

Vascular Plants of Conservation Significance on the Territory of the Kyustendil Municipality

This review includes spore and seminal plants, excluding mosses, which have been scientifically assessed as endangered and having *conservation significance* according to various national and international nature conservation documents, such as global and national red lists, red books, schedules to EU directives, nature conservation conventions () and there are indications that these have local populations within the municipality.

The key criterion for selecting the species is their nature conservation status – presence in international documents – Schedules to Council Directive 92/43, the Bern Convention, the Global Assessment, according to the IUCN criteria and national assessments, according to the IUCN criteria in the “Red list of Vascular Plants in Bulgaria” (Petrova & Vladimirov (eds.) 2009) and Red Book of the Republic of Bulgaria, т. 1 (Peev et al. (ed.). 2015), in the categories “Critically Endangered”, “Endangered”, “Vulnerable” and a protected species status, according to Schedule No. 3 to the Biodiversity Act.

Review and characteristics

Spore plants

Adiantaceae

Adiantum capillus-veneris L.

This species is included in the category “Critically Endangered” in the Red list (2009) and the Red Book of the Republic of Bulgaria, volume 1 (2015). Protected by the Biodiversity Act! Perennial herbaceous plant. Growing chiefly in the shadows, at rock ledges, in niches and crevices of moist limestone rocks, near springs. Needs constant moisture. Well distributed in the Western and Eastern Rhodope Mountains, the valley of River Struma, the valley of Rivers Mesta, Slavyanka. *The species had been observed near the village of Zhilentsi, but recent searches in the past few years failed to confirm its presence.* A fern species with decorative qualities.

Adder’s Tongue Family (*Ophioglossaceae*)

Chamomile grape-fern (*Botrychium matricariifolium* A. Braun ex Koch)

This species is included in the category “Critically Endangered” in the Red List (2009) and the Red Book of the Republic of Bulgaria, volume 1 (2015). Protected by the Biodiversity Act. Perennial herbaceous plant. Inhabits glades and meadows at an altitude of 800-1400 m a.s.l. Specimens of this species are best observed in May-June, and after that they remain obscured by the dense grass. Well distributed in Stara Planina (Central Part) and Znepole area (Konyavska Mountain); at an elevation of 800–1200 m a.s.l. *The species was observed on a single occasion in the meadows to the north-west of the Viden Peak – Konyavska Mountain.*

Seminal plants

Maple Family (*Aceraceae*)

Heldreich's maple, Balkan maple (*Acer heldreichi* Orph.)

This species is included in the category „Vulnerable“ in the Red List (2009) and the Red Book of the Republic of Bulgaria, volume 1 (2015). Protected by the Biodiversity Act. Endemic for the Balkans. A tree with a straight trunk and a wide, rounded crown, reaching

a height of 20 m. Most often individual specimens are encountered, near the upper limit of the forest belt, among beech forests. Well distributed in Stara Planina, Vitosha, Znepole area, Western Near-Border Mountains, Belasitsa, Rila, Sredna Gora, Rhodope Mountains. *In the Kyustendil Municipality it is only encountered in the Osogovo Mountain.*

Celery Family (Apiaceae)

***Angelica pancici* Vand.**

This species is included in the category „Vulnerable“ in the Red List of Vascular Plants in Bulgaria (2009). Endemic for the Balkans. Perennial herbaceous plant. With impressive appearance, with spherical umbels and bubble-shaped leaf bases. Growing near streams and mountain creeks, a characteristic species for the high-grass areas of all high mountains. *Within the Kyustendil Municipality it is encountered in the beech and sub-alpine belts of the Osogovo Mountain.* A medical herb.

***Ferula heuffelii* Griseb.**

This species is included in the category „Vulnerable“ in the Red List of Vascular Plants in Bulgaria (2009). Perennial herbaceous plant. Growing in dry limestone and rocky locations, rock niches and terraces at an altitude of 250 through 1000 m a.s.l. Well distributed in Predbalkan, Western Stara Planina, Znepole area, Struma Valley, Western Rhodope Mountain. *Within the Kyustendil Municipality it is observed in the Konyavo and Zemen Mountains.*

Composite Family (Asteraceae)

***Achillea chrysocoma* Friv.**

The species is included in the category „Endangered“ in the Red List (2009) and the Red Book of the Republic of Bulgaria, volume 1 (2015). Endemic for the Balkans. A perennial herbaceous plant. Member of the yellow-flowering group of the Achillea genus, as the yellow colour of the tongue-shaped flowers in the basket are in contrast with the white pappuses of leaves and stems and attract aficionados of beautiful high-mountain plants. Well distributed in isolated localities in Mountains Rila, Pirin and Slavyanka. *A small population inhabits stony and rocky places in the sub-alpine belt of the slopes of the Mali Ruen Peak and Choveko Peak in the Osogovo Mountain.*

***Anthemismacrantha* Heuff.**

This species is included in the category „Endangered“ in the Red List (2009) and the Red Book of the Republic of Bulgaria, volume 1 (2015). Protected by the Biodiversity Act! A sub-endemic species for the Balkans. Perennial herbaceous plant. Individual specimens can be observed near forest roads, cleared areas and glades, in the beech forest belt. It has decorative qualities, due to the large flowers (diameter of 4-6 mm) compared to the other members of the this genus in Bulgaria) and 60-100 cm high stems. *The only currently confirmed habitat of this plant in Bulgaria is situated in the Osogovo Mountain – the River Mlachka valley.*

***Senecio subalpinus* W.D.J. Koch**

This species is included in the category „Critically Endangered“ in the Red List (2009) and the Red Book of the Republic of Bulgaria, volume 1 (2015). Protected by the Biodiversity Act! Perennial herbaceous plant. *The Osogovo Mountain is the sole area in Bulgaria, where this species is to be found, there it inhabits peatlands and wetlands near springs, in the highest parts of the mountain.* The presence of this formation provides a unique opportunity to observe this mountainous species with Alpine-Carpathian -Balkan areal.

***Helichrysum plicatum* DC.**

This species is included in the category „Endangered“ in the Red List (2009) and the Red Book of the Republic of Bulgaria, volume 1 (2015). Protected by the Biodiversity Act! Perennial herbaceous plant. It has decorative qualities – the tegumental leaves of the flowers are membranous, bright lemon- or golden-yellow and remain unchanged for a very long time,

if dried. It inhabits high-altitude, grassy and rocky places, in the mountains, at altitudes between 1200-1700 m a.s.l. Populations include few specimens. *In Bulgaria it is only encountered in the Osogovo Mountain (the ridge parts, above the Villages Dolno and Gorno Rakovo) and Lisets Mountain (the areas near the villages Dolno Selo and Tsarven Dol).* A medical herb, often illegally picked.

***Centaurea finazzi* Adamović**

This species is included in the category „Critically Endangered“ in the Red List (2009) and the Red Book of the Republic of Bulgaria, volume 1 (2015). Protected by the Biodiversity Act! Perennial herbaceous plant. Grows at dry, rocky and stony locations and rock crevices. The sole population in Bulgaria occupies an area of approximately 5 ha and includes about 2000 specimens, as it is located in the Semen Gorge of River Struma, to the north of the Village of Polska Skakavitsa – the Skakavitsa Quarry at 480-510 m a.s.l. This location is declared a protected area “Population of *Centaurea finazzi* Adamović – Village of Tsarvenyano“ (State Gazette No. 51 of 2013) with a total area of 40,212 ha.

***Centaurea immanuelis-loewii* Degen**

This species is included in the category „Endangered“ in the Red List (2009) and the Red Book of the Republic of Bulgaria, volume 1 (2015). Protected by the Biodiversity Act! Target species, according to the HD 92:43. Endemic for the Balkans. Perennial herbaceous plant. Grows in dry rocky locations and taluses, facing south and south-west. Well distributed in the Znepole area (Konyavska Mountain, Golo Bardo), Struma Valley (Boboshevski Ruen, Sandanski, Kresna, the Village of Oshtava) and Pirin (the Village of Vlahi) between 100–900 m a.s.l. *Within the Kyustendil Municipality a local population inhabits the area of the Konyavo Quarry at the outskirts of the Videnski Part of the Konyavska Mountain.*

Crucifers Family (*Brassicaceae*)

***Erysimum comatum* Pančić**

This species is included in the category „Vulnerable“ in the Red List of Vascular Plants in Bulgaria (2009). Protected by the Biodiversity Act! A sub-endemic species for the Balkans. A biennial or perennial plant. Grows in rocky and stony limestone areas. Well distributed in the Predbalkan, Western Stara Planina, Znepole area, Slavyanka, at altitudes from 450 to 1650 m a.s.l. *Within the Kyustendil Municipality sparse populations are encountered in the Videnski Part of the Konyavska Mountain.*

Bellflower Family (*Campanulaceae*)

***Campanula moesiaca* Velen.**

This species is included in the category „Vulnerable“ in the Red List of Vascular Plants in Bulgaria (2009). Endemic for the Balkans. A biennial plant. Grows in glades and meadows in the beech belt reaching the alpine belt of Belasitsa, Rila, Pirin; Western and Central Rhodope Mountains at elevations from 1200 to about 1900 m a.s.l. *Within the Kyustendil Municipality it is encountered in the Osogovo Mountain.*

***Campanula trojanensis* Kovanda et Ančev**

This species is included in the category „Vulnerable“ in the Red List of Vascular Plants in Bulgaria (2009). Endemic for Bulgaria. A perennial herbaceous plant. Grows in mountain meadows in the alpine belt of the Western and Central Stara Planina, Vitoshka, Rila (Central Part), Pirin; at altitudes from 1300 to about 2000 m a.s.l. *Within the Kyustendil Municipality it is encountered in the Osogovo Mountain.*

***Campanula versicolor* Andrews**

This species is included in the category „Endangered“ in the Red List and the Red Book of the Republic of Bulgaria, volume 1 (2015). Protected by the Biodiversity Act! A perennial herbaceous plant. Grows in open, limestone rocky areas, often in rock crevices of steep rocks,

facing south. Well distributed in the Konyavska Mountain and Zemen Mountain, from 600 to about 900 m a.s.l. *Within the Kyustendil Municipality it inhabits areas near the Village of Razhdavitsa.*

***Edraianthusserbicus* Petrovič**

This species is included in the category „Endangered“ in the Red List (2009) and the Red Book of the Republic of Bulgaria, volume 1 (2015). Protected by the Biodiversity Act! Endemic for the Balkans. Perennial herbaceous plant. Grows in dry, rocky and rocky locations, among other steppe and rock herbaceous plants. Well distributed in the Znepole area (the Mountains Golo Bardo, Chepan, Tri Ushi, Paramun, Lyibash, Ruy, Konyavska and Zemen), Vitosha – southern slopes, Verila, Western Stara Planina (Mala Planina), Western Near-Border Mountains (Boboshevski Ruen) from 700 to about 1400 m a.s.l. *Within the Kyustendil Municipality it inhabits areas in the Videnski Part of the Konyavska Mountain.*

***Jasionebulgarica* Stoj.&Stef.**

This species is protected by the Biodiversity Act. Endemic for Bulgaria. Perennial herbaceous plant. Grows in pastures and glades, in silica-rich areas in the alpine belt of the Rila, Vitosha, Pirin, Central Stara Planina, Western and Central Rhodope Mountains, Western Near-Border Mountains (Osogovo Mountain), from 1700 to about 2700 m a.s.l. *Within the Kyustendil Municipality it inhabits the higher parts (Ruen Peak) of the Osogovo Mountain.*

Heather Family (*Ericaceae*)

Kinnikinnick (Arctostaphylosuva-ursi (L.) Spreng.)

This species is included in the category “Vulnerable“ in the Red List of Vascular Plants in Bulgaria (2009). An evergreen shrub with creeping stems. A pioneer species in rocky and stony areas in the Bulgarian mountains from 1000 to about 2500 m a.s.l., with optimal distribution in the sub-alpine belt among Juniper and Blueberry communities. Well distributed in Rila, Pirin, Vitosha, Western and Central Stara Planina, Osogovo Mountain, Belasitsa, Slavyanka, Central and Western Rhodope Mountain and Sredna Gora. *Within the Kyustendil Municipality it inhabits the higher parts (Ruen Peak) of the Osogovo Mountain.*

Bean family (*Fabaceae*)

***Trifolium physodes* M. Bieb.**

The species is included in the "Critically Endangered" category in the Red List and Red Data Book of the Republic of Bulgaria, vol. 1 (2015). Protected by the BDA! Annual to perennial herbaceous plant. It grows in the grassy areas of sparse oak (Turkey oak and pubescent oak) forests, under humidification conditions, at 600-700 m above sea level. *The only locality of the species in the country is in Konyavska Mountain, near the village of Razhdavitsa, on the territory of the municipality of Kyustendil.*

Gentian family (*Gentianaceae*)

***Spotted gentian (Gentiana punctata* L.)**

The species is included in the "Endangered" category in the Red List and Red Data Book of the Republic of Bulgaria, vol. 1 (2015). Protected by the BDA! Perennial herbaceous plant with a thick vertical rhizome. It grows in alpine and subalpine meadows, very stony slopes, screes and rock niches, on silicate terrains in Rila, Vitosha, Pirin, Balkan Mountains, Western and Central Rhodopes, Western border mountains (Osogovska Mountain), from 1,800 to 2,700 m above sea level. *There is evidence that, on the territory of the municipality, it is found in the high parts (the massif of Ruen Mount) of Osogovska Mountain.* Being a medicinal plant, often subject to illegal collection, its populations diminish and disappear.

Buttercup family (Ranunculaceae)

Bulgarian columbine (*Aquilegia nigricans* Baug.)

The species is included in the "Vulnerable" category in the Red List of Higher Plants in Bulgaria (2009). Protected by the BDA! Perennial herbaceous plant. It grows in forests, shrubs, and grasslands in the beech and subalpine belts, from 1,000 to 2,000 m above sea level. It is spread in the Balkan Mountains, Znepole region, Rila, Western and Central Rhodopes, Western border mountains. *On the territory of the municipality, it is found in the high part of Osogovska Mountain.*

Yellow Bulgarian columbine (*Aquilegia aurea* Janka)

The species is protected by the BDA! Balkan endemic. Perennial herbaceous plant. It grows in rocky places, in shrubs and grasslands in the subalpine belt, from 1,800 to 2,500 m above sea level. It is spread in Vitosha, Znepole region, Rila, Pirin, Western Rhodopes, and Western border mountains. *On the territory of the municipality, it is found in the high part of Osogovska Mountain.*

Snowdrop anemone (*Anemone sylvestris* L.)

The species is protected by the BDA! Perennial herbaceous plant. It grows in dry grassy and rocky places, mainly on limestone, in shrubs and grasslands in the subalpine belt, up to 1,500 m above sea level. It is spread in the Danube Plain, Forebalkan, Western and Eastern Balkan Mountains, Sredna Gora, Northeastern Bulgaria, Black Sea coast (North), Vitosha, Znepole region, Sofia region, Rila, Pirin, Eastern Rhodopes, Thracian Lowland, and Western border mountains. *On the territory of the municipality, it is found in Zemenska, Konyavska, and Osogovska Mountains.*

Narcissus anemone (*Anemone narcissiflora* L.)

The species is protected by the BDA! Perennial herbaceous plant. It grows in grassy and stony places in the coniferous, subalpine, and alpine belts in Rila, Vitosha, Pirin, Western and Middle Balkan Mountains, Western and Central Rhodopes, Western Border Mountains (Osogovska Mountain), from 1,800 to 2,750 m above sea level. *On the territory of the municipality, it is found in the high parts (the massif of Ruen Mount) of Osogovska Mountain.*

Globeflower (*Trollius europaeus* L.)

The species is protected by the BDA! Perennial herbaceous plant. It grows in wet places, peat bogs, wetlands and along mountain streams, grassy and stony places in the coniferous and subalpine belts in Rila, Vitosha, Pirin, Western and Central Balkan Mountains, Western and Rhodopes, Western border mountains (Osogovska Mountain) up to 2,900 m above sea level. *On the territory of the municipality, it is found in the high parts (the massif of Ruen Mount) of Osogovska Mountain.*

Rose family (Rosaceae)

Dwarf lady's mantle (*Alchemilla erythropoda* Juz.)

The species is included in the "Vulnerable" category in the Red List of Higher Plants in Bulgaria (2009). Protected by the BDA! Perennial herbaceous plant. It grows in grasslands: pastures, fields, meadows in the subalpine and alpine belts, from 1,600 up to 2,800 m above sea level. It is spread in the Western and Middle Balkan Mountains, Vitosha, Slavyanka, Pirin, Rila, Western Rhodopes, Western border mountains. *On the territory of the municipality, it is found in the high part of Osogovska Mountain. Medicinal plant.*

Potentilla cuneata (*Sibbaldia parviflora* Willd.)

The species is protected by the BDA! Perennial herbaceous plant. *Osogovska Mountain is the only region in Bulgaria where the species is spread. It inhabits rocky slopes and gravel embankments along the road between Osogovska mountain hut and the highest parts of Ruen Mount.* The presence of this locality provides a unique opportunity to observe this mountainous species found in the Caucasus, the mountains of Iran and Iraq, and some mountains on the Balkan Peninsula.

Oriental hawthorn (*Crataegus orientalis* Pall. ex M. Bieb.)

The species is included in the "Vulnerable" category in the Red List of Higher Plants in Bulgaria (2009). Shrub to low tree. It grows in grassy and rocky places in the lower parts of mountain massifs up to 1,000 m above sea level. It is spread in Slavyanka, Pirin, Strumska Valley, Middle and Eastern Rhodopes, Western border mountains. *On the territory of the municipality, it is found in the lower parts of Osogovska Mountain.*

Figwort family (*Scrophulariaceae*)

***Verbascum anisophyllum* Murb.**

The species is included in the "Critically Endangered" category in the Red List (2009) and the Red Book of the Republic of Bulgaria, vol. 1 (2015). Protected by the BDA. Included in the IUCN lists. Balkan endemic. Two-year herbaceous plant. It inhabits dry, stony, calcareous slopes in grasslands and highly sparse forests and shrubs. It is spread in the Znepole floristic region (Konyavska Mountain - the southern slopes of Videnski part) and Strumska Valley (above the village of Vukovo). The locality in Konyavska Mountain is the classical one (the specimens based on which the species was described for the science were collected there) and, until recently, the only locality of the species in Bulgaria. Declared as "Locality of *Verbascum anisophyllum* - Village of Tsarvenyano" protected area (SG, issue 51 of 2013), with an area of 22, 3570 ha.

Grecian foxglove (*Digitalis laevigata* Waldst. & Kit.)

The species is included in the "Endangered" category in the Red List (2009) and the Red Book of the Republic of Bulgaria, vol. 1 (2015). Protected by the BDA. Balkan endemic. It grows in grassy and rocky places, bushes, and sparse forests. It is spread in the Danube Plain, Forebalkan, Balkan Mountains (West), Znepole Region, Belasitsa, Pirin; from 200 to 1,500 m above sea level. *On the territory of the municipality, there are small populations in Konyavska Mountain.*

Nightshade family (*Solanaceae*)

***Belladonna (Atropa bella-donna* L.)**

The species is included in the "Vulnerable" category in the Red List of Higher Plants in Bulgaria (2009). Perennial herbaceous plant. It grows in forests and forest clearings, in sheltered and humid places in the beech belt and, mainly, beech forests, from 300 to 1,600 m above sea level. *On the territory of the municipality, it is found in Osogovska Mountain, Konyavska and Zemenska Mountains.* Medicinal plant under restricted use regime.

Leadwort family (*Plumbaginaceae*)

***Statice (Goniolimon tataricum* (L.) Boiss.)**

The species is included in the "Vulnerable" category in the Red List of Higher Plants in Bulgaria (2009). Protected by the BDA! Perennial herbaceous plant. It grows in dry grassy

and rocky places, up to 1,000 m above sea level. It is spread along the Black Sea coast, Danube Plain, Pirin, Western border mountains, Strumska Valley, Slavyanka, Znepole region. *On the territory of the municipality, there are small populations in Konyavska Mountain.*

Violet family (Violaceae)

***Viola gracilis* Sibth. et Sm.**

The species is included in the "Endangered" category in the Red List (2009) and the Red Book of the Republic of Bulgaria, vol. 1 (2015). Protected by the BDA. Balkan endemic. Perennial herbaceous plant. It grows in dry grassy and stony places in the subalpine belt, from 1,800 to 2,100 m above sea level. *In Osogovska Mountain (the ridges between Choveko Mount and Ruen Mount) is the only locality in Bulgaria and the easternmost point in its range.*

***Viola orbelica* Pančić**

The species is included in the "Vulnerable" category in the Red List (2009) and The Red Book of the Republic of Bulgaria, vol. 1 (2015). Protected by the BDA. Balkan endemic. One to two-year-old herbaceous plant. It grows in grassy, rocky, scree places and bushes above the forest boundary, from 1,200 to 2,000 m above sea level. It is spread in Rila, Pirin, and Osogovska Mountains.

Amaryllis family (Amaryllidaceae)

***Giant snowdrop (Galanthus elwesii* Hook.)**

The species is included in the "Endangered" category in the Red List (2009) and the Red Book of the Republic of Bulgaria, vol. 1 (2015). Protected by the BDA! Perennial herbaceous early spring plant. It grows in bushes, forests, rocky meadows on calcareous soils, along the valleys of the rivers in the lowland and lower mountain belts, from 1,800 to 2,000 m above sea level. It is spread throughout the country except for the Black Sea coast, Belasitsa, and Strandzha. *On the territory of the municipality, there are small populations in Konyavska and Osogovska Mountains.*

Mint family (Lamiaceae)

***Stachys hedgenettle (Stachys serbica* Pančić)**

The species is included in the "Endangered" category in the Red List (2009) and the Red Book of the Republic of Bulgaria, vol. 1 (2015). Balkan endemic. One-year-old herbaceous plant. It grows in dry grassy places, mostly on limestone, in shrubs and sparse oak forests, from 100 to 1,000 m above sea level. It is spread in the Znepole region (Konyavska and Zemenska Mountains), Eastern Rhodopes, Tundzhanska hilly plain. *On the territory of the municipality, there are small populations in the Vidin part of Konyavska Mountain.*

***Betonica scardica* (Griseb.) Hayek**

The species is included in the "Endangered" category in the Red List (2009) and the Red Book of the Republic of Bulgaria, vol. 1 (2015). Protected by the BDA. Balkan endemic. Perennial herbaceous plant. It grows in sparse oak forests and xeromezophyte-type shrubs, dry grassy places, mostly on limestone, in shrubs and sparse oak forests; 700-800 m above sea level. It is spread in the Znepole region (Rudina and Konyavska Mountains) and the Western border mountains (Osogovska Mountain). *On the territory of the municipality, there are small populations in Osogovska Mountain above the town of Kyustendil.*

Morinaceae family

***Prickly Whorlflower (Morina persica* L.)**

The species is protected by the BDA! Perennial herbaceous plant. It grows in dry limestone and rocky places, from 700 to 1,500 m above sea level. It is spread in the Middle Rhodopes, Southern Pirin, and Znepole Region (Zemenska Mountain - the gorge of Struma River). *On the territory of the municipality, it is found in the region of the village of Polska Skakavitsa.*

Lily family (Liliaceae)

***Lilium jankae* A. Kerner**

The species is protected by the BDA! It is included in Appendix 1 to the Berne Convention. Balkan endemic. Perennial bulbous plant. It grows in grassy and rocky meadows and bushes between 1,000 and 2,000 m above sea level. It is spread in the Balkan Mountains, Vitosha, Western Border Mountains (Osogovska Mountain), Znepole Region (Konyavska Mountain, Ruy, Milevska Mountain), and Pirin. *On the territory of the municipality, there are small populations in the Rishki part of Konyavska Mountain and between Choveko and Ruen Mounts in Osogovska Mountain.*

***Urumoffii tulip (Tulipa urumoffii* Hayek)**

The species is included in the "Vulnerable" category in the Red List (2009) and The Red Book of the Republic of Bulgaria, vol. 1 (2015). Protected by the BDA! Bulgarian endemic. Perennial bulbous herbaceous plant. It grows in dry rocky places on limestone rocks, in grasslands and sparse bushes; from 100 to 1,000 m above sea level. It is spread in Northeastern Bulgaria, Eastern Balkan Mountains, Sofia region, Znepole region, Tundzha hilly plain. *On the territory of the municipality, there are small populations in Konyavska and Zemen Mountains.*

***Fritillaria orientalis* Adams**

The species is included in the "Vulnerable" category in the Red List of Higher Plants in Bulgaria (2009). Protected by the BDA! Perennial bulbous herbaceous plant. It grows in bushes, forest meadows, pastures on mountain slopes on limestone rock foundations, from 800 to 1,400 m above sea level. It is spread in Northeastern Bulgaria, the Danube Plain, Western Forebalkan, Eastern Balkan Mountains, Sofia region, Sredna Gora, Znepole region, Struma Valley, Western border mountains, Pirin, Slavyanka, and the Western Rhodopes. *On the territory of the municipality, it is found in Konyavska and Osogovska Mountains.*

***Fritillaria gussichiae* (Degen & Doerfl.) Rix**

The species is protected by the BDA! Included in Appendix 1 to the Berne Convention. Balkan endemic. Perennial bulbous herbaceous plant. It grows in rocky and stony grassy places, pastures, shrubs, forest meadows, pastures in deciduous and, more rarely, coniferous forests, from 300 to 1,800 m above sea level. It is spread in the Western border mountains, Sredna Gora, Thracian Lowland, Pirin, Slavyanka, Rila, Belasitsa, and the Western Rhodopes. *On the territory of the municipality, it is found in Osogovska Mountain.*

Iris family (Iridaceae)

***Crocus olivieri* J. Gay**

The species is protected by the BDA! Perennial bulbous herbaceous plant. It grows in dry, warm grassy places and sparse bushes in the hilly plains and the xerothermic oak belt, up to 1,000 m above sea level. It is spread along the Black Sea coast, Eastern Balkan Mountains, Tundzha hilly plain, Sredna Gora, Struma Valley, Mesta River Valley, Slavyanka, Belasitsa, Znepole Region, and Rhodope Mountains. *On the territory of the municipality, it is found in Konyavska Mountain.*

Orchid family (Orchidaceae)

Pyramidal orchid (*Anacamptis pyramidalis* (L.) Rich.)

The species is included in the "Vulnerable" category in the Red List of Higher Plants in Bulgaria (2009). Protected by the BDA! Perennial herbaceous plant. It grows in bushes, meadows, pastures on limestone rock base, up to 1,000 m above sea level. It is spread throughout the country. *On the territory of the municipality, it is found in the adjacent parts of Zemenska Mountain.*

Violet limodore (*Limodorum abortivum* (L.) Sw.)

The species is included in the "Vulnerable" category in the Red List of Higher Plants in Bulgaria (2009). Protected by the BDA! Perennial herbaceous plant with leafless stem. It grows in bushes, forest meadows, rows of forests of pubescent oak, oriental hornbeam, Turkey oak, Hungarian oak, etc., up to 1,000 m above sea level. It is spread throughout the country. *On the territory of the municipality, it is found in Konyavska Mountain.*

Long-bracted green orchid (*Coeloglossum viride* (L.) Hartm.)

The species is included in the "Vulnerable" category in the Red List of Higher Plants in Bulgaria (2009). Perennial herbaceous plant. It grows in humid beech forests, from 1,000 to 1,800 m above sea level. It is spread in Western and Central Vitosha, Sofia, Western border mountains, Slavyanka, Pirin, Rila, Western and Central Rhodopes. On the territory of the municipality, it is found in Osogovska Mountain.

Goat-like himantoglossum (*Himantoglossum caprinum* (M. Bieb.) Spreng.)

The species is included in the "Vulnerable" category in the Red List (2009) and The Red Book of the Republic of Bulgaria, vol. 1 (2015). Protected by the BDA! Included in Appendix 1 to the Berne Convention and a target species under Directive 92/43/ EEC. Perennial herbaceous plant. It grows in open sunny places, more often on calcareous stony soils, in poorly used pastures, among shrubs, and in forest meadows in light deciduous forests, up to 1,000 m above sea level. It is spread in separate localities throughout the country. *On the territory of the municipality, it is found in Konyavska, Zemenska, and Osogovska Mountains.* According to the latest taxonomic studies, the populations on the Balkan Peninsula are perceived as a separate species - *Himantoglossum jankae* Somlyay, Kreutz & Óvári., endemic to the peninsula.

Black vanilla orchid (*Nigritella nigra* (L.) Rchb. f.)

The species is included in the "Vulnerable" category in the Red List of Higher Plants in Bulgaria (2009). Perennial herbaceous plant. It grows in the subalpine peat bogs and wetlands in the high mountains, from 1,000 to 1,800 m above sea level. It is spread in the Western and Middle Balkan Mountains, Vitosha Mountain, Western Border Mountains, Slavyanka, Pirin, Rila, Western and Central Rhodopes. *On the territory of the municipality, it is found in Osogovska Mountain.*

Lax-flower orchid (*Orchis laxiflora* Lam.)

The species is included in the "Vulnerable" category in the Red List of Higher Plants in Bulgaria (2009). Protected by the BDA. Perennial herbaceous plant. It grows in wet meadows mainly in the lower parts - lowlands and hollows; up to 1,000 m above sea level. It is spread throughout the country. *On the territory of the municipality, it is found in the preserved wet meadows in the hollow part and the lower parts of Osogovska Mountain.*

Early marsh-orchid (*Dactylorhiza incarnata* (L.) Soo)

The species is included in the "Endangered" category in the Red List (2009) and the Red Book of the Republic of Bulgaria, vol. 1 (2015). Protected by the BDA. Perennial herbaceous plant. It grows in wet to marshy meadows, up to 1,700 m above sea level. It is spread in the Western Balkan Mountains, Vitosha, Sredna Gora, Pirin, Rila, Western Rhodopes. *On the territory of the municipality, it is found in Osogovska Mountain.*



This publication has been produced with the assistance of the European Union through the Interreg-IPA CBC Bulgaria-the Former Yugoslav Republic of Macedonia Programme, CCI No 2014TC16I5CB006. The contents of this publication are the sole responsibility of Municipality of Kyustendil and can in no way be taken to reflect the views of the European Union or the Managing Authority of the Programme.