

SYNTAXONOMIC AND NOMENCLATURAL NOTES ON THE SCREE VEGETATION OF CAUCASUS

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Abstract

We present description of a new class for the high-altitude screes of the Caucasus (the *Lamio tomentos-Chaerophylletea humilis*) and two alliances such as the *Scrophulario minimae-Symphylomion graveolentis* (*Chaerophylletalia humilis*, *Lamio tomentos-Chaerophylletea humilis*) and the *Scrophulario variegatae-Epilobion dodonaei* (*Epilobietalia fleischeri*, *Thlaspietea rotundifolii*).

Key words: Georgia, alpine vegetation, Russian federation, riverine terraces, syntaxonomy.

Izveček

V članku predstavljamo opis novega razreda na visoko ležečih meliščih na Kavkazu (*Lamio tomentos-Lamietea tomentos*) in dveh zvez – *Scrophulario minimae-Symphylomion graveolentis* (*Chaerophylletalia humilis*, *Lamio tomentos-Chaerophylletea humilis*) in *Scrophulario variegatae-Epilobion dodonaei* (*Epilobietalia fleischeri*, *Thlaspietea rotundifolii*).

Ključne besede: Gruzija, alpinska vegetacija, Ruska federacija, rečne terase, sintaksonomija.

1. INTRODUCTION

The communities of the *Thlaspietea rotundifolii* (Braun-Blanquet 1948, Zollitsch 1966, Englisch et al. 1993, Valachovič et al. 1997 etc.) are a common appearance in scree habitats of temperate, boreal and subarctic zones of Europe, where they could be found in all vegetation altitudinal belts, from the planare and colline belts as high as the alpine and subnival belts. In the mediterranean-climate regions of the Iberian Peninsula they are replaced by the *Phagnalo-Rumicetea indurati* (Rivas Goday et Esteve 1972) Rivas-Martínez, Izco et Costa 1973 (e.g. Ortiz & Puglar 2000, Rivas-Martínez et al. 2011) and in the (sub)mediterranean regions of the Central and Eastern Mediterranean, they

give way to the *Drypidetea spinosi* which, in our syntaxonomic concept, also includes the *Scrophulario-Helichrysetea italici* S. Brullo et al. 1998 (Brullo et al. 1998) and the *Onosmo polyphyllae-Ptilostemonetea* Korzhenevsky 1990 (see Golub et al. 2011 for the latest syntaxonomic synthesis).

In Caucasus, Onipchenko (2002a: Table 3.1) described the *Chaerophylletalia humilis* and placed this order within the *Thlaspietea rotundifolii*, although on page 18 he also noted that practically all diagnostic species of the class are missing in the Caucasian communities. Onipchenko (l.c.) also suggested that there were some diagnostic species of the European alliances and orders and therefore he decided to classify his new order (*Chaerophylletalia humilis*) within the *Thlaspietea*

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rotundifolii. In fact only *Oxyria digyna*, *Cryptogramma crispa* and *Epilobium dodonaei* would qualify at the latter group. Interestingly, these species occur in the Caucasian scree communities at lower altitudes (perhaps (sub)montane to subalpine zone). The high altitudes (alpine to subnivale zones) of the Caucasus range are home to endemic-rich scree communities that appear to be floristically very different from the *Thlaspietea rotundifolii* of Europe (see also Nakhutsrishvili & Gagnidze 1999; Nakhutsrishvili 2003).

Belonovskaya (2012; based on earlier paper by Belonovskaya & Korotkov 2002) developed the Onipchenko's (2002) remark on the poor floristic relationship of the Caucasus scree communities and those of Europe further and introduced a new syntaxonomic concept – the *Veronico telephiifoliae-Lamietea tomentos*, including one new order (*Veronico telephiifoliae-Lamietalia tomentos*), with two new alliances (*Drabo scabrae-Eunomion rotundifoliae*, *Scrophulario minimae-Symphylomion graveolentis*). Belonovskaya's (2012) paper however have not engaged fully with the syntaxonomy proposed by Onipchenko (2002) and all the suggested new syntaxonomic units (class, order and the alliances) are rendered either invalid according to the International Code Phytosociological Nomenclature; Weber et al. 2000) or (in one case) should be considered synonymous with an earlier syntaxonomic concept of Onipchenko (2002).

The prime aim of this paper is to validate the syntaxon names (or introduce a new one) and contribute to clarification of the syntaxonomic relationship of the Onipchenko's syntaxa and those suggested by Belonovskaya (l.c.) in the light of the new syntaxonomic-nomenclatural synthesis undertaken within so called 'EuroVeg-Checklist' (Mucina et al. in prep.).

2. NOMENCLATURE OF THE NAME 'VERONICO TELEPHIIFOLIAE-LAMIEA TOMENTOSI'

We agree that the endemic-rich, high-altitude scree communities of the Caucasus should be considered as a syntaxonomic concept different from the *Thlaspietea rotundifolii*. However, name '*Veronico telephiifoliae-Lamietea tomentos*' (coined to accommodate these high-altitude Caucasian scree communities) has been invalidly (Art. 2b of the ICPN) published in Belonovskaya (2012:

967) because the name of the unique order – the '*Veronico telephiifoliae-Lamietalia tomentos*' – include in the original diagnosis of the new class, was invalidly published at the time of the publication of the class name.

Indeed, the original diagnosis of the *Veronico telephiifoliae-Lamietalia tomentos* contains two new alliances: the *Drabo scabrae-Eunomion rotundifoliae* and *Scrophulario minimae-Symphylomion graveolentis*. There are four new associations in the original diagnosis of the *Drabo scabrae-Eunomion rotundifoliae* and three new associations in the *Scrophulario minimae-Symphylomion graveolentis* (Belonovskaya 2012). All these seven associations are validly published because their original diagnosis contains only the type relevé (in Russian) presented in the Table 1 in Belonovskaya (2012) and each type relevé containing the name-giving taxa of respective association. On the other hand, both names of the new alliances are invalidly published because their type, indicated in the bottom of the Table 1 is given in Russian not matching the demand of the Art. 5 of the ICPN (Weber et al. 2000) that requires (*expressis verbis*) using the Latin terms *typus* or *holotypus*. Because of this technicality, the original diagnosis of the '*Veronico telephiifoliae-Lamietalia tomentos*' containing no validly published alliances, the name remains invalidly published (Arts. 2b and 8 of the ICPN).

Besides, even if the new alliance *Drabo scabrae-Eunomion rotundifoliae* (Belonovskaya 2012) was validly published, the latter alliance name would have become automatically a superfluous name for the validly published *Chaerophyllion humilis* Onipchenko 2002 which was listed by Belonovskaya (2012) in the synonymy of the *Drabo scabrae-Eunomion rotundifoliae* on p. 968. Similarly, if the new order *Veronico telephiifoliae-Lamietalia tomentos* were validly published, it would have been a homotypical synonym for the validly published *Chaerophylletalia humilis* Onipchenko 2002. It appears that syntaxonomically this order matches the Belonovskaya's '*Veronico telephiifoliae-Lamietalia tomentos*'. Onipchenko (2002a: 168) listed both name-giving taxa (*Lamium tomentosum* and *Veronica telephiifolia*; syn. *V. minuta* C.A. Meyer; see Fig. 1) in the diagnosis of *Chaerophylletalia humilis*.

In order to avoid confusion in future, we introduce a new name for the invalid syntaxonomic concept of the '*Veronico telephiifoliae-Lamietea tomentos*' and by recognising the role of *Chae-*

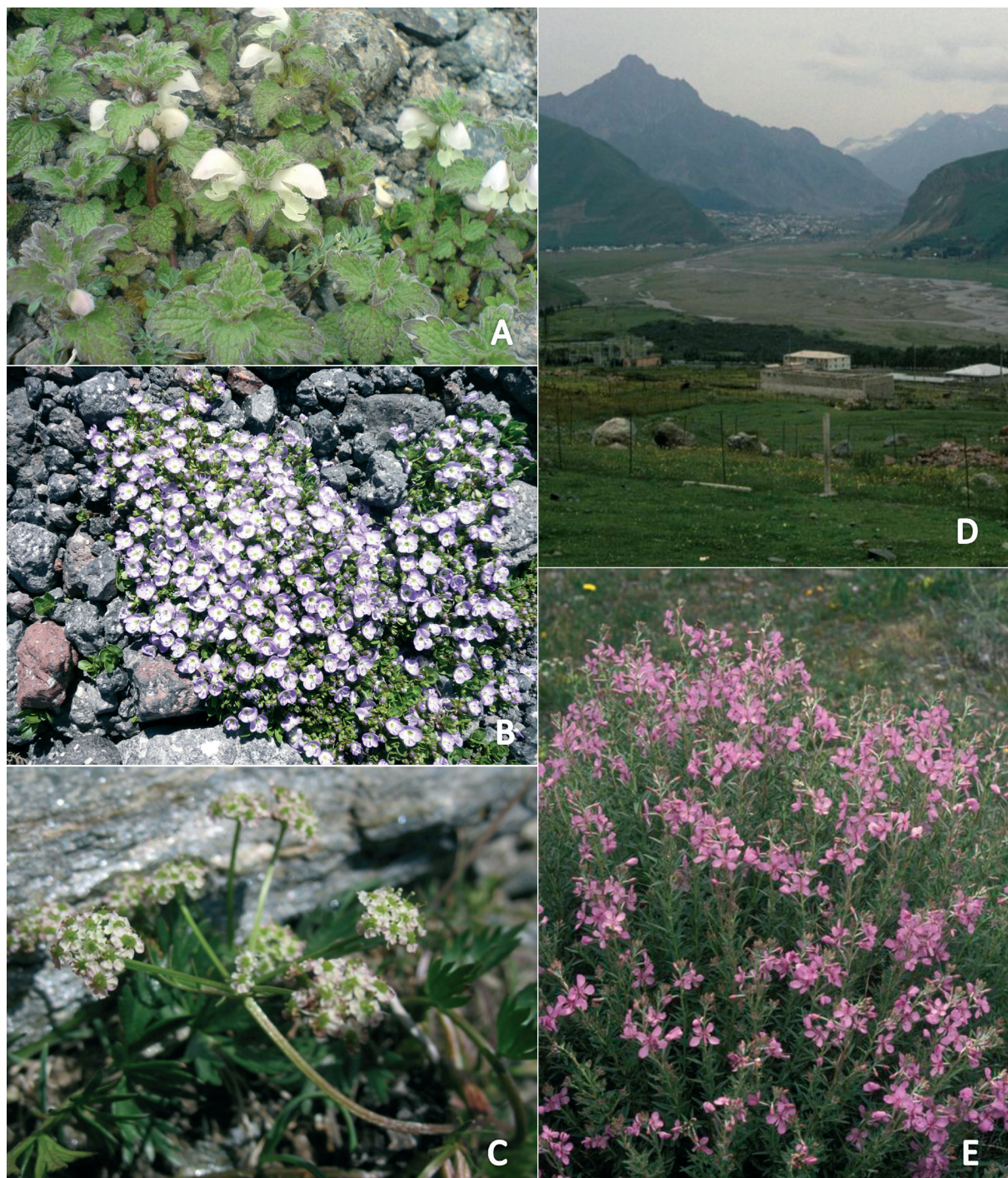


Figure 1: Selected character species of the *Lamio tomentosum-Chaerophylletea humilis*: A: *Lamium tomentosum*, B: *Veronica minuta*, C: *Chaerophyllum humile*. Broad valley of the Tergi (Terek) River near the town of Stepantsminda in Caucasus, Republic of Georgia with extensive terraces supporting communities of the *Murbeckiello huetii-Epilobion dodonaei* (D); *Epilobium dodonaei* photographed on the alluvial terraces of the Tergi (Terek) River, Georgia. Photo credits: A-C photos is Mikhail Dokukin (Nalchik, Kabardino-Balkaria, Russia), D-E: L. Mucina.

Slika 1: Izbrane značilnice razreda *Lamio tomentosum-Chaerophylletea humilis*: A: *Lamium tomentosum*, B: *Veronica minuta*, C: *Chaerophyllum humile*. Široka dolina reke Tergi (Terek) River v bližini mesta Stepantsminda na Kavkazu, Gruzija z ekstenzivnimi terasami, kjer se pojavljajo združbe zveze *Murbeckiello huetii-Epilobion dodonaei* (D); *Epilobium dodonaei* je fotografiran na aluvialni terasi reke Tergi (Terek), Gruzija. Foto: A-C Mikhail Dokukin (Nalchik, Kabardino-Balkaria, Russia), D-E: L. Mucina.

rophyllyllum humilis as one of the local dominating species, we coin the name and concept of the *Lamio tomentosi-Chaerophylletea humilis* (for the full protologue see below).

3. THE CASE OF *MURBECKIELLION HUETII* ONIPCHENKO 2002

The concept and name *Murbeckiellion huetii* was introduced for the first time by Onipchenko (2002a) who classified two associations within this alliance – the *Hyalopoo ponticae-Oxyrietum digynae* Onipchenko 2002 from siliceous, snow-rich alpine moraine habitats and the *Scrophulario variegatae-Epilobietum dodonaei* which was designated as the *typus* of the alliance. The latter association, however, was not validly described because the *typus* of the association has not been assigned. The designation of the *typus* of the *Scrophulario variegatae-Epilobietum dodonaei* was attempted by Onipchenko (2002b) who selected (relevé) ‘26/95, Table 3.3’ in Onipchenko (2002a) as the *typus*. This attempt was, however, invalid since there are two relevés designated as 26/95: 0 26/95 and 1 26/95 in Table 3.3. Because the choice of the *typus* was not unequivocal, this validation cannot be recognised, hence both the *Scrophulario variegatae-Epilobietum dodonaei* and the *Murbeckiellion huetii* remain invalidly described.

The *Murbeckiellion huetii* is a syntaxonomically heterogeneous concept. The *Hyalopoo ponticae-Oxyrietum digynae* Onipchenko 2002 is floristically (and ecologically) closer to the *Hyalopoo ponticae* Rabotnova et Onipchenko in Onipchenko 2002 than any taxonomic unit of the *Lamio tomentosi-Chaerophylletea humilis*. The *Scrophulario variegatae-Epilobietum dodonaei*, on the other hand should be classified with the *Epilobietalia fleischeri*; it is characteristic of gravel alluvial banks of mountain streams and *Epilobium dodonaei* plays a major role in these community (see Fig. 1A-E). It is therefore not our intention to validate the *Murbeckiellion huetii*, but rather coin a new name that would better represent the vegetation of gravel terraces of Caucasus – the *Murbeckiello huetii-Epilobion dodonaei* (for the protologue see below).

The low-altitude *Murbeckiello huetii-Epilobion dodonaei* is classified here into the *Epilobietalia fleischeri* Moor 1958 nom. cons. propos. (Raus et al. in prep.) of the *Thlaspietea rotundifolii*.

4. DESCRIPTION OF THE NEW SYNTAXA AND THE NEW SYNTAXONOMIC SCHEME FOR THE CAUCASIAN SCREE VEGETATION

***Lamio tomentosi-Chaerophylletea humilis* Belonovskaya, Mucina et Theurillat classis nova hoc loco**
Holotypus: *Chaerophylletalia humilis* Onipchenko 2002 (Onipchenko 2002a: 18, 21)

Synonym: *Veronico telephiiifoliae-Lamietea tomentosii* Belonovskaya 2012 (Arts. 2b & 8 of the ICPN)
Diagnostic taxa: *Cerastium multiflorum*, *Corydalis alpestris*, *Jacobaea erucifolia* subsp. *arenaria*, *Jurinea humilis*, *Lamium tomentosum*, *Veronica telephiiifolia*

***Chaerophylletalia humilis* Onipchenko 2002**
Synonym: *Veronico telephiiifoliae-Lamietalia tomentosii* Belonovskaya 2012 (Arts. 2b & 8 of the ICPN)

***Chaerophyllion humilis* Onipchenko 2002**
Synonym: *Drabo scabrae-Eunomion rotundifoliae* Belonovskaya 2012 (Arts. 5 & 8 of the ICPN)

Diagnostic taxa: *Cerastium alpinum*, *Chaerophyllum humile*, *Delphinium caucasicum*, *Draba scabra*, *Eunomia rotundifolia*, *Potentilla gelida*, *Saxifraga moschata*, *Tephrosieris integrifolia*, *Veronica minuta*

Veronico minutae-Chaerophylletum humilis Onipchenko 2002

Cruciato tauricae-Chaerophylletum humilis Belonovskaya 2012

Saxifrago sibirica-Alopecuretum sericei Belonovskaya 2012

Myosotido alpestris-Potentilletum gelidae Belonovskaya 2012

***Scrophulario minimae-Symphylomion graveolentis* Belonovskaya, Mucina et Theurillat all. nova hoc loco**

Holotypus: *Cruciato tauricae-Pseudovesicarietum digitatae* Belonovskaya 2012

Diagnostic taxa: *Cruciata taurica*, *Scrophularia minima*, *Symphyloma graveolens*

Cruciato tauricae-Pseudovesicarietum digitatae Belonovskaya 2012

Ranunculetum arachnoidei Belonovskaya 2012

Anthemidetum creticae Belonovskaya 2012

Cerastietum alpini Belonovskaya 2012

Thlaspietea rotundifolii Br.-Bl. 1948

Epilobietalia fleischeri Moor 1958 *nom. cons. propos.*

Murbeckiello huetii-Epilobion dodonaei Belonovskaya, Mucina et Theurillat *all. nova hoc loco*

Holotypus: *Scrophulario variegatae-Epilobietum dodonaei* Onipchenko ex Belonovskaya, Mucina et Theurillat *ass. nova hoc loco*; Holotypus: Onipchenko 2002a: Table 3.3, relevé 1 10 94

Synonym: *Murbeckiellion huetii* Onipchenko 2002 *nom. inval.* (Arts. 5 & 8 of the ICPN)

Diagnostic species: *Epilobium dodonaei*, *Murbeckiella huetii*

5. ACKNOWLEDGEMENTS

We thank Thomas Raus (Berlin, Germany) for checking the nomenclature and taxonomy of the diagnostic species mentioned in our paper. Marie Lochman (Perth, Australia) kindly scanned slides and Mikhail Dokukin (Nalchik, Russia) for the photos used in Figure 1. Zaza Kikvidze identified the locality in the Tergi River valley. LM thanks Gia Nakhutrishvili (Tbilisi, Georgia) and Georg Grabherr (Vienna, Austria) for making the visit to Caucasus in 1990 possible.

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Received 2.12.2013

Revision received: 6.2.2014

Accepted 6.2.2014