

**CHOROLOGICAL DATA FOR SOME PLANT SPECIES WITH
CONSERVATION VALUE IN THE EASTERN RHODOPES MT.
/SOUTH-EAST BULGARIA/**

Dimitar Uzunov¹, Chavdar Gussev¹, Krasimir Apostolov²

¹ *Institute of Botany, Bulgarian Academy of Sciences, Sofia, Bulgaria*

² *Address: 46 Kozlodui Str., BG-1202 Sofia Bulgaria*

Chorological data for some plant species with conservation value in the eastern Rhodopes mt. (south-east Bulgaria); Proceeding of 6th Symposium on Flora of the Southeastern Serbia, Sokobanja, 2000: 47-55.

Chorological data about 27 plant species with conservation value from the Eastern Rhodopes is presented. Information for population status, potential and real threat and recommendation for conservation is given. One species (*Verbascum spathulisephalum* Greuter et Rech. fil.) is proposed to be include in Bulgaria Red Data Book and List of Protected species.

INTRODUCTION

One of the priorities of the “The National Biodiversity Conservation Plan” (MOEW, 2000) is: protection of the biodiversity on species level using scientific based tools. Data concerning distribution and population statute of rare plant species are of great interest for applying effective species conservation. In The National Biological Diversity Conservation Strategy (Biodiversity Support Program, 1994) Eastern Rhodopes are mentioned as a region with high floristical richness, specific phytogeographical characteristics and high conservation value. The knowledge about the flora and vegetation of the region are insufficient for implementation of the adequate conservation measures. There is a lack of chorological information on the plant species with conservation value and additional studies are required. The project for biodiversity conservation of the Eastern Rhodopes with the finance support of the Bulgarian - Swiss Biodiversity Conservation Program within the framework of the

Eastern Rhodopes Natural Conservation Centre during the period 1995-1996 was established.

Present work reported new locality for 27 species with conservation value from territory of Eastern Rhodopes.

DESCRIPTION OF THE AREA

The Eastern Rhodopes are part of the Rilo-Rhodopean massif. They are relatively low Mountain with prevailing altitudes from 300 to 600 m. The highest pick is Veikata 1463 m alt. The hilly relief and the closeness of the Aegean see determines the Mediterranean influence on the climate. The climate is transitional - Mediterranean with average January temperatures of 2°C, average July temperatures of 24°C, average annual temperature - 13°C and winter rainfall maximum. The average annual rainfall is 663 mm. The morphographic units above 1000 m alt. have a mountain climate (Georgiev, 1991). Special feature of the Eastern Rhodopes is the intensive human impact which dates back to ancient times demonstrated from a lot of remnants from Thracian, Romanian and later cultures.

According the geobotanical division of the country the region belongs to a separate Eastern - Rhodopean district of the Macedono-Thracian province of the European deciduous forest region (Bondev, 1998). The vegetation in the region is characterised by the xerophytic plant communities - *Quercus frainetto* Ten., *Q. pubescens* Willd. and in the southern and south-western part of the region are distributed forests of *Fagus sylvatica* L. ssp. *moesiaca* (K. Maly) Hyelmq., *Quercus dalechampii* Ten. and rarely *Carpinus betulus* L.

According to the intensive anthropogenic degradation in most of the places the primary vegetation are replaced by the secondary from *Carpinus orientalis* Mill., *Paliurus spina-christi* Mill., *Juniperus oxycedrus* L., *Crysopogon gryllus* (L.) Trin., *Dichantium ischaemum* (L.) Roberty and therophytic grassland.

METHODS

In the period January - March 1996 the available literature was checked to determine the species with conservation status of the Eastern Rhodopes. Bulgarian herbaria were used (SO - University of Sofia "St. Kliment Ochridski", Department of Biology; SOM - Institute of Botany, Sofia; SOA - High Agricultural Institute, Plovdiv). On the base of the literature and herbarium data preliminary list of the

species with conservation value (SCV) was prepared and distribution on the territory of Eastern Rhodopes was clarified.

The transect method was used in the period April - September 1996 to study distribution of SCV and to elaborate a preliminary list. The transects are trace in a way to cover a maximum area, to permit visits of regions previously known as localities of SCV and to allow the detailed investigation of the most representative and significant habitat type. The following scheme is used for characterisation of the habitats:

1. Deciduous forests

1.1. Mesophyte beech forests - *Fagus sylvatica* L. ssp. *moesiaca* (K. Maly) Hjelmq.

1.2. Mixed mesophyte deciduous forests - *Quercus dalechampii* Ten., *Quercus frainetto* Ten., *Quercus cerris* L., *Fagus sylvatica* L. ssp. *moesiaca* (K.Maly) Hjelmq. *Carpinus betulus* L.

1.3. Xerotherm deciduous forests - *Quercus frainetto* Ten., *Q. cerris* L., *Q. virgiliana* (Ten.) Ten. and *Q. pubescens* Willd.

2. Xerotherm shrubs

2.1. Christ's-thorn (*Paliurus spina-christi* Mill.), Oriental hornbeam (*Carpinus orientalis* Mill.), Flowering ash (*Fraxinus ornus*), etc.

2.2. Common lilac (*Syringa vulgaris* L.)

2.3. Red juniper (*Juniperus oxycedrus* L.)

2.4. Mock-privet (*Phyllirea latifolia* L.)

3. Grassland

3.1. Mesophyte meadows and pastures - *Festuca valesiaca* Schleich. ex Gaud., *Agrostis capillaris* L., *Lerchenfeldia flexuosa* (L.) Schur., *Cynosurus cristatus* L., etc.

3.2. *Pteridium aquilinum* (L.) Kuhn

3.3. Xerotherm grass communities - *Crypsogon gryllus* (L.) Trin., *Dichanthium ischaemum* (L.) Roberty and *Poa bulbosa* L.

4. Plant communities with open structure on rocky terrain.

5. Riparian vegetation.

5.1. Ligneous - *Alnus glutinosa* (L.) Gaerth., *Salix alba* L., *S. fragilis* L., *Populus nigra* L., etc. *Platanus orientalis* L.

5.2. Frutescent - *Salix purpurea* L., *S. cinerea* L., *S. caprea* L., *Tamarix tetrandra* Pall. ex Bieb. and *T. ramosissima* Ledeb.

5.3. Herbaceous - *Petasites hybridus* (L.) Gaertn., *Caltha palustris* L., *Nasturtium officinale* R. Br., *Cardamine* sp. div., *Veronica becabunga* L., *V. anagalis-aquatica* L., *Lycopus europaeus* L., *Lytrum salicaria* L., *Mentha spicata* L., *Epilobium hirsutum* L., *Pulicaria dysenterica* (L.) Bernh., *Calamagrostis pseudophragmites* (Hall.f.) Koel., *Saponaria officinalis* L., *Lysimachia atropurpurea* L., *L. punctata* L., etc.

Conservation status of the species is according to:

18. Red Data Book of Bulgaria (Velchev (ed.), 1984),
19. The Act # 1718 (Official Gazette, 56, 1989) and # RD-401 (Official Gazette, 103, 1995) for plant taxa protected by Law;
20. The List of Rare, Threatened and Endemic Plants of Europe (Lucas, 1983)
21. The 1997 IUCN Red List of Threatened Plants (Walter, Gillett, 1998).
22. The following abbreviations also apply: **RDB(E,R)**- endangered and rare taxa in Red Data Book of Bulgaria; **PL** - protected by Law taxa; **EU** - taxa included in the List of Rare, Threatened and Endemic Plants of Europe ; **IUCN**- taxa included in the 1997 IUCN Red List of Threatened Plants; **HT** - habitat type.

RESULTS AND DISCUSSION

1. *Taxus baccata* L.[RDB (E); PL; HT1.1]

Muglenishki Bluff above village Gorni Yurutsi along the right feeder of river Ovcharska, under Garvanovi Skali locality. 870 m alt. One tree, branched on the base (probably cut). According to local people the plant is female. 08.1996.

Threatens: cutting of the beech forest.

Measures for protection: establishing of protected site, informing forestry authorities and changing the forest management plan if it is necessary.

2. *Crocus olivieri* Gay [RDB(E); PL.; HT 2.1& 3.2]

Eastern Rhodopes: Muglenishki Bluff above village Gorni Yurutsi, Dalgata poliana locality, at the foot of Orlov Kladenets peak, 1000 m alt. in *Juniperus communis* L. communities. Population consists of numerous flowering individuals. 04.1996

3. *Fritillaria pontica* Wahlenb. [RDB(E); PL.; IUCN; HT 2.1&3.3]

Eastern Rhodopes: Boinik Mt: above village Studen Kladenets, above the dam of barrage Studen Kladenets, on the north slopes of Giunekaia peak, in *Carpinus orientalis* and *Quercus pubescens* communities. 300 m alt. ca. 50 individuals. 04.1996.

Eastern Rhodopes: Muglenishki Bluff above village Gorni Yurutsi, Dalgata poliana place, at the foot of Orlov Kladenets peak, 700 m alt. In beech forest. Single individuals. 04.1996.

4. *Limodorum abortivum* (L.) Schwartz [RDB(E); PL.; HT 3.3]

Along the river Ovcharska, under village Boturche, Haskovo district, in oak forest. 250 m. alt. Six plants in good generative condition. 06.1996.

Muglenishki Bluff under peak Ostrets close to the road. 650 m alt. Single individuals. 06.1996.

5. *Micropyrum tenellum* (L.) Lindley. [RDB(R); HT 3.3]

Ruderal places close to road for village Nanovitsa, Haskovo district. 200 m alt. Numerous individuals. 08.1996

6. *Hippomaratum cristatum* (DC.) Boiss. [RDB(R); HT 2.1 & 3.3]

Boinik Mt. on dry rocky places on western slopes of Orlovi skali peak above village Studen Kladenets. 310 m alt. Single individuals rarely in bushes of *Syringa vulgaris*. And *Crisopogon grillos* grasslang. 04.1996.

Threatens: region is used for pasture.

Measures for protection: population of the species is on the territory of "Valchi dol" reserve.

7. *Oenanthe pimpinelloides* L. [RDB(R); HT 3.1]

Muglenishki Bluff above village Cherna Cherkva under peak Ostrets close to the road on open grass communities. 710 m. alt. Single individuals in flower. 04.1996

8. *Smyrniium rotundifolium* Miller [RDB(R); HT 1.1 & 1.3 & 2.1]

Muglenishki Bluff above village Bejanci, on the slopes of Ilchov Vruh peak, in shady places in beech forest. 600 m. alt. Single individuals. 08.1996

Boinik Mt., on the western slopes of peak Orlovi Skali, above village Studen Kladenets, in *Fraxinus ornus*, and *Acer monspessulanum* communities. 300 m alt. Single individuals. 06.1996

Threatens: cutting of the beech forest.

Measures for protection: One of the localities of the species is in the territory of "Valchi dol" reserve.

9. *Stefanoffia daucoides* (Boiss.) H. Wolff [RDB(R); HT 3.3]

Boinik Mt., on the western slopes of peak Orlovi Skali, above village Studen Kladenets, in open grassland communities. 300 m. alt. Single individuals in flower. 06.1996

10. *Ilex aquifolium* L. [RDB(R); HT 1.1]

Muglenishki Bluff above village Gorni Yurutsi, on the slopes of Orlov Kladenets peak., in beech forest. 990 m alt. Eighteen trees and numerous young plants, 04.1996

Muglenishki Bluff above village Gorni Yurutsi, close to Garvanovi Skali locality, three trees in good condition. 750 m alt. 08.1996.

Threatens: cutting of the beech forest.

Measures for protection: establishing of protected site, informing of the forestry authorities and changing the forest management plan if it is necessary.

11. *Anthemis virescens* Velen [RDB(R); PL; EU; IUCN; HT 3.3]

Muglenishki Bluff above village Gorni Yurutsi, on dry grassy terrain near oak forest under Orlov Kladenets peak. close to "Dalgata Poliana" locality. 600 m. alt. Numerous individuals in flowers. Reported localities confirm the distribution of this rare species in Eastern Rhodopes. 06.1996

12. *Anthemis rumelica* (Velen) Stoj. et Acht. [RDB(R); PL; EU; IUCN; HT 2.3]

Muglenishki Bluff above village Gorni Yurutsi, on dry grassy and rocky terrain under Orlov Kladenets peak. 500 m. alt. Single individuals in flower. 08.1996

13. *Leguosia pentagonia* (L.) Druce [RDB(R); HT 3.3]

Close to Village Meden Buk, on dry grassy, sandy and rocky terrain, along the Biala reka river. 110 m alt. ca. 40 individuals 07.1996.

14. *Convolvulus boissieri* Steudel ssp. *parnassicus* (Boiss. et Orph.) Kuzm. [RDB(R); PL; HT 3.3]

On Zhulti Chal peak, on dry rocky places. 250 m. alt. The population is from numerous plants in xerothermic communities of *Dichantium ischaemum*. 06.1996. The species is known from three localities in Bulgaria - close to village Balabanovo, close to Dobromirci village and town Dzhebel(Stanev, 1994). This plant is one of rarest species in the flora of Bulgaria. Up to now there is no applied measures for protection of the species localities.

Threatens: region is used for pasture.

Measures for protection: all localities to be included in protected areas and to stop pasture.

15. *Medicago coronata* (L.) Bartal [RDB(R); HT 3.3]

On dry grassy places Close to village Boturche. 180 m alt. Single individuals. 04.1996.

16. *Haberlea rhodopensis* Friv. [RDB(R); PL; IUCN; HT 4]

Near village Studen Kladenets on the rocks above Valch dol river. 220 m alt. Numerous individuals. 04.1996

17. *Stachys serbica* Pancic [RDB(R); HT 2.2 & 3.3]

Boinik Mt., Kukluka peak in reserve Valchi dol above village Studen Kladenets, in bushes of *Syringa vulgaris* 250 m alt. Population area is ca. 500 m². 19 plants. 06.1996.

18. *Ficus carica* L. [RDB(R); PL; HT 2.2 & 2.3]

Along the river Biala reka between village Meden Buk (Kamaka place) and mouth of the river Ovcharska. On dry rocky places on right geographic side of the

river. 110 m. alt. Single plants or small groves in community of *Juniperus communis*, *Quercus pubescens* etc. 06.1996

Boinik Mt. between villages Cholakovtsi and Dolna Kula. On dry cliffs on right geographic side of the river Krumovitsa. 200 m. alt. Silgal plants. 08.1996

19. *Platanus orientalis* L. [RDB(R); HT 5.1]

Allong Biala Reka river between Village Medem Buk and locality Kaleto. 110 m. alt. 04.1996.

The species formed monodominant communities, in some places together with *Alnus glutinosa* L., *Salix alba* L. and lianas *Clematis vitalba* L., *C. viticella* L., *Vitis sylvestris* L., *Humulus lupulus* L. etc. Territories of Bulgaria is north border of distribution of the species. Communities of *Platanus orientalis* are rare and establishing of protected area for protection of the species and its habitats is necessary, moreover this recommendation is given in Bulgarian Red Data Book. Creation of natural reserve in this locality of the species was proposed.

20. *Anemone pavonina* Lam. [PL; HT 2,3 & 2.1 & 3.3]

Close to river Biala reka, Kaleto localities on calcareous grassy places and rarefied communities of *Phyllrea latifolia* and *Juniperus oxycedris*. 110 m. alt. Numerous plants in flower. 04. 1996

Above Studen Kladenets place on the slopes of peak Giunekaia open grass communities. 200 m. alt. Single plants. 04.1996

21. *Saxifraga mollis* Sm. [RDB(R); PL.; HT 3.3 & 4]

Between villages Studen Kladenets and Potochnitsa on the rocks close to the road. 220 m alt. ca 100 individuals. 04.1996

Close to river Biala Reka on calcareous rocky places in Kaleto locality. 110 m. alt. 12 individuals. 04.1996

22. *Celsia roripifolia* Halacsy [RDB(R); HT 4]

Boinik Mt. on rocky places on Orlovite Skali peak close to village Studen Kladenets in bushes of *Syringa vulgaris*. 250 m. alt. singular individuals in fruit and in flower. 06.1996.

Muglenishki Bluff above village Gorni Yurutsi, on the slope of peak Popskoto on rocky terrain Garvanovi Skali localities. 950 m alt. Single individuals. 08.1996

23. *Lathraea rhodopaea* Dingler [RDB(R); IUCN; HT 4]

Above village Studen Kladenets, along the river Valchi dol. In fenced with stony wall meadow on *Populus*. Group of 23 plants. 220 m alt. 04.1996

Along Biala reka river close to village Belidol, Kaletu locality 110 m. alt. several individuals on *Salix alba*. 04.1996

24. *Verbascum adrianopolitanum* Podp. [RDB(R); EU; HT 3.1]

On dry grassy and rocky places on right geographic side of the river Ovcharska. 250 m. alt. Population area is ca 900 m². Single individuals. 06.1996

Above village Cherna Cherkva on mesophylous grass communities, on the path to peak Ostrets. 710 m alt. Single individuals. 06.1996

25. *Verbascum humile* Janka ssp. *humile* [RDB(E); HT 3.3 & 4]

Above village Studen Kladenets on rocky places on peak Orlovite Skali. 310 m alt. Single individuals in *Syringa vulgaris* communities. 04.-08.1996

Muglenishki Bluff above village Gorni Yurutsi, on dry grassy and rocky terrain under Orlov Kladenets peak, Dalgata poliana locality. 710 m. alt. Single individuals and small groups (5-10 plants). 04.- 08.1996

26. *Verbascum spathulisepalum* Greuter et Rech. fil. [HT 3.3]

Muglenishki Bluff, peak Ostrets above village Bezhantsi. ca 50 individuals in flower, on dry grassy places. 900 m. alt. 6.1996.

The species was reported for flora of Bulgaria in 1995 year and is known with only one locality (Stefanova,1995). Area of distribution of the species include also NE Greece. The species is with critically limited population on the territory of Bulgaria and for protection on species level is necessary to be included in Red Data Book with category rare.

27. *Atropa bella-donna* L. [RDB(R); HT 1.1]

Muglenishki Bluff above village Gorni Yurutsi, on dry grassy and rocky terrain under peaks Orlov Kladenets and Ilchov Vruh on open places in forests and cutting area. 600 m. alt. Relatively often. 04. 1996.

CONCLUSION

Chorological data and information for population status, about 27 plant species with conservation value from the Eastern Rhodopes is presented. 25 species (19 rare and 5 endangered) are included in the Red Data Book of Bulgaria and 10 species are protected by Law. European standard? 3 species have conservation value and 5 are included in the list of IUCN.

Potential and real threat are indefity? for 5 species. Recommendation for conservation for 7 species is given. One species (*Verbascum spathulisepalum*

Greuter et Rech. fil.) is proposed to be include in Bulgaria Red Data Book and List of Protected species.

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