

## CONTRIBUTIONS TO THE STUDY OF THE VASCULAR FLORA FROM THE NEAGRA ȘARULUI RIVER'S AREA

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**Abstract:** As a result of the studies made in the Neagra Șarului river basin during 2005 and 2006, were identified 547 species and 22 subspecies of vascular plants.

**Key words:** vascular flora, Neagra Șarului river basin, Călimani Mountains

### Introduction

Neagra Șarului river basin is situated in the north-east side of central group from Oriental Carpathians, in the Dornelor Depression, ascending the higher peaks of the Călimani Mountains in its south side. The valley of Neagra Șarului river forms in the north side the Șarului Depression where dominate the crystalline formations and is ascending in the south side from the highest peaks of Călimani Mountains, which is corresponding with the Neogene volcanic area, where the andesite rocks are predominant.

The average heights over 800 m, with a frequency of 900-1000 m altitudinal landing, induce a specific climate of cold and humid depressions, with frequently thermal inversions, located to the superior step of the morphoclimatical level of medium or low altitude. The climate's characteristics from river's basin are determined and increased by a high mountain frame surrounding it, a frame detached with 600-900 m by the middle and inferior flow's area and pendent to 1500-2000 m, represented by Călimani – Bistrița mountains. In this way, the annual average of temperature is  $-0,4^{\circ}\text{C}$  on top of the surrounding mountains and  $5,1^{\circ}\text{C}$  in the depression, and annually, the quantity of precipitations is variable between 650-700 mm in the depression, increasing gradually with the altitude and reaching over 750-800 mm, even 900-1100 mm. [7].

The researches about vascular flora, regarding the investigated area are relatively reduced; a series of mentions appears in papers which offer a general view on the Dornelor Depression, Călimani Mountains or Suceava county [1, 11, 12, 16, 18] or in papers concerning the area's vegetation.

### Material and method

The floristic epitome includes only the species identified on the field-research made between 2005 and 2006, respective the species not quoted before, and also the species that have been quoted before by the speciality literature and confirmed in our field-research. The taxa not quoted before in Neagra Șarului river basin are emphasized in the following enumeration by bold letters. For the taxa identification were used papers having the following authors: Flora R. P. R. – R. S. R. (1952-1976) [19], Beldie Al. (1977, 1979) [1], Ciocârlan V. (1988-1990, 2000) [8, 9], Sârbu I. and colaborators (2001) [17]. In this

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epitome, the species are grouped by botanical families in systematic order (was used the classification system adopted by Ciocârlan V. [9]), within the families was used the alphabetical order. For each species is specified the area within it was found, the locality's name being coded as following: 1 – 12 Apostoli (1780 m); 2 – Bradu Ciont (1899 m); 3 – Buciniș rivulet; 4 – Buza Șerbii (1530 m); 5 – Calu rivulet; 6 – Căliman Izvor (2032 m); 7 – Călimănel rivulet; 8 – Călimanul Cerbului (2013 m); 9 – Coverca; 10 – Deluganu rivulet; 11 – exploitation Negoii Românesc; 12 – Gura Haitii; 13 – Gura Negrei; 14 – Haita river; 15 – Hârla; 16 – Lucaciu (1770 m); 17 – Măierîș (1885 m); 18 – Neagra river; 19 – Neagra Șarului; 20 – Negoii Românesc (1889 m); 21 – Negoii Unguresc (2049 m); 22 – Negru rivulet (Coverca); 23 – Panaci; 24 – Piatra Tăieturii; 25 – Piciorul Hârlei; 26 – Piciorul Iancului; 27 – Pietrele Roșii (1705 m); 28 – Pietricelu (1993 m); 29 – Pietrosul (2100 m); 30 – Plaiul Șarului; 31 – Rețițiș (2021 m); 32 – Runc; 33 – Sărișor; 34 – Sărișoru Mare; 35 – Șaru Bucovinei; 36 – Șaru Dornei; 37 – Șeștină (1017 m); 38 – Tamău (1862 m); 39 – Tinovul Mare Șaru Dornei; 40 – Țiganului rivulet; 41 – Voivodeasa (1825 m).

### Results and discussions

*Fam. Lycopodiaceae: Lycopodium alpinum* L.: 31; *L. annotinum* L.: 10, 19, 22, 23; *L. clavatum* L.: 1, 19, 23, 32, 37; *L. selago* L.: 1, 6, 8, 16, 17, 20, 21, 28, 29, 31, 38; *Fam. Equisetaceae: Equisetum arvense* L.: 3, 12, 22, 36; *E. fluviatile* L.: 36; *E. hyemale* L.: 19; *E. palustre* L.: 19, 23, 30; *E. sylvaticum* L.: 3, 19, 23, 34, 35; *E. telmateia* Ehrh.: 36; *Fam. Ophioglossaceae: Botrychium lunaria* (L.) Swartz: 12; *B. multifidum* (S. G. Gmelin) Rupr.: 10; *Fam. Polypodiaceae: Polypodium vulgare* L.: 27, 32; *Fam. Dennstaedtiaceae: Pteridium aquilinum* (L.) Kuhn: 9, 19, 23, 24, 33, 35, 36; *Fam. Aspleniaceae: Asplenium adnigrum* Milde: 35, 37; *A. trichomanes* L.: 35; *Athyrium filix-femina* (L.) Roth.: 12, 19, 22, 23; *Cystopteris fragilis* (L.) Bernh.: 14; *C. sudetica* A. Br. et Milde: 32; *Dryopteris carthusiana* (Vill.) H. P. Fuchs: 23, 40; *D. cristata* (L.) A. Gray: 23; *D. dilatata* (Hoffm.) A. Gray: 21, 24, 31; *D. filix-mas* (L.) Schott: 9, 10, 19, 22, 23, 24, 30, 34, 35; *Gymnocarpium dryopteris* (L.) Newman: 10, 22, 23, 24; *G. robertianum* (Hoffm.) Newman: 29; *Matteuccia struthiopteris* (L.) Tod.: 13, 30; *Phegopteris connectilis* (Michx.) Watt: 23; *Polystichum aculeatum* (L.) Roth: 9, 10, 24, 35; *Woodsia ilvensis* (L.) R. Br.: 1; *Fam. Pinaceae: Abies alba* Miller: 35; *Larix decidua* Miller ssp. *carpatica* (Domin) Šiman: 9, 19, 31, 36; *Picea abies* (L.) Karsten: 1, 2, 3, 4, 5, 6, 8, 9, 10, 12, 13, 14, 16, 17, 18, 19, 22, 23, 24, 26, 27, 28, 29, 30, 31, 32, 35, 36, 38, 39, 41; *Pinus cembra* L.: 26, 28, 31; *P. mugo* Turra: 2, 6, 8, 17, 20, 21, 28, 29, 31, 41; *P. sylvestris* L.: 12, 19, 23, 30, 36, 39; *Fam. Cupressaceae: Juniperus communis* L. var. *communis*: 12, 23; *J. sibirica* Lodd. in Burgsd.: 1, 2, 4, 6, 8, 16, 17, 20, 21, 26, 27, 28, 29, 31, 38, 41; *Fam. Ranunculaceae: Aconitum anthora* L.: 37; *A. degenii* Gayer: 12, 22, 24; *A. firmum* Reichenb.: 11, 36; *A. moldavicum* Hacq.: 35; *Actaea spicata* L.: 14; *Anemone nemorosa* L.: 1, 8, 16, 17, 19, 23, 36; *A. ranunculoides* L.: 36; *Aquilegia nigricans* Baumg. ssp. *nigricans*: 19, 36; *A. vulgaris* L.: 13, 19, 23; *Caltha palustris* L.: 3, 9, 10, 12, 13, 19, 22, 30, 32, 35, 36; *Clematis alpina* (L.) Miller: 10, 19, 23, 24, 35; *Isopyrum thalictroides* L.: 35; *Pulsatilla alba* Reichenb.: 1, 6, 8, 16, 17, 20, 21, 27, 28, 29, 31, 38; *Ranunculus acris* L.: 9, 10, 19, 23, 34, 36, 37; *R. auricomus* L.: 19; *R. carpaticus* Herbich: 1, 12, 14, 18, 19, 23, 29, 31; *R. crenatus* Waldst. et Kit.: 29; *R. flammula* L.: 22, 39; *R. fluitans* Lam.: 23; *R. platanifolius* L.: 10, 19; *R. polyanthemus* L.: 9, 19, 23; *R. repens* L.: 9, 13, 19, 22, 30, 34, 35, 36; *R. sardous* Crantz: 9, 19, 36; *R. sceleratus* L.: 23, 36; *Thalictrum aquilegifolium* L.: 10, 13, 30, 31, 36; *Trollius europaeus* L.: 9, 10, 12, 19, 23, 24, 25, 34, 36; *Fam. Papaveraceae: Chelidonium majus* L.: 19, 22, 23, 30, 33, 35; *Fam. Fumariaceae: Corydalis capnoides* (L.) Pers.: 23; *Fam. Urticaceae: Urtica dioica* L.: 9, 10, 13, 14, 19, 23, 24, 30, 34, 35, 36; *Urtica urens* L.: 36; *Fam. Fagaceae: Fagus sylvatica* L.: 35; *Fam. Betulaceae: Alnus alnobetula* (Ehrh.) C. Koch: 20, 21, 28, 29, 31; *A. incana* (L.) Moench: 9, 12, 13, 19, 23, 30, 33, 34, 35, 36, 40; *Betula pendula* Roth: 9, 10, 18, 19, 23, 32, 33, 35, 39; *Fam. Corylaceae: Corylus avellana* L.: 10; *Fam. Caryophyllaceae: Arenaria serpyllifolia* L.: 24; *Cerastium alpinum* L. ssp. *lanatum* (Lam.) Cesati: 21, 29; *C. arvense* L.: 12; *C. holosteoides* Fries: 10, 11, 24, 34; *C. semidecandrum* Waldst. et Kit.: 11, 23; *Dianthus barbatus* L. ssp. *compactus* (Kit.) Heuffel: 12; *D. carthusianorum* L. ssp. *carthusianorum*: 19, 36; *Lychnis flos-cuculi* L.: 9, 10, 19, 23, 34, 36; *L. viscaria* L. ssp. *viscaria*: 12, 19, 23, 34; *Minuartia verna* (L.) Hiern. ssp. *verna*: 22, 31, ssp. *gerardii* (Willd.) Graebner.: 31; *Moehringia trinervia* (L.) Clairv.: 35; *Sagina procumbens* L.: 19; *Scleranthus uncinatus* Schur: 23, 31; *Silene alba* (Miller) E. H. L. Krause: 23, 35; *S. dioica* (L.) Clairv.: 9, 13, 22, 23, 24, 30, 35, 36; *S. nutans* L. ssp. *dubia* (Herbich) Zapal.: 12, 19, 24; *S. vulgaris* (Moench) Garcke ssp. *vulgaris*: 23; *Spergula arvensis* L.: 36; *Stellaria graminea* L.: 9, 23, 34, 36; *S. holostea* L.: 23, 24, 35; *S. media* (L.) Vill.: 9, 19, 23; *S. neglecta* Weihe: 23; *S. nemorum* L.: 9, 11, 13, 23, 24, 30; *S. uliginosa* Murray: 12; *Fam. Amaranthaceae: Amaranthus albus* L.: 23, 35; *Fam. Chenopodiaceae: Chenopodium album* L.: 35; *C. bonus-henricus* L.: 12, 19; *C. polyspermum* L.: 36; *Fam. Polygonaceae: Polygonum aviculare* L.: 13, 19; *P. bistorta* L.:

9, 19, 23, 36; *P. convolvulus* L.: 23, 36; *P. hydropiper* L.: 22, 23, 36; *P. lapathifolium* L.: 23, 36; *P. mite* Schrank: 35; *P. persicaria* L.: 19, 34, 35; *Rumex acetosa* L.: 9, 13, 19, 23, 30, 34; *R. acetosella* L.: 23, 24, 28, 33, 35, 36, ssp. *acetoselloides* (Balansa) den Nijs: 23; *R. alpestris* Jacq.: 28, 31; *R. alpinus* L.: 1, 11, 17, 24, 27, 29, 38; **R. crispus** L.: 9, 10, 13, 19, 30, 36; *R. obtusifolius* L.: 19, 36; *Fam. Grossulariaceae*: *Ribes petraeum* Wulfen in Jacq.: 19, 35; *R. uva-crispa* L. ssp. *uva-crispa*: 9, 10, 19, 23, 24, 35; *Fam. Crassulaceae*: *Rhodiola rosea* L.: 6, 29; *Sedum alpestre* Vill.: 6; *S. annuum* L.: 12, 23; *S. atratum* L.: 31; *S. maximum* (L.) Hoffm.: 13, 23; *S. telephium* L.: 21; *Fam. Saxifragaceae*: *Chrysosplenium alternifolium* L.: 9, 12, 19, 23, 34, 36; *Parnassia palustris* L.: 9, 12, 19, 24, 34, 36; *Saxifraga paniculata* Miller.: 6, 21, 29; **S. stellaris** L. ssp. **robusta** (Engler) Greml.: 29, 31; *Fam. Rosaceae*: **Agrimonia eupatoria** L. ssp. *eupatoria*: 22, 30; *Alchemilla colorata* Buser: 23; *A. glaucescens* Wallr.: 23, 25; **A. monticola** Opiz: 11, 19; *A. subcrenata* Buser: 11; **A. vulgaris** L. em. Fröhner: 3, 9, 10, 19, 23, 30, 32, 34, 36, 37; *A. xanthochlora* Rothm.: 9, 12, 19; **Aruncus dioicus** (Walter) Fernald: 19, 23; *Crataegus monogyna* Jacq.: 36; *Filipendula ulmaria* (L.) Maxim.: 3, 9, 10, 12, 13, 19, 22, 23, 30, 34, 36; *F. vulgaris* Moench: 12, 19; *Fragaria vesca* L.: 9, 10, 13, 14, 15, 18, 19, 22, 23, 24, 30, 33, 35, 36; *Geum rivale* L.: 3, 9, 10, 14, 19, 22, 23, 36, 37; **G. urbanum** L.: 13, 19, 30, 34; *Padus avium* Miller: 9, 13, 19, 22, 23, 30, 36; *Potentilla anserina* L.: 13, 30, 34, 35; *P. argentea* L.: 34; *P. aurea* L.: 6, 8, 21, 29, 31, 32; **P. chrysantha** Trev.: 1, 19, 23, 32; *P. erecta* (L.) Rausch: 3, 9, 10, 12, 19, 23, 24, 30, 34, 35, 36, 37; *P. ternata* C. Koch: 1, 17, 21, 27, 28, 29, 31, 38; *Rosa canina* L.: 35; *R. pendulina* L.: 9, 12, 14, 19, 23, 24, 35, 36; *Rubus hirtus* Waldst. et Kit.: 24; *R. idaeus* L.: 5, 9, 10, 13, 14, 18, 19, 23, 24, 26, 28, 30, 32, 34, 35, 36; *Sorbus aucuparia* L.: 9, 10, 13, 14, 18, 19, 23, 24, 26, 28, 30, 31, 35; *Spiraea chamaedrifolia* L.: 3, 9, 10, 13, 14, 18, 19, 22, 23, 24, 30, 34, 36; *Fam. Fabaceae*: *Anthyllis vulneraria* L. ssp. *vulneraria*: 9, 12, 19, 23, 36; **Astragalus glycyphyllos** L.: 35; **Genista tinctoria** L. ssp. *tinctoria*: 12, 35; *Lathyrus pratensis* L.: 19; **L. vernus** (L.) Bernh.: 37; *Lotus corniculatus* L.: 9, 15, 19, 23, 24, 34, 35, 36, 37; *Medicago falcata* L.: 23; **M. lupulina** L.: 19, 35; *Melilotus officinalis* Lam.: 9, 23, 24; *Ononis arvensis* L.: 35; *Trifolium alpestre* L.: 12, 15; *T. aureum* Pollich: 34; *T. badium* Schreber: 31; *T. campestre* Schreber: 9, 19, 23, 36; *T. hybridum* L.: 13, 19, 22, 23, 35, 36; *T. medium* L.: 9, 23; *T. montanum* L.: 9, 23, 34; *T. pannonicum* Jacq.: 12, 19, 34; *T. pratense* L.: 9, 10, 11, 13, 19, 23, 24, 30, 32, 34, 36, 37; *Trifolium repens* L.: 10, 13, 23, 30, 32, 34, 35, 36, 37; *T. spadicum* L.: 11; *Vicia villosa* Roth: 36; *Fam. Lythraceae*: *Lythrum salicaria* L.: 36; *Fam. Onagraceae*: *Chamerion angustifolium* (L.) Hollub: 9, 12, 19, 23, 24, 28, 34, 36; *Circaea alpina* L.: 19, 24, 35; *Epilobium hirsutum* L.: 23; *E. montanum* L.: 9, 11, 19, 24, 34; *E. palustre* L.: 19, 36, 39; *E. parviflorum* Schreber: 11; *Fam. Thymelaeaceae*: *Daphne mezereum* L.: 10, 35; *Fam. Euphorbiaceae*: *Euphorbia amygdaloides* L.: 24, 35; *E. helioscopia* L.: 35; **E. villosa** Waldst. et Kit.: 23; **Mercurialis perennis** L.: 24, 32, 35; *Fam. Rhamnaceae*: *Frangula alnus* Miller: 30, 36; *Fam. Aceraceae*: **Acer platanoides** L.: 35; **A. pseudoplatanus** L.: 9, 10, 12, 19, 35, 36; *Fam. Oxalidaceae*: *Oxalis acetosella* L.: 5, 9, 10, 14, 18, 22, 23, 24, 29, 30, 31, 32, 35, 36; *Fam. Geraniaceae*: *Geranium palustre* L.: 30, 35, 36; *G. phaeum* L.: 13, 30, 35; **G. pratense** L.: 34, 36; *G. robertianum* L.: 23, 24, 30, 33, 35; *G. sylvaticum* L.: 9; *Fam. Balsaminaceae*: *Impatiens noli-tangere* L.: 9, 12, 13, 19, 30; *Fam. Linaceae*: *Linum catharticum* L.: 9, 11, 23, 34, 35, 36, 37; *Fam. Polygalaceae*: *Polygala amara* L.: 9, 10, 12, 19, 23, 24, 25, 34, 37; *P. amarella* Crantz: 23, 36; **P. comosa** Schkuhr: 19, 34; *Fam. Apiaceae*: *Aegopodium podagraria* L.: 13, 19, 33; *Angelica sylvestris* L.: 9, 33; *Astrantia major* L.: 9, 22, 24; *Carum carvi* L.: 19, 23; **Chaerophyllum aromaticum** L.: 9, 10, 19, 22, 23, 34, 36, 37; *C. hirsutum* L.: 9, 13, 19, 23, 30, 34, 36; **Cicuta virosa** L.: 7; **Conium maculatum** L.: 9; *Daucus carota* L.: 23; *Heracleum sphondylium* L.: 19, 23; *Laserpitium latifolium* L.: 12, 15; *Ligusticum mutellina* (L.) Crantz: 6, 8, 21, 28, 29, 31, 38; *Pimpinella major* (L.) Hudson: 9, 12, 19; *P. saxifraga* L.: 19, 23, 24, 34, 36; *Sanicula europaea* L.: 30, 33; *Fam. Hypericaceae*: *Hypericum hirsutum* L.: 35, 36; *H. maculatum* Crantz: 9, 10, 19, 22, 23, 24, 30, 32; *H. montanum* L.: 19, 30, 36; *H. perforatum* L.: 3, 10, 19, 34, 36; *H. richeri* Vill. ssp. *grisebachii* (Boiss) Nyman: 29, 31; *Fam. Droseraceae*: *Drosera rotundifolia* L.: 19; *Fam. Violaceae*: *Viola biflora* L.: 6, 29, 31; **V. canina** L. ssp. **canina**: 34; *V. declinata* Waldst. et Kit.: 1, 16; **V. mirabilis** L.: 24; *V. reichenbachiana* Jordan ex Boreau: 14, 23, 33; **V. suavis** Bieb.: 12; *V. tricolor* L.: 1, 9, 10, 12, 23, 32, 34, 36; *Fam. Brassicaceae*: *Alliaria petiolata* (Bieb.) Cavara et Grande: 36; *Arabis alpina* L.: 23; *Armoracia rusticana* P. Gaertn., B. Meyer et Scherb.: 9, 23; *Barbarea vulgaris* R. Br.: 23, 36; *Brassica rapa* L. ssp. *sylvestris* (L.) Janchen: 11; *Capsella bursa-pastoris* (L.) Medik: 9, 23, 30, 36; *Cardamine amara* L.: 12; **C. pratensis** L.: 19, 23, 25, 36; *Cardaminopsis halleri* (L.) Hayek ssp. *halleri*: 11, 23; *Dentaria glandulosa* Waldst. et Kit.: 10, 12, 22, 23, 24; *Draba nemorosa* L.: 11; **Rorippa palustris** (L.) Besser: 36; *R. sylvestris* (L.) Besser: 19, 23, 30; *Sinapis arvensis* L.: 30, 36; *Sisymbrium officinale* (L.) Scop.: 9, 23; **Thlaspi kovatsii** Heuffel: 12; *Fam. Salicaceae*: *Populus alba* L.: 36; *P. tremula* L.: 9, 12, 19, 23, 24, 33, 34, 35; *Salix alba* L.: 36; *S. caprea* L.: 23, 34, 35; *S. cinerea* L.: 9, 19, 23; *S. herbacea* L.: 31; **S. kitaibeliana** Willd.: 31; *S. pentandra* L.: 23; *S. silesiaca* Willd.: 28, 29, 31; *S. triandra* L. emend. Ser.: 23; *Fam. Ericaceae*: *Andromeda polifolia* L.: 39; *Oxycoccus palustris* Pers.: 39; *Rhododendron myrtifolium* Schott et Kotschy: 2, 6, 8, 20, 21, 28, 29, 31, 41; *Vaccinium gaultherioides* Bigelow: 21, 31; *V. myrtillus* L.: 1, 2, 4, 8, 10, 11, 12, 14, 16, 17, 19, 23, 24, 29, 31, 32, 36, 38, 39, 41; *V. uliginosum* L.: 29, 31; *V. vitis-idaea* L.: 1, 4, 10, 16, 19, 22, 23, 32, 35, 36, 39; *Fam. Empetraceae*: *Empetrum nigrum* L. ssp. *hermaphroditicum* (Hagerup) Böcher: 21, 29, 31; *Fam. Pyrolaceae*: *Moneses uniflora* (L.) A. Gray: 10, 14, 18, 19, 22, 23, 25, 26, 28, 29, 31, 36; *Orthilia secunda* (L.) House: 22, 34, 35; *Pyrola rotundifolia* L.: 9, 22; *Fam. Monotropaceae*: *Monotropa hypopitys* L.: 22; *Fam. Primulaceae*: *Lysimachia nummularia* L.: 9, 13, 19, 22, 30, 36; *L. vulgaris* L.: 9, 19, 30, 36; *Primula elatior* (L.) L. ssp. *leucophylla* (Pax) H.

Harison ex W. W. Sm. et Fletcher: 24; *P. minima* L.: 20, 21, 28, 29, 31; *P. veris* L. ssp. *veris*: 30, 36; *Soldanella hungarica* Simonkai ssp. *hungarica*: 29, 31; *S. montana* Willd.: 1; *Fam. Gentianaceae*: *Gentiana acaulis* L.: 1; *G. asclepiadea* L.: 10, 19, 24, 34, 35; *G. cruciata* L.: 19; *G. punctata* L.: 29, 31; *G. utriculosa* L.: 34; ***G. verna*** L. ssp. *verna*: 9; *Gentianella austriaca* (A. et J. Kerner) Holub: 9, 19, 24, 34; *Gentianopsis ciliata* (L.) Ma: 19; *Fam. Oleaceae*: ***Fraxinus excelsior*** L.: 19; *Fam. Solanaceae*: *Hyoscyamus niger* L.: 19; *Solanum dulcamara* L.: 36; *Fam. Cuscutaceae*: ***Cuscuta europaea*** L. ssp. *europaea*: 19, 23; *Fam. Boraginaceae*: *Anchusa barrelieri* (All.) Vitman: 9, 23; *Asperugo procumbens* L.: 23, 36; *Echium vulgare* L.: 12, 19, 34; *Myosotis alpestris* F. W. Schmidt: 31; *M. scorpioides* L.: 3, 13, 19, 22, 23, 30, 34, 36; *M. sylvatica* Ehrh. ex Hoffm.: 23; *Pulmonaria rubra* Schott.: 23, 32; *Symphytum cordatum* Waldst. et Kit.: 10, 23, 24, 32, 35; *S. officinale* L.: 3, 9, 23; *Fam. Lamiaceae*: *Acinos alpinus* (L.) Moench: 23; *Ajuga genevensis* L.: 19, 23; ***A. reptans*** L.: 9, 12, 13, 23, 24, 30, 35; *Clinopodium vulgare* L.: 9, 19, 23, 24, 30, 35, 36; *Galeopsis pubescens* Besser: 10, 19, 23; *G. speciosa* Miller: 9, 10, 13, 24, 30, 35; *G. tetrahit* L.: 13, 19, 23, 24, 30, 35, 36; *Glechoma hederacea* L.: 9, 10, 13, 19, 23, 24, 30, 36; *G. hirsuta* Waldst. et Kit.: 12; *Lamium album* L.: 23, 36; *L. galeobdolon* (L.) L.: 9, 23; ***L. maculatum*** L.: 23; *L. purpureum* L.: 19, 23; *Lycopus europaeus* L.: 9, 10, 13, 19, 23, 30, 36; ***Melissa officinalis*** L.: 34; *Mentha arvensis* L.: 9, 10, 30, 34; *M. longifolia* (L.) Hudson: 3, 9, 10, 12, 13, 19, 23, 30, 33, 34, 35, 36; *M. pulegium* L.: 30, 36; *Origanum vulgare* L.: 9, 19, 23, 35, 36; *Prunella vulgaris* L.: 3, 9, 10, 12, 13, 19, 22, 23, 24, 30, 34, 35, 36, 37; *Salvia glutinosa* L.: 10, 24, 30, 35; *S. verticillata* L. ssp. *verticillata*: 35; *Scutellaria galericulata* L.: 9, 23; *Stachys officinalis* (L.) Trev.: 9, 19, 23, 36, 37; *S. sylvatica* L.: 13, 19, 30, 35, 36; *Thymus alpestris* Tausch ex A. Kerner: 12, 31, 32; *T. pulegioides* L.: 9, 10, 12, 19, 23, 24, 34, 35, 36, 37; *Fam. Callitrichaceae*: *Callitriche cophocarpa* Sendtner: 35; *Fam. Plantaginaceae*: *Plantago lanceolata* L.: 9, 19, 23, 24, 34, 37; *P. major* L.: 30, 35; *P. media* L.: 9, 10, 12, 13, 15, 19, 23, 24, 30, 34, 36, 37; *Fam. Scrophulariaceae*: *Digitalis grandiflora* Miller: 12, 22, 23, 24, 35; *Euphrasia minima* Jacq. ex Lam. et D. C. ssp. *minima*: 31; *E. officinalis* L. ssp. *pratensis* Schübler et Martens: 9, 10, 12, 19, 32; *E. stricta* D. Wolff ex J. F. Lehm. ssp. *stricta*: 9, 19, 23, 33, 36; *Linaria vulgaris* Miller: 3, 35; ***Melampyrum bihariense*** A. Kerner: 23, 34; *M. saxosum* Baumg.: 24, 28, 31; *M. sylvaticum* L.: 8, 23, 24; ***Pedicularis sylvatica*** L.: 19, 34; *Rhinanthus alpinus* Baumg.: 12; *R. minor* L.: 9, 10, 19, 23, 34, 35, 36, 37; *Scrophularia nodosa* L.: 19, 23; *S. scopoli* Hoppe: 9, 13; ***Verbascum lychnitis*** L.: 23; *V. nigrum* L.: 33; *V. phoeniceum* L.: 36; *V. thapsus* L.: 12; *Veronica anagallis-aquatica* L.: 9; *V. baumgartenii* Roemer et Schultes: 21, 28, 29, 31; *V. beccabunga* L.: 9, 12; *V. chamaedrys* L.: 10, 12, 15, 23, 24, 34; *V. officinalis* L.: 9, 10, 12, 19, 22, 23, 24, 32, 33, 35, 39; *V. serpyllifolia* L.: 23, 32, ssp. *humifusa* (Dickson) Syme: 31; *V. urticifolia* Jacq.: 3, 10, 12; *Fam. Orobanchaceae*: ***Orobanche caryophyllacea*** Sm.: 37; *O. teucryi* Holandre: 25; *Fam. Campanulaceae*: *Campanula abietina* Griseb.: 11, 12, 17, 22, 31; *C. alpina* Jacq.: 1, 6, 8, 16, 17, 21, 27, 29, 31, 38; *C. cervicaria* L.: 19, 22; *C. glomerata* L.: 9, 19, 23, 30, 34, 35; *C. patula* L.: 9, 10, 13, 19, 23, 24, 30, 35, 36, 37; *C. persicifolia* L.: 9, 12, 19, 33, 35; ***C. rapunculoides*** L.: 13, 30, 35; *C. rotundifolia* L. ssp. *rotundifolia*: 9, 12, 19, 23, ssp. *polymorpha* (Witašek) Tacik: 1, 29, 31; *C. serrata* (Kit.) Hendrych: 9, 10, 19, 23, 24, 35, 36, 37; ***C. trachelium*** L.: 19, 35; *Phyteuma orbiculare* L.: 21; *P. tetramerum* Schur: 10; *P. wagneri* A. Kerner: 28; *Fam. Rubiaceae*: *Cruciata glabra* (L.) Ehrend.: 9, 10, 12, 15, 19, 23, 24, 34, 35; ***Galium album*** Miller: 34; *G. aparine* L.: 9; *G. odoratum* (L.) Scop.: 23; *G. palustre* L.: 3, 9, 19, 22, 23; *G. schultesii* Vest: 9, 24, 35; *G. verum* L.: 9, 23, 34, 35, 36; *Fam. Caprifoliaceae*: *Lonicera nigra* L.: 35, 36; *L. xylosteum* L.: 35; *Sambucus racemosa* L.: 23, 24, 35; *Fam. Valerianaceae*: ***Valeriana dioica*** L.: 9; *V. montana* L.: 19; *V. officinalis* L.: 3, 19; ***V. simplicifolia*** (Reichenb.) Kabath: 19; *V. tripteris* L.: 22, 24, 32, 35; *Fam. Dipsacaceae*: ***Knautia arvensis*** (L.) Coulter ssp. *arvensis*: 9, 10, 24, 32, 34; *K. longifolia* (Waldst. et Kit) Koch: 24, 32; *Scabiosa lucida* Vill. ssp. *barbata* E. I. Nyárády: 15; *Succisa pratensis* Moench: 9, 19, 34, 37; *Fam. Asteraceae*: *Achillea distans* Waldst. et Kit. ex Willd.: 12, 19, 23; *A. millefolium* L.: 9, 10, 19, 23, 24, 30, 31, 34, 36, 37; *A. stricta* (Koch) Scheicher ex Gremli: 24, 32; *Adenostyles alliariae* (Gouan) A. Kerner: 27, 28, 31; *Antennaria dioica* (L.) Gaertner: 12, 15, 19, 23, 32, 34, 35; *Anthemis tinctoria* L.: 23, 33; *Arctium tomentosum* Miller: 12, 13, 19, 34, 36; *Arnica montana* L.: 10, 12, 19, 23, 31, 32, 34, 37; ***Artemisia absinthium*** L.: 35; *A. petrosa* (Baumg.) Fritsch: 29; ***A. vulgaris*** L.: 30; *Bellis perennis* L.: 10, 12, 19, 34, 36; *Bidens cernua* L.: 3, 9, 35; *B. tripartita* L.: 23; *Carduus personatus* (L.) Jacq.: 9, 23, 36; *Carlina acaulis* ssp. *acaulis*: 9, 19, 23, ssp. *caulescens* (Lam.) Schübler et Martens: 9, 10, 24, 35; *C. biebersteinii* Bernh. ex Hornem ssp. *brevibracteata* (Andrae) Werner: 10, 24; *C. vulgaris* L.: 9; ***Carpesium cernuum*** L.: 3, 9, 35; *Centaurea jacea* L.: 9, 19, 23, 30, 36, 37; *C. phrygia* L.: 9, 10, 19, 23, 24, 34, 35, 36, 37; *Cicerbita alpina* (L.) Wallr.: 31; *Cichorium intybus* L.: 13; *Cirsium arvense* (L.) Scop.: 30; *C. erisithales* (Jacq.) Scop.: 10, 13, 35; *C. heterophyllum* (L.) Hill: 12, 19, 23, 34; *C. oleraceum* (L.) Scop.: 9, 13, 19, 24, 30, 34, 36; *C. palustre* (L.) Scop.: 10, 22, 30, 32; *C. vulgare* (Savi) Ten.: 13; *Conyza canadensis* (L.) Cronq.: 35; *Crepis biennis* L.: 36; *C. mollis* (Jacq.) Ascherson: 36; *C. paludosa* (L.) Moench: 23, 24; *Doronicum austriacum* Jacq.: 10; *Erigeron acris* L.: 19, 23; *Filago arvensis* L.: 23, 36; *Gnaphalium supinum* L.: 31; *G. sylvaticum* L.: 10, 24, 31, 35; *G. uliginosum* L.: 31; *Hieracium alpinum* L.: 6, 8, 16, 29, 31, 38; *H. aurantiacum* L.: 10, 23, 31; *H. bifidum* Kit. ex Hornem. ssp. *bifidum*: 23; *H. caespitosum* Dumort. ssp. *caespitosum*: 31; *H. lactucella* Wallr.: 23, 32; *H. murorum* L.: 10, 24; *H. pilosella* L.: 9, 15, 19, 23, 24, 31, 34, 37; *H. transsylvanicum* Heuffel: 5, 10, 12, 22, 24; *H. umbellatum* L.: 19, 34, 37; *Homogyne alpina* (L.) Cass.: 6, 21, 23, 24, 26, 28, 29, 31, 32; *Hypochoeris uniflora* Vill.: 19, 23, 24, 34; ***Inula hirta*** L.: 35; *Leontodon autumnalis* L.: 9, 19, 23, 24, 34, 35, 36, 37; *Leucanthemum vulgare* Lam.: 9, 10, 19, 23, 24, 34, 36, 37; *L. waldsteinii* (Schultz Bip) Pouzar: 10, 19, 22, 24, 35; *Ligularia sibirica* (L.) Cass.: 34, 36;

*Matricaria discoidea* DC.: 13, 23, 30, 35; *Mycelis muralis* (L.) Dumort.: 5, 10, 14, 22, 24, 30, 35; *Onopordum acanthium* L.: 36; *Petasites albus* (L.) Gaertner: 34; *P. hybridus* (L.) P. Gaertner: 13, 19, 30, 34, 36; *Scorzonera rosea* Waldst. et Kit.: 23, 32; *Senecio glaberrimus* (Rochel) Simonkai: 28; *S. jacobea* L.: 33; *S. ovatus* (P. Gaertner, B. Meyer et Schreb.) Willd.: 9, 10, 13, 19, 24, 34, 35; *S. squalidus* L.: 11; *S. subalpinus* Koch: 24; *Solidago virgaurea* L. ssp. *virgaurea*: 27, 31, ssp. *minuta* (L.) Arcangeli: 28, 31; *Sonchus oleraceus* L.: 30; *Tanacetum corymbosum* (L.) Schultz Bip.: 35; *T. vulgare* L.: 13, 35; *Taraxacum nigricans* (Kit.) Reichenb.: 31; *T. officinale* Weber ex Wiggers: 3, 12, 13, 19, 23, 30, 32, 34, 36; *Tragopogon pratensis* L. ssp. *orientalis* (L.) Čelak.: 9, 35; *Tussilago farfara* L.: 9, 10, 19, 23, 24, 30, 32, 35; Fam. *Alismataceae*: *Alisma plantago-aquatica* L.: 10; Fam. *Trilliaceae*: *Paris quadrifolia* L.: 10, 22, 24, 31, 35; Fam. *Liliaceae*: *Colchicum autumnale* L.: 12, 19; *Lilium martagon* L.: 12, 19, 24; *Maianthemum bifolium* (L.) F. W. Schmidt: 10, 12, 19, 23, 24, 35; *Polygonatum verticillatum* (L.) All.: 10, 22, 23, 24, 35; *Streptopus amplexifolius* (L.) DC.: 10, 24, 35; *Veratrum album* L. ssp. *album*: 1, 10, 11, 20, 21, 23, 28, 29, 31, 32, 38; Fam. *Iridaceae*: *Crocus vernus* (L.) Hill: 1, 12; ***Sisyrinchium montanum*** E. L. Greene: 19, 34; Fam. *Orchidaceae*: ***Dactylorhiza fistulosa*** (Moench) H. Baumann et Künkele: 12, 19, 23, 25; *D. incarnata* (L.) Soó ssp. *incarnata*: 12; *D. maculata* (L.) Soó ssp. *maculata*: 19, ssp. *transsilvanica* (Schur) Soó: 19; *D. saccifera* (Brongn.) Soó: 23; ***Epipactis atrorubens*** (Hoffm.) Besser: 37; *E. helleborine* (L.) Crantz: 10, 35; ***Goodyera repens*** (L.) R. Br.: 10; *Gymnadenia conopsea* (L.) R. Br.: 9, 12, 15, 19, 23, 24, 25, 34, 37; *Listera ovata* (L.) R. Br.: 10, 12, 19, 24, 34, 37; *Nigritella rubra* (Wettst.) K. Richter: 25; *Orchis mascula* ssp. *signifera* (Vest.) Soó: 33; ***Pseudorchis albida*** (L.) A. et D. Löve: 6, 20, 21; *Traunsteinera globosa* (L.) Reichenb.: 10, 12, 23; Fam. *Juncaceae*: *Juncus bufonius* L.: 9, 10, 34; *J. conglomeratus* L.: 9, 10, 19, 22, 34, 36; *J. effusus* L.: 3, 9, 10, 19, 22, 23, 32, 34, 36; ***J. gerardi*** Loisel.: 36; *J. trifidus* L.: 20, 21, 28, 29, 31; *Luzula alpinopilosa* (Chaix) Beistr.: 21; *L. campestris* (L.) DC.: 9, 12, 19, 34, 36; *L. luzuloides* (Lam.) Dandy et Wilmott: 12, 23, 31, 32, ssp. *rubella* (Hoppe ex Mert. et Koch) Holub: 23; *L. multiflora* (Ehrh.) Lej. ssp. *multiflora*: 23; ***L. pilosa*** (L.) Willd.: 23; *L. sudetica* (Willd.) Schultes: 31; *L. sylvatica* (Hudson) Gaudin: 10, 20, 22, 23, 24, 29, 31, 32, 34, 35; Fam. *Cyperaceae*: *Carex acuta* L.: 19, 36; *C. appropinquata* Schumacher: 36; *C. atrata* L.: 1, 6, 8, 16, 21, 27, 28, 29, 31, 38; *C. brunnescens* (Pers.) Poir.: 31; *C. echinata* Murray: 23, 39; *C. flava* L.: 12; *C. hirta* L.: 12; *C. nigra* (L.) Reichard.: 9, 10, 19, 34, 37, 39; *C. ovalis* Good.: 9, 10, 19; *C. pairae* F. W. Schultz: 9, 33; *C. pallescens* L.: 25, 39; *C. rostrata* Stokes: 19, 36; *C. spicata* Hudson: 9; *C. umbrosa* Host.: 36; *C. vesicaria* L.: 9, 23; *Eleocharis palustris* (L.) Roemer et Schultes: 9, 19, 23; *Eriophorum angustifolium* Honck.: 19, 36; *E. vaginatum* L.: 39; *Scirpus sylvaticus* L.: 9, 10, 13, 19, 22, 30, 34; Fam. *Poaceae*: *Agrostis capillaris* L.: 9, 10, 19, 23, 24, 32, 34, 36, 37; *A. stolonifera* L.: 3, 10, 19, 22; *Alopecurus aequalis* Sobol.: 23; *A. geniculatus* L.: 23; ***A. pratensis*** L. ssp. ***pratensis***: 36; *Anthoxanthum odoratum* L.: 1, 3, 6, 9, 10, 15, 19, 23, 24, 27, 31, 32, 34, 36, 37; *Arrhenatherum elatius* (L.) Beauv. ex J. et C. Presl: 12; *Brachypodium sylvaticum* (Hudson) Beauv.: 9, 13, 19, 30; *Briza media* L.: 9, 10, 15, 19, 23, 24, 34, 37; *Calamagrostis arundinacea* (L.) Roth: 10, 24, 35; *C. epigeios* (L.) Roth: 23; *C. villosa* (Chaix) J. F. Gmelin: 28, 31; *Catabrosa aquatica* (L.) Beauv.: 13, 30; *Cynosurus cristatus* L.: 3, 9, 10, 19, 24, 34, 36, 37; *Dactylis glomerata* L.: 3, 9, 19, 35, 37; *Deschampsia caespitosa* (L.) Beauv.: 9, 11, 19, 24, 30, 32, 36, 37; *D. flexuosa* (L.) Trin.: 21, 28, 29, 31; *Festuca arundinacea* Schreber: 33, 35; *F. nigrescens* Lam.: 12, 19; *F. pratensis* Hudson: 10, 19, 36; *F. rubra* L.: 9, 10, 19, 23, 24, 32, 34, 36, 37; *F. supina* Schur: 31; *Glyceria notata* Chevall.: 10, 13, 19, 30, 36; *Holcus lanatus* L.: 9, 19, 23, 36, 37; *Lolium perenne* L.: 13, 19, 30, 34; *Milium effusum* L.: 33; *Molinia caerulea* (L.) Moench ssp. *caerulea*: 39; *Nardus stricta* L.: 1, 9, 17, 19, 23, 24, 32, 34, 37; *Phleum alpinum* L.: 31, 32; *P. pratense* L.: 9, 19, 23, 34, 36; *Poa alpina* L.: 32; *P. annua* L.: 9, 12, 19; *P. nemoralis* L.: 14, 28, 36; *P. pratensis* L.: 9, 19, 30, 36; *Setaria viridis* (L.) Beauv.: 9; Fam. *Typhaceae*: ***Typha latifolia*** L.: 30; ***T. schuttewortii*** Koch et Sonder: 35.

## Conclusions

As a result of the floristical research during 2005 and 2006 in the territory of the Neagra Șarului river basin, were identified 547 species and 22 subspecies, included in 71 botanical families. There are 73 taxa quoted for the first time for Neagra Șarului river basin, which are emphasized in the enumeration by bold letters.

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