

A contribution to the flora of East Bulgaria

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Abstract. New chorological data about 24 taxa are reported in the present work. Nine species are new for the floristic region of the Black Sea Coast, two for the Northeast Bulgaria, four for the Balkan Range (*Eastern*) – three of them collected in the area of Sliven divide, one for the Toundzha Hilly Country and three for Mt Strandzha. One more species is confirmed for the Balkan Range. Data are also supplied on the new localities of some rare plants, including a second locality for *Cytinus clusii* in the country.

Key words: Bulgaria, chorology, flora

Introduction

This paper presents new data about the flora of five floristic regions in East Bulgaria: the Black Sea Coast, Northeast Bulgaria, Balkan Range (*Eastern*), Toundzha Hilly Country and Mt Strandzha. The data have been collected during various field studies in the period 1992–2003.

The names of the taxa are cited chiefly after Kozuharov (1992a). The UTM coordinates of the locations are given, as well as the geographical coordinates of some. A visual assessment of the populations of the more rare species is provided, as well as data about their habitat and plant community. The specimens are deposited in the Herbarium of the Institute of Botany, Sofia (SOM).

Results and discussion

Amelanchier ovalis Medik.

Black Sea Coast (*Northern*): in rocky places within the central group of the Pobiti Kamuni phenomenon, Varna district, with flowers, single shrubs, 2.05.2000, NH-058, 43°13'28" N, 27°42'23" E, SC, SOM 155572.

A new species for the flora of the Black Sea Coast.

Anthoxanthum aristatum Boiss.

Balkan Range (*Eastern*): on the southern slopes of the Sinite Kamuni rock massif, near to the visitors' centre, along Haidoushka trail, etc., 16.05.2003, MH-42, 42°42'21" N, 26°21'08" E, SC, SOM 158531. Forms extensive populations, occasionally dominated by it.

A new species for the Eastern Balkan Range.

Buglossoides incrassata (Guss.) I. M. Johnston

Black Sea Coast (*Southern*): in sandy places to the north of Primorsko village, along the road to Perla locality, in the region of Stamoplo marsh, with flowers, 02.05.2002, NG-67, 42°16'47" N, 27°45'07" E, SC, SOM 157950.

A new floristic region for this species so far known in Bulgaria only from the Thracian Lowland and Central Rhodopes (Andreev & Peev 1982). The newly established location is at a lower altitude than the formerly reported one for the species.

Capsella rubella Reut.

Black Sea Coast (*Southern*): in clayey and sandy places to the north of Primorsko village, between the two parts of the Stamoplo marsh, 25.03.2002, NG-67, SC, SOM 157936; along the road to Perla locality, to the north of Primorsko village, 01.05.2002, NG-

67, SC, SOM 157970, local populations, but with high density of specimens; in a pasture near Sinemorets village, 02.06.2003, NG-85, SC, SOM 158511.

Mt Strandzha: on a street of Malko Turnovo town, 04.06.2003, NG-44, SC, SOM 158507.

Balkan Range (*Eastern*): in a pasture southwards of Duskotna village, 18.05.2003, NH-14, SC, SOM 158553. All specimens are with flowers and fruits.

According to Anchev (1992), the species is known from the Thracian Lowland. It is included in the list of species occurring on the dunes in Slunchev Bryag (Meshinev & al. 1994), and later reported from the Eastern Rhodopes by Gussev & al. (1998). Data on the new regions in which it occurs, as well as on the new localities along the Southern Black Sea Coast provide evidence of a much wider distribution in the southern regions of the country.

***Cephalorrhynchus tuberosus* (Steven) Schchian**

Balkan Range (*Eastern*): in a thinned oak forest in the Sinite Kamuni rock massif, eastwards from the lift, with flowers, 30.05.2003, MH-42, SC, SOM 158551. The population was small and dispersed.

The species is reported for the Sliven district by Velenovsky (1891), on the basis of material collected by Skorpil. Stojanov & al. (1967) also mentioned Sliven district as one of the regions in which it occurs in Bulgaria. In some later published general sources on the flora, the Eastern Balkan Range was not mentioned for this species (Peev 1992; Assyov & al. 2002). The presently collected material confirms the occurrence of *C. tuberosus* in the Balkan Range.

***Cerastium glomeratum* Thuill.**

Black Sea Coast (*Southern*): Perla location, with flowers and fruits, 02.05.2002, NG-67, 42°16'47" N, 27°45'07" E, SC, SOM 157937.

The occurrence of this species along the Black Sea Coast is confirmed. Stojanov & al. (1966) mentioned it as distributed in the meadows and plow-fields all over the country, but in later sources (Petrova 1992) the species was not reported for some of the regions.

***Clematis recta* L.**

Black Sea Coast (*Southern*): in a dune slack among the dunes in the region of Arkoutino, with flowers, single plants, 17.05.1995, NG-68, 42°19'34" N, 027°44'22" E SC, SOM 155220.

A new species for the flora of the Black Sea Coast, in an unusual dune habitat.

***Cytinus clusii* (Nyman) Gand.**

Mt Strandzha: in stony places in the valley of Veleka river, between the villages Kosti and Brodilovo, on shrubs of *Cistus incanus* L., with flowers, 12.05.1997, NG-75, SC, SOM 155226. Six individuals were observed on an area of about 100 m².

The species has been so far known only from one location in Mt Strandzha: Pirena locality to the north of Kosti village (Dimitrov & al. 1997).

***Digitalis ferruginea* L.**

Black Sea Coast (*Southern*): in the thinner spots of a forest of *Quercus frainetto* Ten and *Q. cerris* L. in Perla locality, to the north of Primorsko village, at 15 m, with flowers and fruits, 22.08.2002, NG-67, 42°17'11.7" N, 27°44'57.2" E, SC, SOM 157972. This species forms small groups of individuals in different places of the forest massif between Perla and the mouth of river Ropotamo.

The species is new for this floristic region and the above-mentioned locality also expands the range of its vertical distribution reported by Assenov (1995).

***Euphorbia maculata* L.**

Mt Strandzha: in sandy places along the road to Malko Turnovo town, at about 0.5 km after the road fork to the Kachoul locality, with flowers and fruits, 04.06.2003, NG-44, 42°01'33" N, 27°16'39" E, SC.

An adventitious species reported recently for the first time from Mt Strandzha (Bancheva & al. 2002) and so far identified for the Black Sea Coast, the Danubian Plain, the Valley of Strouma River and the Sofia floristic region (Andreev 1992). The data show wider distribution of the species in the region.

***Koeleria brevis* Stev.**

Northeast Bulgaria: in a pasture near Vetrino village, Varna district, 18.05.2003, NH-39, 43.284° N, 027.4235° E, SC, SOM 158547.

Actually, this species is widely distributed in Northeast Bulgaria (Varna district) in dry grassy places, chiefly on calcareous stony terrains, but was not mentioned for that region by Kozuharov (1992b). The present report documents its distribution in the region.

***Linum corymbolosum* Rchb.**

Black Sea Coast (*Northern*): in grassy places in the Kaliakra Reserve, with flowers and fruits, 12.06.1999, PJ-20, SC, SOM 159575.

A new species for the flora of the Northern Black Sea Coast (Petrova 1992).

***Medicago constricta* Durazz.**

Black Sea Coast (*Southern*): in the dunes between Arkoutino and Ropotamo River, 17.05.1995 and 10.05.1997, NG-68, 42°19'34" N, 27°44'22" E, SC (AP), SOM 155223, 155224. The two collections were made from different parts of the dunes, mainly on dune crests fixed with tree and shrub vegetation. *M. constricta* inhabited stretches under grassy vegetation. The populations observed were small: up to 30 plants. The species was also observed in May 2003, in a place adjacent to a coastal trail to the mouth of Ropotamo River, again with a small population on shrub-fixed dunes, at the borders of thorn bushes.

A rare species in the *Red Data Book of PR Bulgaria* (Kozhuharov 1984), until recently known for the country only from the Strouma River Valley (*Southern*) (Kozhuharov 1992b). Reported recently for the Black Sea Coast (*Southern*) (Velchev & Vasilev 2002) from the Kavatsite region, southwards from Sozopol town and adjacent to the mouth of Dyavolska River, to the south of Primorsko village. The submitted data provides evidence of the wider distribution of this rare for Bulgaria Mediterranean species in the region.

***Medicago littoralis* Loisel.**

Black Sea Coast (*Southern*): along the coastal sands in the Lipite bay, to the south of Sinemorets village, with fruits, 21.05.1994, NG-84, SC (AP), SOM 155221; on coastal meadows to the south of Sinemorets village, with fruits, 21.05.1994, NG 84, SC (AP), SOM 155222.

Also seen in a forest glade southwards of Ahtopol town. A rare species in the *Red Data Book of PR Bulgaria* known only from that floristic region, with one-time collections at the mouth of Veleka River, in the vicinities of Tsarevo and Sozopol towns (Bondev & Kozhuharov 1963; Kozhuharov 1984). The observed populations were small in numbers and density, but provide evidence of the wider distribution of the species in the region.

***Mespilus germanica* L.**

Black Sea Coast (*Southern*): in a forest of *Quercus frainetto* and *Q. cerris* in Perla locality, to the north of Primorsko village, 02.05.2002, NG-67, 42°17'27" N, 27°45'30" E, SC (AP), SOM 157948. Single shrubs, very sparse in the forest.

The species is distributed in Mt Strandzha and along the Southern Black Sea Coast and is entered as rare in the *Red Data Book of PR Bulgaria* (Popova 1984). The location is reported here as one outlining the northern distribution limits of the species in Bulgaria.

***Muscari armeniacum* Leichtlin ex Baker**

Balkan Range (*Eastern*): in stony places at Peschenik in the Sinite Kamuni Nature Park, with flowers, 17.05.2003, MH-42, SV.

A new species for this floristic region.

***Orchis laxiflora* Lam.**

Mt Strandzha: in a wet meadow in the valley of Veleka River, near Sveti Iliya locality, westwards of Kosti village, with flowers, 03.06.2003, NG-65, 42°03'33" N, 27°45'57" E, SC, SOM 159580, the population numbered about 250 flowering individuals; in a wet meadow in the valley of Veleka River, near the marsh in the Kachoul locality, with flowers, 04.06.2003, NG-55, 42°01'22" N, 27°37'05" E, SC, SOM 158509. The population numbered about 700–800 flowering individuals.

O. elegans Heuff. of the *O. laxiflora* group (Delforge 1995) is widely distributed in Bulgaria. *O. laxiflora* Lam. s.str. is mainly spread in the Mediterranean. In Bulgaria it occurs in the wet meadows of the Eastern Rhodopes (material collected by Kitanov – SO 32504; Delipavlov – SOA 42809; Petrova, Gerasimova & Venkova – SOM 155372, SOM 155 371, SOM 155596, SOM 155373, SOM 157596). Assyov & al. (2002) reported *O. laxiflora* for the Eastern Rhodopes on the basis of the observations of Petrova, and for Mt Strandzha on the basis of flowers given to A. Petrova by B. Milchev and U. Georgieva, collected at the Kachoul locality, respectively in 1998 and 2001. The present report confirms the distribution of this species in the region of Mt Strandzha, and mentions concrete locations and data on the numbers of the populations.

***Orobanche caryophyllacea* Sm.**

Toundzha Hilly Country: in a ravine above Aitos town, close to a location of *Astracantha aitosis* (Ivaniš.) Podl., with flowers, 18.05.2003, single individuals on *Galium album* Mill., NH-22, 42°41'43" N, 27°16'39" E, SC, SOM 158561.

A new species for the flora of the Toundzha Hilly Country, so far known from some more westernmost regions of the country: the Danubian Plain, Central Balkan Range, Sofia region and Znepole (Andreev 1992). The same distribution is mentioned by

Delipavlov (1995), but in the variability description *O. caryophyllacea* f. *macroglossa* (Wallr.) G. Beck. is mentioned for the Eastern Balkan Range (Sliven district).

***Poa angustifolia* L.**

Northeast Bulgaria: in a pasture near Vetrino village, Varna district, 18.05.2003, NH-39, 43.284°N, 27.4235°E, SC, SOM 158547.

This species is widely distributed in Northeast Bulgaria, occasionally as a dominating species in some pastures and meadows, but was not mentioned for the region by Kozhuharov (1992b). The present report documents its distribution in the region.

***Pyracantha coccinea* M. J. Roemer**

Black Sea Coast (*Southern*): in the sand dunes to the north of Primorsko village, with flowers, 19.08.2002, NG-67, 42°16'58.7" N, 27°45'08.6" E and 42°16'55.1" N, 027°45'04.4", SC, SOM 157 971. Two groups of 4–6 individuals were observed at the margins of a dune slack, eastwards from the dyke zone between the two parts of the Stamoplo marsh. The dune slack were overgrown with shrubs (*Crataegus monogyna* Jacq., *Prunus spinosa* L., *Rubus* spp.), lianas (*Smilax exelsa* L., *Periploca graeca* L.) and single trees of *Tilia tomentosa* Moench.

A threatened species in the *Red Data Book of PR Bulgaria* (Popova 1984), a Tertiary relict. In Bulgaria it is mainly distributed in Mt Strandzha. At the Black Sea Coast it is known only from a location in the region of Obzor (Gushev & Novoselski 1997), but it is reported for the first time from a dune habitat.

***Salvia verbenaca* L.**

Black Sea Coast (*Southern*): in sandy places to the north of Primorsko village, along the road to Perla locality, at 5 m, 02.05.2002, NG-67, 42°16'47" N, 27°45'07" E, SC, SOM 157932. The population numbered about 70 plants.

Mt Strandzha: in a forest glade westwards of the road to Ahtopol town – Veleka River, 18.05.1994, NG-75, SC, SOM 158914.

These are new floristic regions for the species entered in the *Red Data Book of PR Bulgaria* as rare (Koeva 1984). It is so far known from the regions of the Danubian Plain, Forebalkan, Thracian Lowland, Eastern Rhodopes and Toundzha Hilly Country (Assyov & al. 2002). The newly identified localities were at a lower altitude than the one so far reported for the species.

***Sesleria bielzii* Schur**

Balkan Range (*Eastern*): in a rocky calcareous place in the Enyova Boulka locality in the Sinite Kamuni Nature Park, at the beginning of flowering, 17.05.2003, MH-52, 42°42'53" N, 26°24'00" E, SC, SOM 158564, 158553. The population was relatively extensive.

A new species for the Eastern Balkan Range, so far known from the Western and Central Balkan Range, Mt Vitoshka, and Rila Mt (Assyov & al. 2002).

***Thymus glabrescens* Willd.**

Black Sea Coast (*Northern*): in rocky places within the Avrenska Polyana group of the Pobitite Kamuni natural phenomenon, westwards of Beloslav town, 02.05.1992, N- 58, SC, SOM 155917; in stony places above Taoukliman, Kavarna district, with flowers and fruits, 14.06.1999, PJ-20, SC.

Markova (1989) reported the species at the Black Sea Coast only around Pomorie town, but subsequently (Markova 1992) the Black Sea Coast was not mentioned among the areas of occurrence of this species. The above-cited data confirm the species distribution for the Black Sea Coast. *T. glabrescens* was also observed in the Kaliakra Reserve; Yailata locality near Kamen Bryag village; in two more groups of the Pobitite Kamuni phenomenon (Banovska and Slunchevo southeast). All data testify to the wide distribution of the species along the Northern Black Sea Coast.

***Vicia laeta* Ces.**

Black Sea Coast (*Northern*): in grassy places between Sveti Nikola village and Rousalka Resort, with flowers and young fruits, 9.05. 1997, PJ-20, SC, SOM 155353.

A rare species in the *Red Data Book of PR Bulgaria* (Kozhuharov 1984) known from the Black Sea Coast (*Southern*), Mt Strandzha, Strouma River Valley (*Southern*), Thracian Lowland, Toundzha Hilly Country (Kozhuharov 1992b), Eastern Rhodopes (Dimitrov & Pavlova 2000) and West Frontier Mts (Dimitrov & Sidjimova 2003).

A new species for the flora of the Northern Black Sea Coast.

***Viola canina* L. subsp. *canina*.**

Black Sea Coast (*Southern*): in an oak forest to the north of Rezovo village, at an altitude of 50 m, with flowers, 22.03.1994, NG-84, SC, SOM 159576.

A new species for the Black Sea Coast (*Southern*). According to Delipavlov (1979) and Anchev (1992),

V. canina subsp. *canina* is known from the floristic regions of the West Frontier Mts, Mt Sredna Gora and Rhodopes (*Western & Central*), with vertical distribution within the range from 1000 to 2000 m. Petrova & al. (1998) reported it for the Eastern Rhodopes from a considerably lower altitude of 350 m. The new report considerably expands its altitude range.

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