01 (Zorkóczi, 1896); Kisač DR 02 (Kupcsok, 1915); Bečej DR 25 (Petrović 978; Kovács, 1925); Subotica CS 90 (Šabić, 1975); Kula CR 85 (Prodán, 1916; Budak, 1998); Lipar CR 86 (Igić, 1991); Srpski Miletić CR 64 (Budak, 1998); Bačka Palanka CR 71 (Budak, 1986); Doroslovo CR 55 (Purger, 1993); Deronje CR 63 (Prodán, 1916).

Banat region: Zrenjanin DR 52 (Vukov, 1999); Sečanj DR 82 (Knežević, 1990); Konak DR 91 (Knežević, 1990); Vršac EQ 29 (Knežević, 1990); Tomaševac — Botoš DR 71 (Savić, 1993); Sočica EQ 39 (Vučković, 1991); Gudurica ER 30 (Vučković, 1991); Jablanka EQ 39 (Vučković, 1991); the Vršac Mountain — Karaula EQ 39 (Vučković, 1991); Magareći vrh EQ 29 (Vučković, 1991); Široko bilo EQ 29 (Vučković, 1991); Mesić EQ 39 (Vučković, 1991); Markovac EQ 39 (Vučković, 1991); Guzajna EQ 28 (Vučković, 1991).

Srem region: Karlovčić DQ 26 (Stanojević, 1996); Čortanovci — Beška DQ 29 (Butorac, 1981); Banoštor CR 90 (Bugarski, 1976); Perljuša CR 80 (Bugarski, 1976); Obrež DQ 15 (Acević, 1973); Iriški venac DQ 09 (Obradović, 1966); the Fruška Gora Mountain — Paragovo DR 10 (Obradović, 1966); Sviloš — Ravno CR 80 (Obradović, 1966); Krušedol DQ 19 (Butorac, 1981); Rivica DQ 09 (Butorac, 1981); Ležimir CQ 89 (Butorac, 1981); the Vranjaš Brook valley CQ 99 (Butorac, 1981); the Mutalj Brook valley CQ 99 (Butorac, 1981); Privina Glava CQ

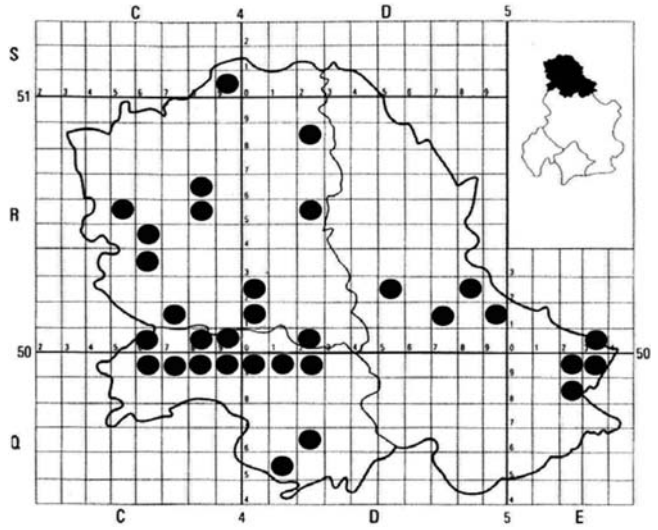

Fig. 11: Distribution *Lathyrus pratensis* in the Vojvodina Province

69 (B u t o r a c, 1981); the Kajnovac Brook valley DQ 19 (B u t o r a c, 1981); along the Luka Brook DQ 19 (B u t o r a c, 1981); between Erdevik and Sot CQ 79-CR 60 (B u t o r a c, 1981).

A Eurasian (-Mediterranean) species. Occurs on nitrogen rich, calcareous, wet, semiacid or neutral, humose, argillaceous, peaty and sandy soils, in grasslands, forests, ruderal, dry and wet habitats. A perennial herb cultivated for fodder which easily recovers after grazing. Frequent in the Vojvodina Province. Chromosome numbers n = 7 and 14.

***L. hallersteinii* Baumg. 1816, Euvm. Strip. Transs. 2: 333**

Distribution in the Vojvodina Province (Figure 12):
Srem region: Čerević, Katanske livade CR 90 (O b r a d o v i ć, 1966)

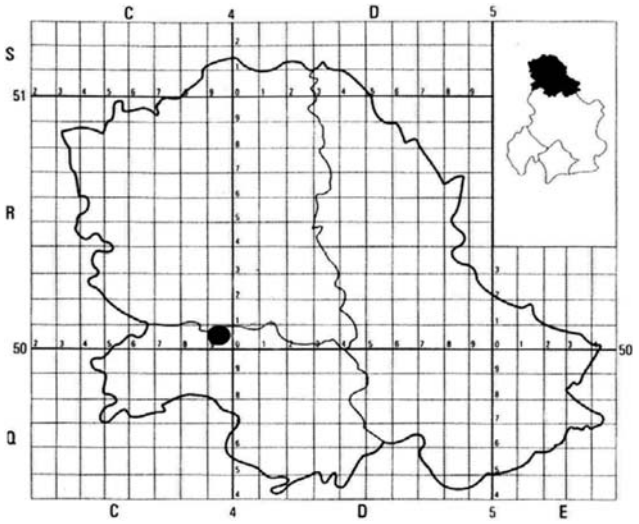

Fig. 12: Distribution *Lathyrus hallersteinii* in the Vojvodina Province

Widespread in Serbia, Greece, Rumania (K o j i ć, 1972), and Bulgaria (K o ž u h a r o v, 1976). Occurs on hill and mountain grasslands and in beech forests and shrubs. A Perennial herb (K o j i ć, 1972). Chromosome number n = 7 (B a l l, 1968). In the Vojvodina Province, found only in the Fruška Gora Mountain. The Fruška Gora population might belong to a form of *L. pratensis* since populations intermediary between *L. pratensis* and *L. hallersteinii* (B a l l, 1968) occur frequently in central parts of the Balkan Peninsula. Also, the species *L. pratensis* is highly variable in the Pannonian Plain (S o ó, 1966). The only distribution data for this species were presented by O b r a d o v i ć (1966).

***L. palustris* Baumg. 1816, Euvm. Strip. Transs. 2: 333**

Distribution in the Vojvodina Province (Figure 13):
Bačka region: Veternik DR 01 (B u d a k, 1978); Žabalj DR 22 (B u d a k, 1978); Bečej DR 25 (K o v á c s, 1929).

Srem region: Stražilovo DR 10 (HPM); Petrovaradin, Tekijski rit DR 11 (BUNS).

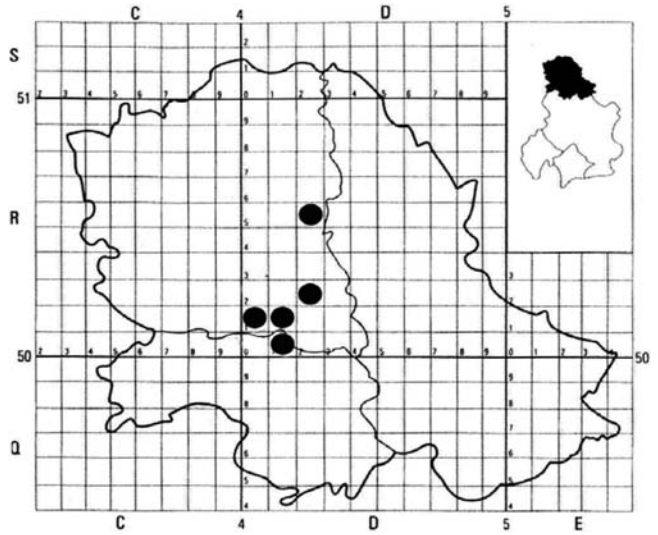

Fig. 13: Distribution *Lathyrus palustris* in the Vojvodina Province

A circumpolar species. Occurs on calcareous, alkaline, semiacid, humose, marshy, argillaceous and peat soils with fluctuating water regimen, on reedy terrains, in flooded grasslands and woods. A perennial herb of wet pastures containing app. 20% proteins, cultivated for fodder. Very rare in the Vojvodina Province. Chromosome number n = 21.

Sect. Orobus L. 1754 Gen. pl. ed. 5: 524

L. pannonicus (Kramer) Garcke 1863 Fl. Deutschl. G. Aufl.

Distribution in the Vojvodina Province (Figure 14):

Banat region: Vršački breg EQ 39 (BUNS); Deliblato Sands EQ 07 (Diklić, Vasić, 1983).

Srem region: Čerević CR 90; Andrevlje CR 90; Vrdnik DQ 09.

A Eurasian (-Mediterranean) continental species. Occurs on calcareous, wet, neutral, humose, argillaceous and peat soils, on reedy tarrains, and barrens. A forest-steppe plant. A perennial herb cultivated for fodder. Very rare in the Vojvodina Province, found only on the Fruška Gora Mountain, Deliblato Sands and Vrsački Breg. Chromosome number n = 7.

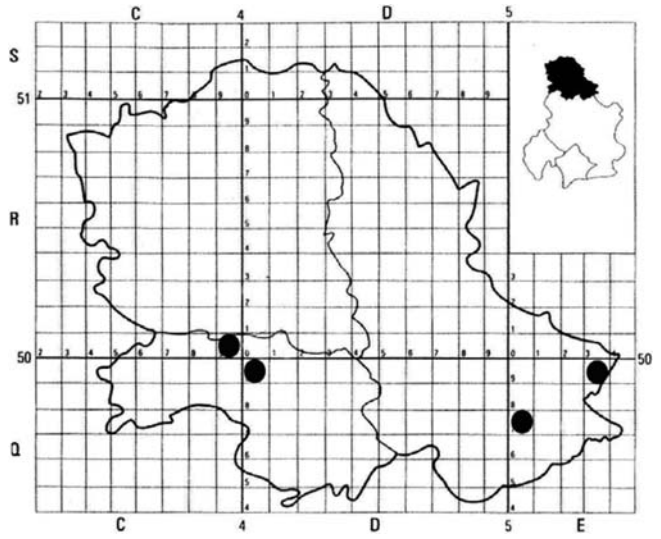

Fig. 14: Distribution *Lathyrus pannonicus* in The Vojvodina Province

***L. vernus* (L.) Bernh. 1800 Syst. Verz. Erf. 247**

Distribution in the Vojvodina Province (Figure 15, C):

Bačka region: Deronje CR 63; Bođani CR 52 (P r o d á n, 1916).

Banat region: Vršački breg — Lisičja glava EQ 39 (P a n j k o v i ć, 1983).

Srem region: Klenak CQ 95 (S l a v n i ć, 1954); Kupinovo DQ 25 (S l a v n i ć, 1954); Stražilovo DR 10 (H i r c, 1914; J a n k o v i ć and M i š i ć, 1980); Grgeteg DQ 19 (J a n k o v i ć and M i š i ć, 1980); Venac DQ 09 (O b r a d o v i ć, 1966); Kamenički park DR 10 (B o ž a, 1981; B u t o r a c, 1981); Zmajevac DR 00 (J a n k o v i ć and M i š i ć, 1980); Crveni čot DR 00 (J a n k o v i ć and M i š i ć, 1980); Venac DR 00 (J a n k o v i ć and M i š i ć, 1980); Testera CR 90 (J a n k o v i ć and M i š i ć, 1980); Dobre Vode DR 00 (J a n k o v i ć and M i š i ć, 1980); Crveni čot DR 00 (J a n k o v i ć and M i š i ć, 1980); Ravno CR 90 (J a n k o v i ć and M i š i ć, 1980).

A Eurasian (Eusiberian) continental species. Occurs on calcareous, porous, rich substrata, on alkaline, humose, argillaceous and flooded soils in deciduous forests, in forest of hornbeam and juniper. Rare in the Vojvodina Province. A parennial herb important for forest grazing. Chromosome number n = 7.

***L. vernus* (Mill.) Rouy et Foucard var. *banaticus* (Heuff.) A. et G. 1910 Syn. 6, 2:1050**

Distribution in the Vojvodina Province (Figure 15, đ):

Bačka region: Deronje CR 63 (P r o d á n, 1916); Bođani CR 52 (P r o d á n, 1916).

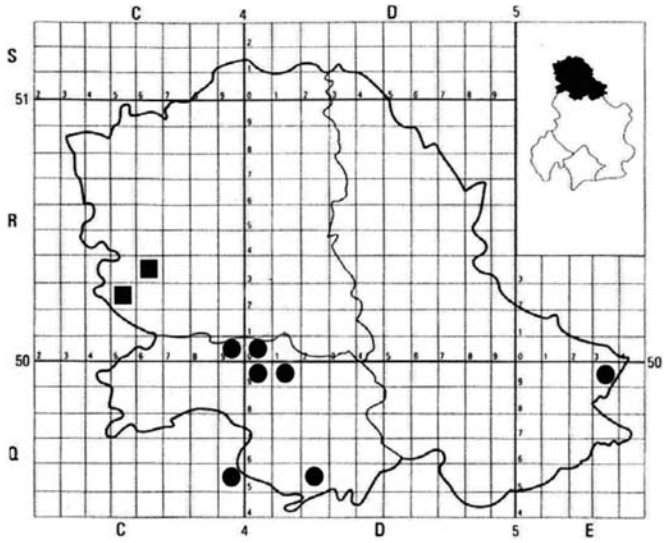

Fig. 15: Distribution *Lathyrus vernus* ● i *Lathyrus vernus* var. *banaticus* ■ in the Vojvodina Province

***L. venetus* (Mill.) Rouy et Foucard 1899 Fl. France 5: 254**

Distribution in the Vojvodina Province (Figure 16):

Banat region: Široko bilo EQ 29 (P e k a n o v i ć, 1991); Guduričkі vrh ER 30 (P e k a n o v i ć, 1991); Vršački vrh ER 30 (P e k a n o v i ć, 1991), Korkana EQ 39 (P e k a n o v i ć, 1991), Kula EQ 39 (P e k a n o v i ć, 1991), Donji Všicor EQ 39 (P e k a n o v i ć, 1991), Mesić EQ 39 (P e k a n o v i ć, 1991),

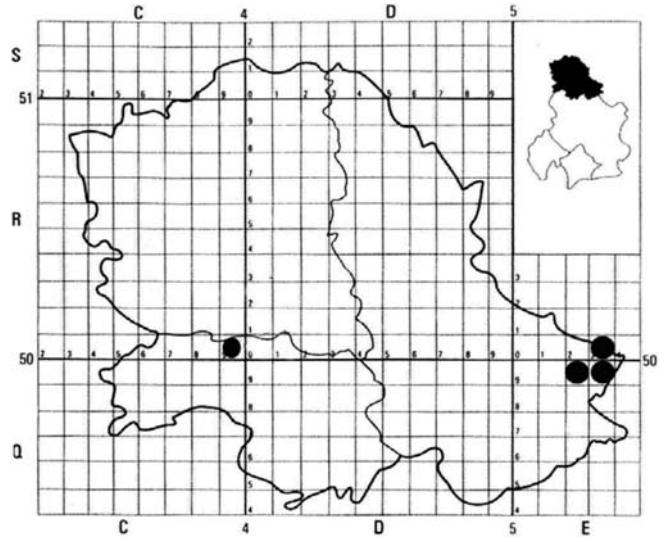

Fig. 16: Distribution *Lathyrus venetus* in the Vojvodina Province

Sočica EQ 39 (P e k a n o v i ć, 1991), surroundings of Markovci, around Karaula ER 30 (P e k a n o v i ć, 1991).

Srem region: the Fruška Gora Mountain CR 90 (Č o l o v i ć, 1956).

A Pontic-Mediterranean, Illyrian species. Occurs on calcareous, porous, rich substrata, on alkaline, humose, forest soils in hornbeam and beech forests. A perennial herb of no economic importance. Very rare in the Vojvodina Province. Chromosome number n = 7.

***L. niger* (L.) Bernh. 1800 Syst. Verz. Erf. 248**

Distribution in the Vojvodina Province (Figure 17):

Bačka region: Bezdan CR 37 (P r o d á n, 1916); Apatin CR 45 (P r o d á n, 1916); Vajska CR 53 (P r o d á n, 1916).

Banat region: the Vršac Mountain—Karaula EQ 39 (V u č k o v i ć, 1991); Široko bilo EQ 29 (V u č k o v i ć, 1991; P a n j k o v i ć, 1983); Mesić EQ 39 (V u č k o v i ć, 1991); Sočica EQ 39 (V u č k o v i ć, 1991); Vršački vrh ER 30 (P e k a n o v i ć, 1991); Gudurički vrh EQ 39 (P e k a n o v i ć, 1991); Kula EQ 39 (P e k a n o v i ć, 1991); surroundings of Markovci near Karaula ER 30 (P e k a n o v i ć, 1991).

Srem region: Osovlje DR 00 (J a n k o v i ć et M i š i ć, 1980); Beočinske livade CR 90 (J a n k o v i ć et M i š i ć, 1980).

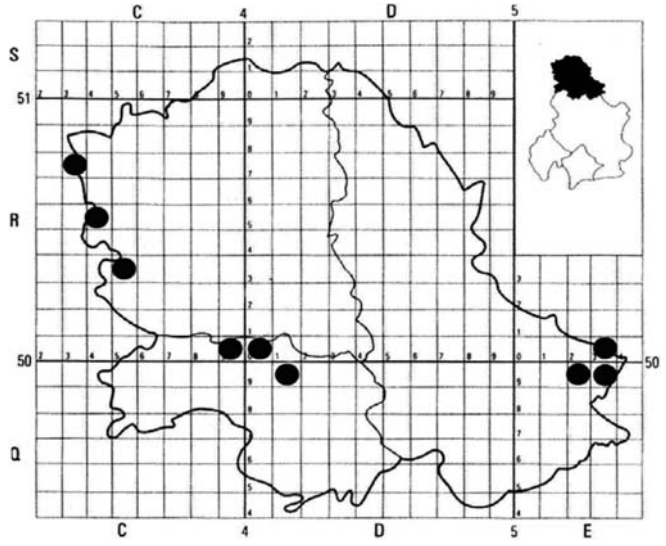

Fig. 17: Distribution *Lathyrus distribution* in the Vojvodina Province

A central European (-Mediterranean) species. Occurs on neutral, limeless, warm, semidry, humose, forest, argillacelous and sandy soils, in deciduous forests, in scrubs and in pine forests plantations. Rare in the Vojvodina Province. A perennial herb important for forest grazing. Chromosome number n = 7.

REFERENCES

A n d r e j e v i ć, N. (1976): *Florogeneza severnovojvođanskih slatina*, magistarski rad, PMF, Institut za biologiju, Novi Sad.

A c e v i ć, N. (1976): *Biljno-geografske karakteristike okoline Pećinaca i Obedske bare*, diplomski rad, PMF, Institut za biologiju, Novi Sad.

B a b i ć, N., P a r a b u ć s k i (1971): *Prikaz vegetacije Šajkaške*, in: B u k u r o v, B. ed. *Šajkaška, Priroda kraja*. Vojvođanski muzej, Matica Srpska, Novi Sad, 114—139.

B a l l, P. W. (1968): *Lathyrus L.* in Tutin, T. G., Heywood, V. H., Burges, N. A., Moore, D. M., Valentine, D. H., Walters, S. M., Webb, D. A. *Flora Europaea*, Volume 2, 136—143. University Press, Cambridge.

B o ž a, P. (1976): *Flora Bajše*, diplomski rad, PMF, Institut za biologiju, Novi Sad.

B o ž a, P. , B u t o r a c, B. (1981): *Prilog poznavanju rasprostranjenosti nekih taksona u Vojvodini*, Beograd.

B u d a k, V. (1978): *Florogeneza slatina jugoistočne Bačke*, magistarski rad, PMF, Institut za biologiju, Novi Sad.

B u d a k, V. (1998): *Flora i biljnogeografske odlike slatina Bačke*, Matica srpska, Odeljenje za prirodne nauke, Novi Sad.

B u g a r s k i, V. (1979): *Samonikle i gajene biljke okoline Suseka (livadske vegetacije i vegetacije poplavnih šuma)*, diplomski rad, PMF, Institut za biologiju, Novi Sad.

B u t o r a c, B. (1981): *Florističke karakteristike Fruške gore*, magistarski rad, PMF, Institut za biologiju, Novi Sad.

B u t o r a c, B. (1987): *Pregled biljnih oblika u flori istočnog dela Fruške gore*, PMF, Institut za biologiju, Novi Sad.

B u t o r a c, B. (1989): *Vegetacija sremskog Lesnog Platoa*, doktorska disertacija, PMF, Institut za biologiju, Novi Sad.

C e k u š, G. (1976): *Flora okoline Subotice (severni deo)*, diplomski rad, PMF, Institut za biologiju, Novi Sad.

C r n č e v i ć, S. (1994): *Korovska vegetacija voćnjaka Fruške gore*, Matica srpska, odeljenje za prirodne nauke, Novi Sad.

Č o l o v i ć, S. (1956): *Flora Fruške gore i okoline*, Vojvođanski muzej, Matica srpska, Novi Sad.

D i k l i ć, N., C i n c o v i ć, T., K o j i ć, M. (1972): *Fam. Fabaceae Lindl*. In: J o s i f o v i ć, M. ed. *Flora SR Srbije* 4, 254—256 SANU, Beograd.

D i k l i ć, N., V a s i ć, O. (1983): *Fa. Fabaceae Lindl*. In: G a j i ć, M. ed. *Flora Deliblatske peščare*, OOUR Institut za biologiju Novi Sad i OOUR specijalni prirodni rezervat "Deliblatski pesak".

D r a š k o v i ć, R. (1996): *Flora okoline Orlovata*, diplomski rad, PMF, Institut za biologiju, Novi Sad.

D u d a š, J. (1996): *Flora okoline Zobnatice kod Bačke Topole (Zobnatičko jezero)*, diplomski rad, PMF, Institut za biologiju, Novi Sad.

Đ u r č j a n s k i, R. (1980): *Florističke karakteristike jugoistočne Bačke*, magistarski rad, PMF, Institut za biologiju, Novi Sad.

F e d č e n k o, B. A. (1948): *Rod Lathyrus L.* in: K o m a r o v, V. L. ed. *Флора СССР*, XIII, 479—520. Издателство Академии Наук СССР, Москва, Ленинград.

G a j i ć, M. (1986): *Flora i vegetacija Subotičko-horgoške peščare*, Šumarski fakultet, Beograd i Šumarsko gazdinstvo, Subotica.

G a m s, H. (1964): *Familie Leguminosae* in: H e g i, G. ed.: *Illustrierte Flora von Mittel-Europa*, Band IV, 3. Tail, 1114—1644. Carl Hanser, Verlag München.
G o d r a, B. E. (1872): *Flora der Peterwardeiner Grenz-Regiments*, Österreichsche Botaniche Zeitschrift, N° 7.
G r d i n i ć, B. (1996): *Značaj floristiških istraživanja u funkciji unapređivanja nastave biologije*, doktorska disertacija, PMF, Institut za biologiju, Novi Sad.
H i r c, D. (1919): *Građa za floru srijemskog plošnjaka, Fruške gore i okoline grada Osijeka*, Glasnik zemaljskog muzeja BiH, Zagreb.
I g i ć, R. (1991): *Floristiške odlike Bačke lesne zaravni*, doktorska disertacija, PMF, Institut za biologiju, Novi Sad.
I g i ć, R., B u t o r a c, B., Z l a t k o v i ć, B., V u k o v, D., A n a č k o v, G. (1999): *Novi podaci za floru Titelskog brega*, Zbornik radova PMF, Serija za biologiju, 27—28: 74—83.
J a n k o v i ć, M., M i š i ć, V. (1980): *Šumska vegetacija i fitocenoze Fruške gore*, Matica srpska, Novi Sad.
K i l i b a r d a, M. (1973): *Flora okoline Vrbasa*, diplomski rad, PMF, Institut za biologiju, Novi Sad.
K n e ž e v i ć, A. (1990): *Ekološka i biljnogeografska analiza flore slatina Banata*, doktorska disertacija, PMF, Institut za biologiju, Novi Sad.
K n e ž e v i ć, A. (1994): *Prilog poznavanju varijabilnosti biljaka na slatinama Banata*, Zbornik radova PMF-a, serija za biologiju br. 23. Novi Sad.
K n e ž e v i ć, A. (1994): *Monografija flore vaskularnih biljaka na slatinama u regionu Banata (Jugoslavija)*, Matica srpska, Odeljenje za prirodne nauke, Novi Sad.
K n e ž e v i ć, A., B u d a k, V., B o ž a, P., G r d i n i ć, B. (1997): *Mediteranski elementi flore u biljnom pokrivaču slatina Banata i Bačke*, Zbornik radova PMF-a, serija za biologiju br. 26. Novi Sad.
K o j i ć, M. (1972): *Rod Lathyrus in Josifović*, M. ed. *Flora SR Srbije 4*, 358—385. SANU, Beograd.
K o v á c s, F. (1929): *Óbecse határának virágos növényei*, Szeged városi nyomda és könyvkiadó R.-T., Szeged.
К о ж у х а р о в, Ст. (1976): Род *Lathyrus* L. ин: Й о р д а н о в, Д., ед. *Флора на Народна Репūблика България*, IV, 503—548. Издателство на Българска Академия на науките, София.
K u p c s o k, S. T. (1915): *Adatok Bács-Bodrogmegye déli részének és Szerémegyének flórájához in Degen*, A. ed Magyar Botanikai lapok Budapest.
L u č i ć, K. (1973): *Flora okoline Stepanovićeva*, diplomski rad, PMF, Institut za biologiju, Novi Sad.
M a r i ć, A. (1979): *Floristiške osobine severnog dela okoline Sente*, diplomski rad, PMF, Institut za biologiju, Novi Sad.
O b r a d o v i ć, M. (1966): *Biljnogeografske analize Fruške gore*, Matica srpska, Odeljenje za prirodne nauke, Novi Sad.
O b r a d o v i ć, M. (1978): *Retke i reliktne biljke Fruške gore sa biljnogeografskom analizom*, Matica srpska, Odeljenje za prirodne nauke, Novi Sad.
P a n j k o v i ć, V. (1983): *Biljnogeografska analiza flore Vršačkog brega*, doktorska disertacija, PMF, Institut za biologiju, Novi Sad.
P e k a n o v i ć, V. (1991): *Šumska vegetacija Vršačkih planina*, Matica srpska, Odeljenje za prirodne nauke, Novi Sad.

P e t r o v i ć, M. (1979): *Flora okoline Bečeja*, diplomski rad, PMF, Institut za biologiju, Novi Sad.
P r o d á n, Gy. (1916): *Bács-Bodrog vármegye flórája*, Pallas irodalmi és nyomdai részvénytársaság, Budapest.
P u r g e r, D. (1993): *Vegetacija u okolini Doroslova*, magistarski rad, PMF, Institut za biologiju, Novi Sad.
R a d o n i ć, D. (1979): *Florističke osobine okoline Bačke Palanke (severni deo prema Obrovcu)*, diplomski rad.
R a j a č i ć, O. (1971): *Flora Novog Sada i okoline (retke, reliktne i adventivne biljke)*, diplomski rad, PMF, Institut za biologiju, Novi Sad.
S a v i ć, D. (1993): *Flora okoline Tomaševca*, diplomski rad, PMF, Institut za biologiju, Novi Sad.
S i g u n o v, A. (1970): *Deliblatski pesak*, zbornik radova, Beograd.
S e l e ž a n, S. V. (1975): *Biljno-geografske karakteristike Kuštilja i njegove okoline*, diplomski rad, PMF, Institut za biologiju, Novi Sad.
S l a v n i ć, Ž. (1954): *Florogeneza nizijskih šuma Vojvodine*, Zbornik Matice srpske za prirodne nauke, 5, Novi Sad.
S o ó, R. (1966): *A magyar flóra és vegetáció rendszertani-növényföldrajzi kézikönyve*, 2. Akadémiai kiadó, Budapest.
S t a n o j e v, R. (1981): *Flora okoline Mošorina*, diplomski rad, PMF, Institut za biologiju, Novi Sad.
S t a n o j e v, R. (1983): *Florističke odlike Titelskog brega*, magistarski rad, PMF, Institut za biologiju, Novi Sad.
S t a n o j e v, R., O b r a d o v i ć, M. (1983): *Južni elementi flore u biljnom pokrivaču Titelskog brega*, Zbornik Matice srpske, serija za biologiju, 13, Novi Sad.
S t a n o j e v, S. (1996): *Ekološko-fitogeografske karakteristike flore okoline Karlovčića*, diplomski rad, Biološki fakultet, Beograd.
S t e v a n o v i ć, V. (1984): *Ekologija, fitocenologija i floristička struktura stepske vegetacije Fruške gore*, doktorska disertacija, Biološki fakultet, Beograd.
S t o j a n o v i ć, S. (1981): *Vegetacija Titelskog brega*, doktorska disertacija, Biološki fakultet, Beograd.
T a k h t a j a n, A. (1997): *Diversity of Flowering Plants*, Columbia University Press.
Š a b i ć, T. (1976): *Flora okoline Subotice (severoistočni deo—Radanovac)*, diplomski rad, PMF, Institut za biologiju, Novi Sad.
Š t u r c, B. (1997): *A Szabadka-Horgosi-Homokpuszta természetes flóraképe és megőrzésének kérdései*, Szabadka.
T ó t h, M. (1976): *Flora okoline Subotice (severozapadni deo)*, diplomski rad, PMF, Institut za biologiju, Novi Sad.
V u č k o v i ć, D. (1996): *Floristično-ekološka analiza vodotoka Plazović*, diplomski rad, PMF, Institut za biologiju, Novi Sad.
V u č k o v i ć, M. (1991): *Livadska i livadsko-stepska vegetacija Vršačkih planina*, Zbornik Matice srpske za prirodne nauke, Novi Sad.
V u k o v, I. (1999): *Floristično-ekološke karakteristike vodenih ekosistema u okolini Zrenjanina*, diplomski rad, PMF, Institut za biologiju, Novi Sad.
W a l t e r, H., S t r a k a, H. (1970): *Arealkunde, Floristisch-historische Geobotanik*, V. E. U., Stuttgart.

Z a r i ć, S. (1973): *Flora okoline Bačkog Brestovca*, diplomski rad, PMF, Institut za biologiju, Novi Sad.
Z o r k ó c z i, L. (1896): *Újvidék és környékének flórája*, Novi Sad.

РАСПРОСТРАЊЕЊЕ ВРСТА РОДА *Lathyrus* L. 1753 (Fabales, Fabaceae) У ВОЈВОДИНИ

Пал П. Божа[1], Ружица С. Игић[1], Боривој Ђ. Крстић[1], Војислав М. Михаиловић[2], Горан Т. Аначков[1], Драгана М. Вуков[1], Александар М. Микић[2]
[1] Природно-математички факултет, Департман за биологију и екологију, Трг Д. Обрадовића 2, Нови Сад 21000, Србија и Црна Гора
[2] Научни институт за ратарство и повртарство, М. Горког 30, Нови Сад 21000, Србија и Црна Гора

Резиме

У раду је дато распрострањење врсте рода *Lathyrus* у Војводини, на UTM картама са UTM кодовима и конкретним локалитетима. Подаци потичу из литературе која обухвата временски период од око 140 година, Хербаријума Департмана за биологију и екологију (BUNS) и сопствених теренских истраживања. Даје се њихов флорни елемент, односно ареал распрострањења, типови земљишта и станишта на којима расту, њихов привредни значај и број хромозома.

С обзиром да су дивљи грашкови значајне крмне биљке, могле би бити укључене у гајене или коришћене у селекцији и оплемењивању. У флори Војводине расте 16 врста рода *Lathyrus* од којих 11 већ има привредни значај, а још две би могле бити коришћене као крма. У току је њихово анатомско испитивање, што ће указати на ниво еколошке адаптације и употребљивост у исхрани стоке. Такође је у току физиолошка анализа врста, анализа макроелемената, концентрација пигмената и интензитет дисања и фотосинтезе, од чега зависи продукција органске биљне масе.

ЗАХВАЛНОСТ

Овај рад је део истраживања на пројекту број 1760 „Дивљи сродници гајених биљака: *Lathyrus* spp., *Trifolium* spp. и *Allium* spp.”, финансираног од стране Министарства за науку, технологију и развој Републике Србије.