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## GEMENEA, AN IMPORTANT TOPONYM FOR THE BOTANICAL EXPLORATIONS OF THE RODNA MOUNTAINS (EASTERN CARPATHIANS) – FOUND AFTER A CENTURY

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**Abstract:** One of the most attractive peaks of the Rodna Mountains from a botanical point of view and one visited by many botanists in the 19<sup>th</sup> century was Gemenea Peak. Unfortunately, in the early 20<sup>th</sup> century, the Gemenea toponym disappeared (apparently without trace) from Rodna Mountains maps and botanical publications.

The paper reports the recent finding in the Rodna Mountains of the Gemenea toponym, which is actually the old name for Puzdrele peak.

The subalpine and alpine flora of this peak are presented, based on analysis of available botanical literature, herbarium materials and recent research of the authors. Additionally, a list of the threatened plant species of Puzdrele (Gemenea) peak is proposed.

Puzdrele (Gemenea) peak is included within the Rodna Mountains National Park, but more effort towards efficient protection of its flora and vegetation is required, since this area is very exposed to intensive grazing.

**Keywords:** flora, Puzdrele (Gemenea) Peak, Rodna Mountains, Eastern Carpathians, threatened species.

### Introduction

The Rodna Mountains (Eastern Carpathians) are a major centre of endemism [9] for the Romanian Carpathians, with high floristic diversity. This mountain group harbours one local endemic species (*Silene nivalis* (Kit.) Rohrb.), and an impressive number of threatened taxa (e.g. *Saussurea porcii* Degen, *Ranunculus glacialis* L., *Heracleum carpaticum* Porcius, *Ranunculus thora* L., *Carex bicolor* All., *Carex lachenalii* Schkuhr, *Salix alpina* Scop., *Callianthemum coriandrifolium* Rchb., *Juncus castaneus* Sm. and *Ligularia glauca* (L.) O.Hoffm.) [6].

### Material and Methods

Our investigations are based on recent field studies, available botanical literature and analysis of herbarium material stored at CL ("A. Borza" Botanical Garden Herbarium, Cluj-Napoca). The identification of the taxon has been carried out using: *Flora Europaea*, vol. 1–5 [18,19] and *Plante vasculare din România: determinant ilustrat de teren* [16]. Species names follow *Flora Europaea* [18,19].

### Results and Discussion

#### *1. The finding of the Gemenea toponym*

Gemeenă Peak in Rodna Mountains was a well-known toponym for the local population and was visited constantly by botanists in 19<sup>th</sup> century. Intriguingly, in the early 20<sup>th</sup> century this name disappeared (apparently without trace) from Rodna Mountains maps.

The last botanists who knew the exact location of this peak were Florian Porcius and Lajos Simonkai, great explorers of the Transylvanian flora.

Over time, Gemenea Peak was variously named by different authors: *Dscheammenie* [Baumgarten, 1], *Dsämini* [Fuss, 7], *Gemenea*, *Dschemenea* or *Zwillingsspitze* [Porcius, 13, 14, 15], and *Gemenea* [Simonkai, 17].

In the late 19<sup>th</sup> century, Porcius clarified in a paper [15] that the “*Dscheammenie*” toponym used by Baumgarten corresponds to Gemenea Peak, but unfortunately he did not publish the exact location of this mysterious summit.

After critical processing of the existing bibliographical material for the Rodna Mountains from the late 19<sup>th</sup> and early 20<sup>th</sup> century, we were able to identify (in the context of the presented data) the position of Gemenea Peak from this mountain group.

The first premise from which we started our investigation is that the two Transylvanian botanists (Simonkai and Porcius) knew the exact position of this peak [17,13]. Simonkai, at the beginning of his botanical monograph, mentioned that the summit is slightly outside of the main ridge of the Rodna Mountains, in Maramureş county [17]. Porcius revealed the exact altitude of the peak – 2212.56 m (measurements made that time) – and therefore it is one of the highest peaks of the Rodna Mountains [13].

In Table 1, the highest peaks of the Rodna Mountains (area of Rodna Veche village) specified in floristical work of Porcius [13] are listed.

**Table 1: Rodna Mountains highest peaks (according to Porcius 1881)**

| <b>A) Name of the peak<br/>(according to Porcius)</b> | <b>B) Altitude (according<br/>to Porcius)</b> | <b>C) Name of the peak<br/>(today)</b> | <b>D) Altitude (today)</b> |
|-------------------------------------------------------|-----------------------------------------------|----------------------------------------|----------------------------|
| Ineu                                                  | 2262.66 m                                     | Ineu                                   | 2279 m                     |
| Vîrvulu Roşiu                                         | 2244.16 m                                     | Vf. Roşu                               | 2113 m                     |
| Ineutiu                                               | 2212.56 m                                     | Ineuţ                                  | 2222 m                     |
| Gemenea                                               | 2212.56 m                                     | ?                                      | ?                          |
| Gergeleu                                              | 2180.95 m                                     | Gărgălău                               | 2159 m                     |
| Cisi'a                                                | 2086.13 m                                     | Cişia                                  | 2036 m                     |
| Cost'a-neteda                                         | 2082.43 m                                     | Coasta Netedă                          | 2060 m                     |
| Galati                                                | 2054.52 m                                     | Galaţi                                 | 2048 m                     |
| Vîrvulu-Omului                                        | 2010.27 m                                     | Vf. Omului                             | 2134 m                     |

From Porcius' list of peaks, two important summits (up to more than 2100 m) are missing from the Rodna Mountains (area of Rodna Veche village): Laptele Mare (2172 m) and Puzdrele (2189 m) peaks.

Another interesting discovery was related to Antal Czetzy, a good friend of Porcius, an amateur botanist and enthusiast explorer of the Rodna Mountains. Herman Ottó, in a paper dedicated to the memory of A. Czetzy [8], revealed that Gemenea seen from the Ineu peak is located somewhere between the area of Galaţi and Ştiol peaks and has the appearance of a twin peak (peak and pre-peak).

Another clue was provided by a paper published in 1883 by Porcius [14], who estimated at 2–3 days the time required for a round trip from Rodna Veche village to Gemenea peak.

Thus, we could estimate the position of Gemenea peak within the Rodna Mountains. The peaks that are missing from Porcius' work [13] and have the twin summits appearance are Laptele Mare (2172 m) and Puzdrele (2189 m). In the early 20<sup>th</sup> century (as today), Laptele Mare peak was situated at the border of Maramureş and Bistriţa-Năsăud counties (Fig. 1); Puzdrele peak was located in Maramureş county (but very close to the border). Following the observations of Simonkai [17] that Gemenea peak was situated in Maramureş county, we concluded that the names Gemenea and Puzdrele refer to the same peak.

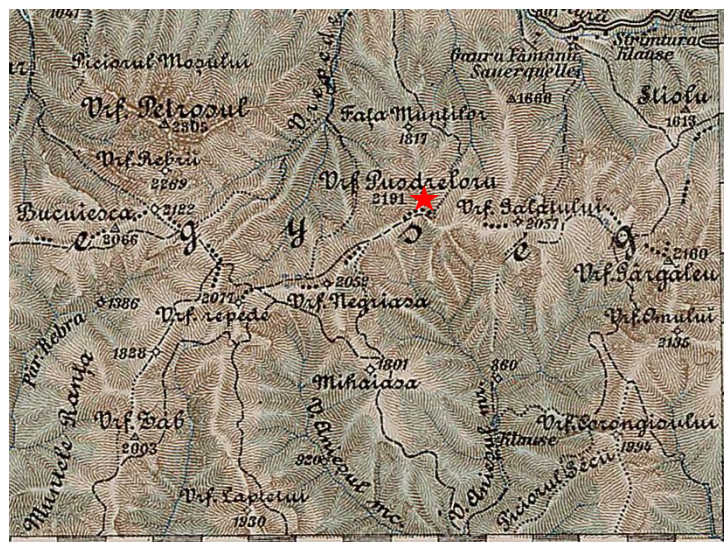


Fig. 1: Military map (scale 1:200.000), published around 1910) [21]. Puzdrele peak is marked with a red star

## 2. Subalpine and alpine flora of Puzdrele (Gemenea) peak

This first list of vascular plants of the subalpine and alpine part of Puzdrele (Gemenea) peak is based on original field data (acquired on 11 July 2015), the botanical literature and material deposited in CL Herbarium.

Notes:

- ? species uncertain in the Rodna Mountains and Romanian Carpathians
- ! species confirmed by the field-trip in Puzdrele (Gemenea) peak area
- the toponym in respect of original name given by the authors (Gemenea or Puzdrele).

### BETULACEAE

*Alnus viridis* (Chaix) DC. (!): Exs. Coman (Puzdrele) [3].

### BORAGINACEAE

*Myosotis alpestris* F.W.Schmidt: Ref. Ötvös (Puzdrele) [11], Coldea (Puzdrele) [2]. Exs. E.I. Nyárády (CL209613, Puzdrele), Coman (Puzdrele) [4].

*Pulmonaria filarszkyana* Jáv.: Exs. Coman (Puzdrele) [4].

### CAMPANULACEAE

*Campanula alpina* Jacq. (!): Ref. Ötvös (Puzdrele) [11], Coldea (Puzdrele) [2]. Exs. Coman (Puzdrele) [4].

*Campanula glomerata* L.: Ref. Coldea (Puzdrele) [2].

*Campanula rotundifolia* L. subsp. *polymorpha* (Witasek) Tacik: Ref. Coldea (as *Campanula polymorpha* Witasek, Puzdrele) [2].

*Campanula transsilvanica* Schur ex Andrae: Ref. Fuss (Gemenea) [7], Porcius (Gemenea) [13].

#### CARYOPHYLLACEAE

*Arenaria biflora* L.: Ref. Fuss (Gemenea) [7], Porcius (Gemenea) [13].

*Arenaria ciliata* L.: Ref. Fuss (Gemenea) [7], Porcius (Gemenea) [13].

*Cerastium alpinum* L. (!): Ref. Baumgarten (Gemenea) [1], Fuss (Gemenea) [7], Ötvös (Puzdrele) [11], Coldea (Puzdrele) [2]. Exs. E.I. Nyárády (as *Cerastium lanatum* Lam., CL201943, Puzdrele).

*Dianthus glacialis* Haenke subsp. *gelidus* (Schott, Nyman & Kotschy) Tutin: Ref. Porcius (as *Dianthus gelidus* Schott, Nyman & Kotschy, Gemenea) [13].

*Lychnis nivalis* Kit. (!): Ref. Fuss (as *Polyschemone nivalis* (Kit.) Schott, Gemenea) [7], Porcius (as *Polyschemone nivalis* (Kit.) Schott, Gemenea) [13].

*Silene acaulis* (L.) Jacq.: Ref. Porcius (Gemenea) [13].

#### COMPOSITAE (ASTERACEAE)

? *Achillea clavennae* L.: Ref. Baumgarten (Gemenea) [1], Fuss (as *Ptarmica clavennae* (L.) DC., Gemenea) [1], Porcius (Gemenea) [13].

*Achillea distans* Waldst. & Kit. ex Willd.: Ref. Coldea (Puzdrele) [2].

*Achillea lingulata* Waldst. & Kit.: Ref. Fuss (as *Ptarmica lingulata* (Waldst. & Kit.) DC., Gemenea) [7].

*Achillea oxyloba* (DC.) Sch.Bip. subsp. *schurii* (Sch.Bip.) Heimerl: Ref. Coldea (Puzdrele) [2].

*Adenostyles alliariae* (Gouan) A.Kern. (!): Exs. Coman (Puzdrele) [4].

*Anthemis carpatica* Waldst. & Kit. ex Willd.: Ref. Porcius (Gemenea) [13].

*Arnica montana* L. (!): Ref. Baumgarten (Gemenea) [1], Fuss (Gemenea) [7]. Exs. Coman (Puzdrele) [4].

*Artemisia eriantha* Ten.: Ref. Baumgarten (Gemenea) [1], Porcius (as *Artemisia baumgartenii* Besser, Gemenea) [13], Fuss (as *Artemisia baumgartenii* Besser, Gemenea) [7], Coldea (Puzdrele) [2]. Exs. Porcius (as *Artemisia baumgartenii* Besser, CL15134, Gemenea), A. Nyárády & E.I. Nyárády (as *Artemisia petrosa* Fritsch, CL201727, Puzdrele).

*Aster alpinus* L.: Ref. Porcius (Gemenea) [13].

*Carduus kernerii* Simonk. (!): Ref. Ötvös (Puzdrele) [11].

*Centaurea kotschyana* Heuff. ex W.D.J.Koch: Ref. Ötvös (Puzdrele) [11].

*Doronicum stiriacum* (Vill.) Dalla Torre: Ref. Baumgarten (as *Aronicum clusii* All., Gemenea) [1], Fuss (as *Aronicum clusii* All., Gemenea) [7], Porcius (as *Aronicum clusii* All., Gemenea) [13], Coldea (as *Doronicum clusii* (All.) Tausch, Puzdrele) [2]. Exs. Coman (as *Doronicum glaciale* (Wulfen) Nyman, Puzdrele) [4].

*Erigeron alpinus* L.: Ref. Ötvös (Puzdrele) [11].

*Erigeron uniflorus* L.: Ref. Coldea (Puzdrele) [2].

*Gnaphalium supinum* L. Ref. Coldea (Puzdrele) [2].

*Hieracium alpinum* L. (!): Ref. Coldea (Puzdrele) [2]. Exs. E.I. Nyárády (CL202014, Puzdrele).

*Homogyne alpine* (L.) Cass. (!): Exs. Coman (Puzdrele) [4]. Exs. A. Nyárády & E.I. Nyárády (CL201975, Puzdrele).

*Hypochaeris uniflora* Vill. (!): Ref. Coldea (Puzdrele) [2].

*Senecio incanus* L.: Ref. Fuss (Gemenea) [7], Porcius (Gemenea) [13].

*Leontodon croceus* Haenke (!)

*Leontodon repens* Schur: Ref. Coldea (Puzdrele) [2].

*Leontopodium alpinum* Cass.: Ref. Fuss (Gemenea) [7].

*Saussurea alpine* (L.) DC.: Ref. Coldea (Puzdrele) [2].

*Senecio glaberrimus* (Rochel) Simonk. (!): Ref. Fuss (as *Senecio rochelianus* Fuss) (Gemenea) [7].

*Senecio papposus* (Rchb.) Less. (!): Ref. Baumgarten (as *Senecio sulphureus* Baumg., Gemenea) [1], Coldea (Puzdrele) [2].

*Senecio rivularis* (Waldst. & Kit.) DC.: Ref. Baumgarten (as *Senecio crispus* Jacq., Gemenea) [1], Fuss (as *Tephroseris crispa* (Jacq.) Rchb., Gemenea) [7].

#### CRASSULACEAE

*Sedum alpestre* Vill.: Ref. Ötvös (Puzdrele) [11].

*Sedum atratum* L.: Fuss (Gemenea) [7].

*Sempervivum montanum* L. (!): Fuss (as *Sempervivum wulfenii* Hoppe, Gemenea) [7], Porcius (Gemenea) [13] Ötvös (Puzdrele) [11].

*Rhodiola rosea* L. (!): Ref. Fuss (Gemenea) [7], Ötvös (as *Sedum rosea* (L.) Scop., Puzdrele) [11], Coldea (Puzdrele) [2]. Exs. E.I. Nyárády (as *Sedum rosea* (L.) Scop., CL202400, Puzdrele).

#### CRUCIFERAE (BRASSICACEAE)

*Cardamine amara* L.: Ötvös (Puzdrele) [11]. Exs. Coman (Puzdrele) [3].

*Draba siliquosa* M.Bieb.: Ötvös (as *Draba carinthiaca* Hoppe, Puzdrele) [11]. Exs. Coman (as *Draba carinthiaca* Hoppe, Puzdrele) [3].

#### CYPERACEAE

*Carex atrata* L.: Ref. Ötvös (Puzdrele) [11], Coldea (Puzdrele) [2]. Exs. E.I. Nyárády (CL201851, Puzdrele).

*Carex bicolor* All.: Exs. Czetz & Wolff (CL 02853, Gemenea).

*Carex brunnescens* (Pers.) Poir.: Ref. Coman (Puzdrele) [5].

*Carex canescens* L.: Exs. Coman (Puzdrele) [3].

*Carex capillaris* L.: Ref. Coldea (Puzdrele) [2].

*Carex curvula* All. (!): Ref. Porcius (Gemenea) [13], Nyárády (Puzdrele) [10], Coldea (Puzdrele) [2].

*Carex flava* L.: Exs. Coman (Puzdrele) [3].

*Carex fuliginosa* Schkuhr: Ref. Porcius (Gemenea) [13]. Exs. Czetz, (CL02602, Gemenea), Czetz & Wolff (CL02605, Gemenea), Coman (Puzdrele) [3].

*Eriophorum latifolium* Hoppe: Exs. Coman (Puzdrele) [3].

*Eriophorum scheuchzeri* Hoppe: Lit. Baumgarten (as *Eriophorum alpinum* Baumg., Gemenea) [1].

*Eriophorum vaginatum* L.: Exs. Coman (Puzdrele) [3].

#### DIPSACACEAE

*Knautia longifolia* (Waldst. & Kit.) W.D.J.Koch: Ref. Coldea (Puzdrele) [2].

#### ERICACEAE

*Empetrum nigrum* L. subsp. *hermaphroditum* (Hagerup) Böcher (!): Ref. Coldea (Puzdrele) [2], Exs. Coman (Puzdrele) [3].

*Loiseleuria procumbens* (L.) Desv.: Ref. Baumgarten (as *Azalea procumbens* L., Gemenea) [1], Fuss (as *Azalea procumbens* L., Gemenea) [7].

*Rhododendron myrtifolium* Schott & Kotschy (!): Ref. Fuss (Gemenea) [7], Ötvös (as *Rhododendron kotschyi* Simonk., Puzdrele) [11], Coldea (Puzdrele) [2]. Exs. Coman (Puzdrele) [4].

*Vaccinium uliginosum* L.: Ref. Coldea (as *Vaccinium gaultherioides* Bigelow, Puzdrele) [2].

*Vaccinium vitis-idaea* L. (!): Ref. Coldea (Puzdrele) [2]. Exs. Coman (Puzdrele) [4].

#### GENTIANACEAE

*Gentiana acaulis* L. (!): Ref. Ötvös (Puzdrele) [11]. Exs. A. Nyárády & E.I. Nyárády (as *Gentiana kochiana* E.P.Perrier & Sonjeon, CL202041, Puzdrele), Coman (Puzdrele) [4].

*Gentiana brachyphylla* Vill. subsp. *favratii* (Rittener) Tutin: Ref. Coman (Puzdrele) [5]. Exs. Coman (as *Gentiana favratii* Rittener) (Puzdrele) [4].

*Gentiana lutea* L.: Ref. Baumgarten (Gemenea) [1], Fuss (Gemenea) [7], Porcius (Gemenea) [13].

*Gentiana nivalis* L.: Ref. Porcius (Gemenea) [13].

*Gentiana punctata* L. (!): Ref. Baumgarten (Gemenea) [1], Fuss (Gemenea) [7], Porcius (Gemenea) [13]. Exs. Czet & Wolff (CL 27461, Gemenea), Coman (Puzdrele) [4].

*Gentiana verna* L.: Exs. Coman (Puzdrele) [4].

*Swertia punctata* Baumg.: Ref. Baumgarten (Gemenea) [1], Fuss (Gemenea) [7].

*Swertia alpestris* Baumg. ex Fuss: Ref. Baumgarten (Gemenea) [1], Fuss (Gemenea) [7], Porcius (Gemenea) [13]. Exs. Coman (as *Swertia perennis* L., Puzdrele) [4].

#### GRAMINEAE (POACEAE)

*Agrostis rupestris* All.: Ref. Porcius (Gemenea) [13], Coldea (Puzdrele) [2].

*Avenula versicolor* (Vill.) M.Laínz: Ref. Coldea (Puzdrele) [2]. Exs. Bartók (pers. herbarium, Puzdrele).

*Calamagrostis villosa* (Chaix) J.F.Gmel.: Ref. Coldea (Puzdrele) [2].

*Festuca airoides* Lam.: Ref. Coldea (Puzdrele) [2].

*Festuca amethystina* L.: Ref. Coldea (Puzdrele) [2].

*Festuca carpatica* F.Dietr.: Ref. Coldea (Puzdrele) [2]. Exs. Coman (Puzdrele) [3].

*Festuca picta* Kit.: Ref. Coldea (Puzdrele) [2].

*Festuca versicolor* Tausch: Ref. Coldea (Puzdrele) [2]. Exs. Czet & Wolff (as *Festuca alpina* Suter, CL07025, Gemenea)

*Nardus stricta* L.: Exs. Czet (CL 09344).

*Oreochloa disticha* (Wulfen) Link (!): Ref. Porcius (as *Sesleria disticha* (Wulfen) Pers., Gemenea) [13], Ötvös (Puzdrele) [11], Coldea (Puzdrele) [2]. Exs. Coman (as *Sesleria disticha* (Wulfen) Pers., Puzdrele) [3].

*Poa supina* Schrad.: Ref. Coldea (Puzdrele) [2].

*Poa alpina* L.: Exs. Coman (Puzdrele) [3].

*Poa rehmannii* (Asch. & Graebn.) Woll.: Ref. Coldea (Puzdrele) [2].

*Sesleria bielzii* Schur: Ref. Coldea (Puzdrele) [2]. Exs. A. Nyárády & E.I. Nyárády (CL202383, Puzdrele), Coman (Puzdrele) [3].

*Trisetum alpestre* (Host) P.Beauv.: Ref. Fuss (Gemenea) [7], Porcius (as *Avena alpestris* Host, Gemenea) [13], Ötvös (Puzdrele) [11], Coldea (Puzdrele) [2].

*Trisetum fuscum* (Kit. ex Schult.) Schult.: Ref. Coldea (Puzdrele) [2].

#### GUTTIFERAE

*Hypericum richeri* Vill. subsp. *grisebachii* (Boiss.) Nyman (!): Ref. Coldea (as *Hypericum grisebachii* Boiss., Puzdrele) [2]. Exs. Coman (as *Hypericum alpigenum* Kit., Puzdrele) [3].

#### JUNCACEAE

*Juncus castaneus* Sm.: Exs. Czetz (CL 08266 as *Juncus czetzii* Schur, Gemenea), Coman (Puzdrele) [3].

*Juncus trifidus* L. (!): Ref. Coldea (Puzdrele) [2].

*Juncus triglumis* L.: Exs. Coman (Puzdrele) [3].

*Luzula alpinopilosa* (Chaix) Breistr. (!): Ref. Coldea (Puzdrele) [2]. *Luzula spicata* (L.) DC.: Ref. Coldea (Puzdrele) [2]. Exs. Coman (Puzdrele) [3].

*Luzula sudetica* (Willd.) DC.: Exs. E.I. Nyárády (CL202163, Puzdrele).

#### LABIATAE (LAMIACEAE)

*Thymus pulcherrimus* Schur (!): Ref. Porcius (Gemenea) [13], Coldea (Puzdrele) [2].

#### LEGUMINOSAE (FABACEAE)

*Astragalus alpinus* L.: Ref. Fuss (as *Phaca alpina* L., Gemenea) [7], Porcius (as *Phaca alpina* L., Gemenea) [13].

*Hedysarum hedysaroides* (L.) Schinz & Thell.: Ref. Fuss (as *Hedysarum obscurum* L., Gemenea) [7].

*Trifolium badium* Schreb.: Ref. Ötvös (Puzdrele) [11]

#### LENTIBULARIACEAE

*Pinguicula alpina* L.: Ref. Baumgarten (Gemenea) [1], Fuss (Gemenea) [7], Coldea (Puzdrele) [2]. Exs. Coman (Puzdrele) [4].

#### LILIACEAE

*Allium victorialis* L.: Ref. Coman (Puzdrele) [5].

#### MENYANTHACEAE

*Menyanthes trifoliata* L.: Exs. Coman (Puzdrele) [4].

#### ONAGRACEAE

*Epilobium anagallidifolium* Lam.: Ref. Fuss (as *Epilobium alpinum* L., Gemenea) [7].

#### ORCHIDACEAE

*Dactylorhiza cordigera* (Fr.) Soó: Ref. Coman (as *Orchis cordigera* Fr., Puzdrele) [5].

*Pseudorchis albida* (L.) Á.Löve & D.Löve (!): Ref. Fuss (as *Leucorchis albida* (L.) E.Mey., Gemenea) [7]. Exs. Coman (as *Leucorchis albida* (L.) E.Mey., Puzdrele) [3].

#### PAPAVERACEAE

*Papaver corona-sancti-stephani* Zapal.: Ref. Porcius (as *Papaver alpinum* L., Gemenea) [13].

#### PINACEAE

*Pinus mugo* Turra: (!): Ref. Coldea (Puzdrele) [2]. Exs. Coman (Puzdrele) [3].

#### PLANTAGINACEAE

*Plantago gentianoides* Sibth. & Sm. (!): Ref. Baumgarten (as *Plantago uliginosa* Baumg., Gemenea) [1], Fuss (Gemenea) [7].

#### POLYGONACEAE

*Polygonum viviparum* L. (!): Ref. Coldea (Puzdrele) [2].

## PRIMULACEAE

? *Androsace septentrionalis* L.: Ref. Baumgarten (Gemenea) [1], Fuss (Gemenea) [7].

*Primula elatior* (L.) Hill subsp. *elatior*: Ref. Coldea (as *Primula carpathica* (Griseb. & Schenk) Fuss, Puzdrele) [2]. Exs. Coman (Puzdrele) [4].

*Primula halleri* J.F.Gmel.: Ref. Coldea (Puzdrele) [2].

*Primula minima* L. (!): Ref. Baumgarten (Gemenea) [1], Fuss (Gemenea) [7], Porcius (Gemenea) [13], Coldea (Puzdrele) [2]. Exs. A. Nyárády & E.I. Nyárády (CL202248, Puzdrele), Coman (Puzdrele) [4].

*Soldanella hungarica* Simonk. subsp. *major* (Neilr.) Pawłowska: Ref. Coldea (Puzdrele) [2]. Exs. A. Nyárády & E.I. Nyárády (as *Soldanella major* (Neilr.) Vierh., CL202378, Puzdrele).

## PYROLACEAE

*Moneses uniflora* (L.) A.Gray: Exs. Coman (as *Pyrola uniflora* L., Puzdrele) [4].

## RANUNCULACEAE

? *Anemone baldensis* L.: Ref. Baumgarten (Gemenea) [1], Fuss (Gemenea) [7], Porcius (Gemenea) [13], Coldea (Puzdrele) [2].

*Anemone narcissiflora* L. (!): Ref. Fuss (Gemenea) [7], Ötvös (Puzdrele) [11], Coldea (Puzdrele) [2]. Exs. A. Nyárády & E.I. Nyárády (CL201743, Puzdrele).

*Callianthemum coriandrifolium* Rchb.: Ref. Baumgarten (Gemenea) [1], Fuss (Gemenea) [7], Porcius (Gemenea) [13], Ötvös (Puzdrele) [11]. Exs. Czetz (CL 17464, CL 17465, Puzdrele), A. Nyárády & E.I. Nyárády (CL 201696, CL 201697, Puzdrele).

*Pulsatilla alba* Rchb.: Ref. Fuss (as *Anemone alpina* L., Gemenea) [7], Porcius (as *Anemone alpina* L., Gemenea) [13], Coldea (Puzdrele) [2]. Exs. E.I. Nyárády (CL202244, Puzdrele), Coman (Puzdrele) [3].

*Ranunculus crenatus* Waldst. & Kit. (!): Ref. Ötvös (Puzdrele) [11], Coldea (Puzdrele) [2]. Exs. A. Nyárády & E.I. Nyárády (CL202239, Puzdrele), Coman (Puzdrele) [3].

*Ranunculus thora* L.: Ref. Ötvös [11].

*Trollius europaeus* L. subsp. *transsilvanicus* (Schur) Domin (!): Ref. Coldea (as *Trollius europaeus* L., Puzdrele) [2].

## ROSACEAE

*Geum montanum* L. (!): Ref. Fuss (as *Sieversia montana* (L.) Spreng., Gemenea) [7], Ötvös (Puzdrele) [11], Coldea (Puzdrele) [2]. Exs. Coman (Puzdrele) [3].

*Potentilla aurea* L. subsp. *chrysocraspeda* (Lehm.) Nyman (!): Ref. Fuss (as *Potentilla chrysocraspeda* Lehm., Gemenea) [7], Ötvös (*Potentilla ternata* K.Koch, Puzdrele) [11], Coldea (as *Potentilla chrysocraspeda* Lehm., Puzdrele) [2].

*Potentilla thuringiaca* Bernh. ex Link: Ref. Coldea (Puzdrele) [2].

## RUBIACEAE

*Galium anisophyllum* Vill.: Ref. Coldea (Puzdrele) [2]. Exs. Coman (Puzdrele) [4].

## SALICACEAE

*Salix bicolor* Willd.: Exs. Porcius (CL50410, Gemenea).

*Salix kitaibeliana* Willd. (!): Ref. Coman (as *Salix retusa* L. var. *kitaibeliana*, Puzdrele) [5], Coldea (Puzdrele) [2]. Exs. E.I. Nyárády (*Salix retusa* L. var. *kitaibeliana*, CL202189, Puzdrele), Bartók (pers. herbarium, Puzdrele).

*Salix hastata* L.: Exs. A. Nyárády & E.I. Nyárády (CL202204, Puzdrele).

*Salix retusa* L.: Ref. Coldea (Puzdrele) [2].

*Salix silesiaca* Willd.: Ref. Coldea (Puzdrele) [2]. Exs. Coman (Puzdrele) [3].

#### SANTALACEAE

*Thesium alpinum* L.: Ref. Coldea (Puzdrele) [2]. Exs. Coman (Puzdrele) [3].

#### SAXIFRAGACEAE

*Chrysosplenium alpinum* Schur: Ref. Fuss (as *Chrysosplenium glaciale* Fuss, Gemenea) [7], Porcius (as *Chrysosplenium glaciale* Fuss, Gemenea) [13], Ötvös (Puzdrele) [11]. Exs. Coman (Puzdrele) [3].

*Saxifraga androsacea* L.: Ref. Ötvös (Puzdrele) [11]. Exs. Coman (Puzdrele) [3].

*Saxifraga bryoides* L.: Ref. Fuss (Gemenea) [7].

*Saxifraga carpatica* Sternb.: Ref. Fuss (Gemenea) [7], Porcius (Gemenea) [13], Coldea (Puzdrele) [2]. Exs. Czetz & Wolff (CL42630, Gemenea).

*Saxifraga cernua* L.: Ref. Baumgarten (Gemenea) [1], Fuss (Gemenea) [7], Porcius (Gemenea) [13].

*Saxifraga hieracifolia* Waldst. & Kit. ex Willd.: Ref. Fuss (Gemenea) [7], Porcius (Gemenea) [13], Coldea (Puzdrele) [2].

*Saxifraga paniculata* Mill.: Ref. Coldea (Puzdrele) [2].

*Saxifraga pedemontana* All. subsp. *cymosa* Engl. (!): Ref. Fuss (as *Saxifraga cymosa* auct., nom. invalid., Gemenea) [7], Ötvös (*Saxifraga cymosa* auct., nom. invalid., Puzdrele) [11], Coldea (Puzdrele) [2]. Exs. E.I. Nyárády (as *Saxifraga cymosa* auct., nom. invalid., CL202421, Puzdrele), Coman (Puzdrele) [3].

*Saxifraga retusa* Gouan: Ref. Porcius (as *Saxifraga baumgartenii* Schott, Gemenea) [13].

*Saxifraga oppositifolia* L.: Ref. Porcius (Gemenea) [13].

#### SCROPHULARIACEAE

*Pedicularis verticillata* L. (!): Ref. Coldea (Puzdrele) [2]. Exs. A. Nyárády & E.I. Nyárády (CL202096, Puzdrele).

*Tozzia alpine* L. subsp. *carpathica* (Woll.) Dostál: Ref. Fuss (as *Tozzia alpina* L., Gemenea) [7].

*Veronica alpina* L.: Ref. Fuss (Gemenea) [7], Porcius (Gemenea) [13].

*Veronica baumgartenii* Roem. & Schult. (!): Ref. Porcius (Gemenea) [13], Coldea (Puzdrele) [2]. Exs. Coman (Puzdrele) [4].

*Veronica bellidioides* L.: Ref. Baumgarten (Gemenea) [1].

#### UMBELLIFERAE (APIACEAE)

*Bupleurum longifolium* L.: Ref. Baumgarten (Gemenea) [1], Fuss (Gemenea) [7].

*Bupleurum ranunculoides* L.: Ref. Baumgarten (as *Bupleurum caricifolium* Willd., Gemenea) [1], Ötvös (Puzdrele) [11].

*Heracleum carpaticum* Porcius: Ref. Baumgarten (as *Heracleum alpinum* L., Gemenea) [1], Fuss (as *Heracleum alpinum* L., Gemenea) [7], Ötvös (Puzdrele) [11]. Exs. Coman (Puzdrele) [4].

*Heracleum sphondylium* L. subsp. *transsilvanicum* (Schur) Brummitt: Exs. Coman (as *Heracleum palmatum* Baumg., Puzdrele) [4].

*Ligusticum mutellina* (L.) Crantz: Ref. Baumgarten (as *Meum mutellina* Spreng., Gemenea) [1], Fuss (as *Meum mutellina* Spreng., Gemenea) [7].

#### VALERIANACEAE

*Valeriana sambucifolia* J.C.Mikan: Ref. Coldea (Puzdrele) [2],

# VIOLACEAE

*Viola alpine* Jacq.: Ref. Baumgarten (Gemenea) [1], Fuss (Gemenea) [7], Porcius (Gemenea) [13].

*Viola biflora* L.: Ref. Baumgarten (Gemenea) [1], Fuss (Gemenea) [7], Coldea (Puzdrele) [2]. Exs. Coman (Puzdrele) [3].

## 3. Threatened vascular plant species from the subalpine and alpine part of Puzdrele (Gemenea) peak

The list of threatened vascular plant species and the sozological status in accordance with IUCN guidance [20] are shown in Table 2. The evaluation of sozological status in the Rodna Mountains of certain vascular plants made by the authors of this paper is in accordance with field research (in the period 2003–2015) and with the IUCN guidance [20].

**Table 2: Threatened vascular plants species present on the subalpine and alpine part of Puzdrele (Gemenea) peak**

| Species name                                                    | Sozological status in Romania [6] | Sozological status in Rodna Mountains [20] |
|-----------------------------------------------------------------|-----------------------------------|--------------------------------------------|
| <i>Anemone baldensis</i> L. (still doubtful for Romanian flora) | Not included                      | ?EX or CR                                  |
| <i>Callianthemum coriandrifolium</i> Rchb.                      | Not included                      | CR                                         |
| <i>Campanula transsilvanica</i> Schur ex Andrae                 | Not included                      | CR                                         |
| <i>Doronicum stiriaceum</i> (Vill.) Dalla Torre                 | Not included                      | VU*                                        |
| <i>Gentiana lutea</i> L.                                        | Not included                      | CR                                         |
| <i>Heracleum carpaticum</i> Porcius                             | CR                                | VU                                         |
| <i>Juncus castaneus</i> Sm.                                     | LC                                | VU                                         |
| <i>Papaver corona-sancti-stephani</i> Zapal.                    | Not included                      | CR                                         |
| <i>Poa rehmannii</i> (Asch. & Graebn.) Woll.                    | VU                                | LC                                         |
| <i>Pulmonaria filarszkyana</i> Jáv.                             | Not included                      | VU                                         |
| <i>Ranunculus thora</i> L.                                      | VU                                | VU                                         |
| <i>Salix bicolor</i> Willd.                                     | CR                                | EN                                         |
| <i>Saxifraga cernua</i> L.                                      | Not included                      | DD                                         |
| <i>Saxifraga hieracifolia</i> Waldst. & Kit. ex Willd.          | Not included                      | EN                                         |
| <i>Silene nivalis</i> (Kit.) Rohrb.                             | VU                                | VU                                         |
| <i>Tozzia alpine</i> L. subsp. <i>carpathica</i> (Woll.) Dostál | Not included                      | EN                                         |

\*the status *Vulnerable* (VU) for *Doronicum stiriaceum* in Rodna Mts. was proposed as well by Pachschröll *et al.* [12].

The place where the threatened species occur is apparently protected (Rodna Mountains National Park) but in reality the area is very exposed to intensive grazing.

We therefore recommend the establishment of a special protected area for these threatened species.

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## REDESCOPERIREA DUPĂ UN SECOL A UNEI TOPONIMII IMPORTANTE ÎN EXPLORĂRILE BOTANICE DIN MUNȚII RODNEI: GEMENEA

### (Rezumat)

Vf. Puzdrele (Gemenea) este unul dintre cele mai atractive vârfuri din Munții Rodnei (din punct de vedere botanic) care a atras botaniștii secolului al XIX-lea. Din păcate la începutul secolului XX numele său inițial dispare de pe hărțile Munților Rodnei.

În articol se descrie redescoperirea toponimiei pierdute în timp (Gemenea), după mai bine de un secol.

Este prezentată flora subalpină și alpină din zona vârfului pe baza analizei literaturii botanice, a materialelor de herbar, precum și pe baza cercetărilor recente făcute de autori.

Vf. Puzdrele (Gemenea) este inclus în Parcul Național Munții Rodnei dar din păcate zona este pășunată, iar speciile din perimetrul acestuia sunt puternic afectate în urma acestei activități.

Autorii propun înființarea unei rezervații naturale (în cadrul Parcului Național Munții Rodnei) pentru protejarea speciilor periclitare din zona Vf. Puzdrele (Gemenea), a căror listă este inclusă în articol (Tabelul 2)

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