

AREAL LIMIT IN THE ROMANIAN TERRITORY: 6. SECALE STRICTUM

BORUZ VIOLETA¹, DIHORU G.², RĂDUȚOIU D.³

¹ University of Craiova, Botanical Garden "Al. Buia"; ² - Institute of Biology, Romanian Academy, Bucharest; ³ - University of Craiova, Faculty of Agriculture and Horticulture
violetaboruz@yahoo.com

Keywords: *Secale strictum*, areal, Romania

ABSTRACT

In this paper are presented data on the areal limit of the species Secale strictum (C. Presl) C. Presl on the Romanian territory. There are included observations on species distribution in Romania and also some ecological and coenological considerations. Secale strictum is one of the Poaceae species rarely found by botanists and therefore less researched. It is a species with southern area which does not pass north of the Carpathian.

INTRODUCTION

Series of species with a limited spreading area in Romania, started with *Alyssum minutum* Schlecht. ex DC. (Dihoru, 1987), continues with the species *Secale strictum* (C. Presl) C. Presl. A kind of cereal that wanders on rocky ridges of the mountains, so that some botanists have regarded even as *Secale cereale*. In terms of chorology is appreciated just as rare plant and so (Oltean et al., 1994).

History. F. Schur (1866) does not mention it, and Borza (1947) quotes it only from Bucegi, as a great rarity, where it was indicated for the first time in Romania A. Beldie (1943), in a draft with several rows.

MATERIAL AND METHODS

The material was analyzed according to Romanian and foreign botanical literature (Ciocârlan, 2009; Sârbu et al., 2013; Tutin et al., (1964-1980); Bor, 1970, and others). Eco-coenology species *Secale strictum* is deduced after reviewing several situations, particularly from synthetic tables where it can be found alongside varied species. Common species in different geographical points were denoted with an asterisk. The chorology species in Romania is presented by counties. Data comes from the literature (including the phytocoenological tables) and from the main collections in the country. The herbariums were abbreviated according to Index herbariorum (Thiers, 2011). For the localities transposition on the map, where the presence of the plant was indicated, the UTM grid system (Universal Transverse Mercator) was used, with UTM indexes (Lehrer, Lehrer, 1990).

RESULTS AND DISCUSSIONS

Nomenclature – taxonomy

Secale strictum (C. Presl) C. Presl 1826, Fl. Sicul. 46.

Basionym: *Triticum strictum* C. Presl 1820, Cyperaceae et Gramineae Siculae 48.

Syn.: *Secale montanum* Guss. 1827, Fl. Sic. Prodr. 1: 145; Boiss. 1884, Fl. Or. 5: 670; Bor 1960, Grasses Burma Ceyl. Ind. Pak. 678; Bor in Towns., Guest & Al-Rawi 1968, Fl. Iraq 9: 262; Bor in Rech. f. 1970, Fl. Iran. 70: 214; Tzvelev 1976, Poaceae URSS 172; Heathcote in Tutin et al. 1980, Fl. Eur. 5: 203; - *S. dalmaticum* Vis. 1842, Fl. Dalm. 1: 97.

The generic name originated in Latin *draining* - to cut, because we can cut the leaves and awns (Nejshtadt, 1948). Other authors (Coste, 1937) believes that the generic

name comes from the Celtic *segal*, derived from *sega* - sickle, arrived in Latin *draining* - to cut, then cut wheat with a sickle.

Because it closely resembles *S. cereale*, some authors (Ciortuz, Peia, 1960) reported it under this name on the top of limestone Svinecea (1226 m) of Almăj Mountains (Hodișan, 1964). *S. strictum* is perennial and rachis fragments at maturity.

Ecology

Mountain plant, grows on limestone cliffs and sunny screes, the beech and spruce floors. It is subxerophilic-mesophilic, subthermophilic-heliophyllic, saxicolous-calcicolous.

Coenology

In the Zănoaga Reservation grows at about 1450 m, on the south-eastern slope, in clusters, with *Achillea stricta*, *Aconitum anthora*, *A. lycoctonum* subsp. *vulparia*, *Anchusa barrelieri*, *Astragalus depressus*, *Athamanta turbith* subsp. *hungarica*, *Carduus candicans*, *Cerinthe glabra*, *Digitalis grandiflora*, *Erysimum witmannii*, *Festuca stricta* subsp. *saxatilis*, *Galium lucidum*, *Gentiana phlogifolia*, *Gymnadenia conopsea*, **Iris aphylla*, *Isatis tinctoria*, *Knautia longifolia*, *Peucedanum austriacum*, *Phleum montanum*, *Pimpinella saxifraga*, **Poa nemoralis*, **Sedum telephium* subsp. *maximum*, **Senecio squalidus* subsp. *rupestris*, *Silene nutans* subsp. *dubia*, *Sorbus graeca*, *Thymus comosus*, *Valeriana sambucifolia*, **Verbascum lychnitis* etc. (Beldie, 1943, 1952, 1956), and in Ialomița Cave Reservation with **Iris aphylla* and *Trisetum macrotrichum* (Beldie, 1967).

On the steep base Dâmbău Mountain, 1000 m, grows on calcareous sedimentary rocks and cohabiting with **Acer pseudoplatanus*, *Allium oleraceum*, **Asplenium scolopendrium*, *Clematis recta*, *Corylus avellana*, *Euonymus latifolius*, **Iris aphylla*, **Melica ciliata*, **Parietaria officinalis*, **Poa nemoralis*, *Polypodium vulgare*, *Scutellaria altissima*, **Sedum telephium* subsp. *maximum*, **Urtica dioica*, **Verbascum lychnitis* (Hodișan, 1964).

In Almăj Mountains, on a fired field, 15 years ago, growing with many different species: **Acer pseudoplatanus*, *Aconitum toxicum*, *Actaea spicata*, **Asplenium scolopendrium*, *Brachypodium sylvaticum*, *Calamagrostis arundinacea*, *Campanula trachelium*, *Chaerophyllum temulentum*, *Chelidonium majus*, *Cotoneaster pyrenaicus*, *Dactylis glomerata*, *Daphne mezereum*, *Festuca stricta* subsp. *sulcata*, *Geranium robertianum*, *Geum aleppicum*, *Hypericum perforatum*, *Seseli libanotis*, **Melica ciliata*, *Moehringia muscosa*, *Origanum vulgare*, **Parietaria officinalis*, **Poa nemoralis*, *Rubus idaeus*, *Salix caprea*, *Sambucus ebulus*, *S. racemosa*, *Saxifraga paniculata*, *S. rotundifolia*, *Sedum album*, *S. hispanicum*, **S. telephium* subsp. *maximum*, **Senecio squalidus* subsp. *rupestris*, *Sesleria rigida*, *Spiraea chamaedryfolia*, *Syringa vulgaris*, **Urtica dioica* (Ciortuz, Peia, 1960).

If it had not been requoted in this mountain (Schrött, 1972), after cohabitant species we would be tempted to seek to *Secale cereale*.

After many of cohabitant is regarded as a species from **Seslerio-Festucion to Seslerietalia**.

Distribution in Romania

In general we can say that is a fairly rare species in the flora of the country, present only in some mountains, belonging to the following counties (Fig. 1):

Alba: Feneș on Feneș Valley, Zlatna on Dâmbău Hill, 1000 m (Hodișan, 1964, 1965; Anghel, Beldie, 1972; Ciocârlan, 2009); Valea Feneșului - Dâmbău, leg. I. Hodișan, 1962 [CL 643638]; Dâmbău Massif - Feneșu Gorges, leg. I. Hodișan, 1962 [CL 510789].

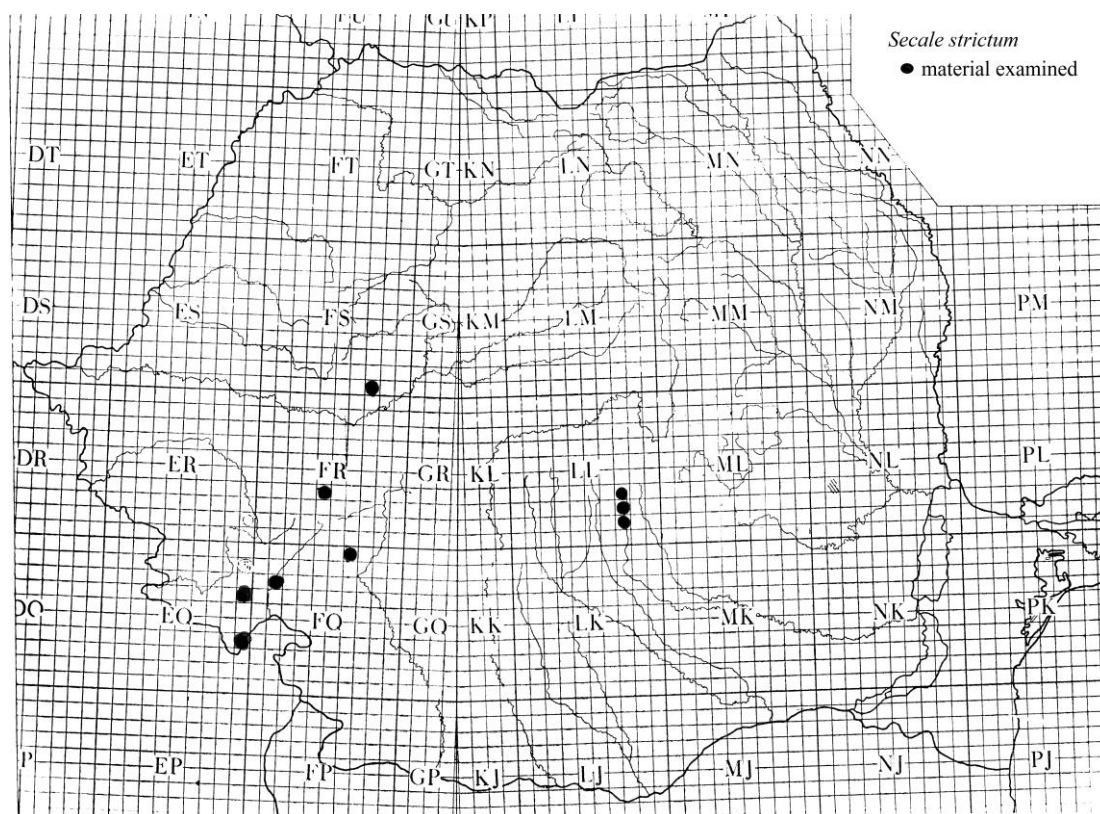


Fig. 1. Distribution of *Secale strictum* (C. Presl) C. Presl in Romania (original).

Carăș-Severin: Almăj Mountains on the Svinecea Peak (Anina Mountains on Plevișevița Mică) (Ciortuz, Peia, 1960; Schrött, 1972; Váczy, Beldie, 1976); Domogled and Hurcu Mountains, in the company of thermophilic species (Popescu-Domogled, 1966; Ștefureac, 1976).

Dâmbovița: Zănoaga Gorges, July 1954, ? leg. et det., Remarks: Picking probably the faculty teaching [BVS 41776-41778]; Bucegi, Zănoaga - Zănoaga Gorges, leg. Al. Beldie, 1943 [CL 508161], (Beldie, 1943) and on Bătrâna (between Turnul Seciului and Ialomița Cave) - (Beldie, 1956, 1967; Borza, 1947; Anghel, Beldie, 1972; Ștefureac, 1976; Ciocârlan, 2009), and in Ialomița Cave Reservation (Beldie, 1967).

Gorj: Vâlcan Mountains (Anghel, Beldie, 1972; Ciocârlan, 2009); Vâlcan Mountains - Piatra Boroștenilor Mountain (Muică, 1995).

Hunedoara: Gura Zlata (Retezat Mountains), leg. E. Vicol, 1967 [CL 653304].

Vâlcea: Căpățâni Mountains: Oale Mountain above Pahomie Hermitage (Păun, Popescu, 1974; Păun, Popescu, 1978).

Area

Central Asia and Asia Minor, North Africa, Southern Europe.

CONCLUSIONS

In the flora of Romania, *Secale strictum* arrived from the Balkans, but does not pass north of the Carpathian. It is appreciated as a *Mediterranean-Balkan* element. It is quite rare in the flora of the country, present only in some mountains, regarded as a species from **Seslerio-Festucion** to **Seslerietalia**.

ACKNOWLEDGMENT

Thanks to our colleagues who have provided chorology information from different collections: A. Indreica (Herbarium of the Faculty of Forestry in Brasov), Ghizela Veronica (Botanical curator at Brukenthal National Museum, Sibiu), Irina Blaj (Curator of Herbarium,

“Alexandru Ioan Cuza” University Iasi), M. Pușcaș (“Al. Borza” Botanical Garden, Cluj-Napoca).

BIBLIOGRAPHY

1. **Anghel, G., Beldie, A.**, 1972 - *Secale* L., In Săvulescu T. (ed.), Flora Rep. Soc. Rom., Edit. Acad. Rep. Soc. Rom., București. Vol. 12: 595-600.
2. **Beldie, A.**, 1943 - *Secale montanum în România (en Roumanie)*, Bul. Grăd. Bot. Cluj, 23(1-2): 222.
3. **Beldie, A.**, 1952 - *O insulă de vegetație termofilă în munții Bucegi*, Comunic. Acad. R.P.R., 2(9-10): 565-574.
4. **Beldie, A.**, 1956 - *Rezervația naturală “Bucegi”*, Ocrot. Nat., 2: 31-63.
5. **Beldie, A.**, 1967 - *Flora și vegetația Munților Bucegi*, Edit. Acad. Rep. Soc. Rom., București, 578 pag.
6. **Bor, N. L.**, 1970 - *Secale* L., In Rechinger K. H. (ed.) Fl. Iran., Edit. Akademische Druck-u. Verlagsanstalt Graz Austria. Vol. 70: 213-214.
7. **Borza, A.**, 1947 - *Conspectus florae Romaniae regionumque affinium*, Tipogr. “Cartea Românească”, Cluj. Vol. 1, 160 pag.
8. **Ciocârlan, V.**, 2009 - *Flora ilustrată a României. Pteridophyta et Spermatophyta*, Edit. Ceres, București, 1143 pag.
9. **Ciortuz, I., Peia, M.**, 1960 - *Însemnări floristice din Banat*, Com. Bot. (1957-1959): 173-177. SSNG.
10. **Coste, H.**, 1937 - *Flore descriptive et illustree de la France de la Corse et des contrees limitrophes*, Librairie Sciences et des Arts, Paris. Vol. 3, 807 pag.
11. **Dihoru, G.**, 1987 - *Alyssum minutum* Schlecht. ex DC., Revue Roum. Biol., Biol. Veget., 32(1): 11-14.
12. **Hodișan, I.**, 1964 - *Plantes nouvelles du territoire de la vallée du Feneș (district D’Alba, Région de Hunedoara)*, Revue Roum. Biol. – Bot., 9(4): 231-234.
13. **Hodișan, I.**, 1965 - *Analiza florei de pe Valea Feneșului (Raion Alba, Regiunea Hunedoara)*, Contr. Bot.: 99-106.
14. **Hodișan, I.**, 1965 - *Flora și vegetația din Bazinul văii Feneșului (raion Alba, reg. Hunedoara)*, Rezumatul tezei de doctorat, Cluj.
15. **Lehrer, A. Z., Lehrer, Maria**, 1990 - *Cartografierea faunei și florei României (coordonate arealografice)*, Edit. Ceres, București, 290 pag. + 5 hărți.
16. **Muică, Cristina**, 1995 - *Munții Vâlcanului. Structura și evoluția peisajului*, Edit. Acad. Române, București.
17. **Nejshtadt, M. I.**, 1948 - *Opredelitelj rastenij srednej polosî evropejskoj chasti SSSR*, 476 str. Gosud.Ucheb.-Pedag. Izd. Min. Procv. RSFSR. Moskva.
18. **Oltean, M., Negrean, G., Popescu, A., Roman, N., Dihoru, G., Sanda, V., Mihăilescu, Simona**, 1994 - *Lista roșie a plantelor superioare din România. Studii, Sinteze, Documentații de ecologie*, Acad. Rom., Inst. Biol. București, 52 pag.
19. **Păun, M., Popescu, G.**, 1974 - *Secale montanum Guss. și S. sylvestre Host în flora spontană a Olteniei*. St. și Cerc. COMN Oltenia, Slatina, 127-129.
20. **Păun, M., Popescu, G.**, 1978 - *Date despre vegetația erbacee a catenei calcaroase Buila-Vânturarița din Mții Căpățâni, Jud. Vâlcea*. Anal. Univ. din Craiova, Vol. 9 (19): 67-73.
21. **Popescu-Domogled, P. C.**, 1966 - *Contribuții floristice din Banat*. Stud. Cerc. Biol. - Bot., 18(1): 43-47.
22. **Sârbu, I., Ștefan, N., Oprea, A.**, 2013 - *Plante vasculare din România. Determinator ilustrat de teren*, Edit. Victor B Victor, București, 1320 pag.
23. **Schur, F.**, 1866 - *Enumeratio Plantarum Transsilvaniae*, Vindobone, 984 pag.
24. **Schrött, L.**, 1972 - *Flora și vegetația rezervației naturale Beușnița-Cheile Nerei (munții Aninei)*, Rezumatul tezei de doctorat, București.

25. **Ștefureac, T.**, 1976 - *Plante ocrotite și rarități în flora României*, In Săvulescu T. (ed.), Flora Republicii Socialiste România, Edit. Acad. Rep. Soc. Rom., București. Vol. 13: 112-117.
26. **Thiers, B.**, 2011 - *Index Herbariorum: A global directory of public herbaria and associated staff*. New York Botanical Garden's Virtual Herbarium. New York [<http://sweetgum.nybg.org/ih/> accessed: 10.03.2013].
27. **Tutin, T. G., Heywood, V. H., Burges, N. A., Moore, D. M., Valentine, D. H., Walters, S. M., Webb, D. A. (Eds.)**, 1964-1976 - *Flora Europaea*, Cambridge University Press, Cambridge. Vol. 1: 464 pag., maps 5; Vol. 2: 455 pag., maps 5; Vol. 3: 370 pag., maps 5; Vol. 4: 505 pag., maps 5.
28. **Váczy, C., Beldie, A.**, 1976 - *Stațiuni noi de specii și subspecii*, In Săvulescu T. (ed.), Flora Republicii Socialiste România, Edit. Acad. Rep. Soc. Rom., București. Vol. 13: 54-65.