

BRYHNIA NOVAE-ANGLIAE (BRACHYTHECIACEAE, MUSCI)
IN EUROPEAN RUSSIA

BRYHNIA NOVAE-ANGLIAE (BRACHYTHECIACEAE, MUSCI)
В ЕВРОПЕЙСКОЙ РОССИИ

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Abstract

Bryhnia novae-angliae was found recently in collections from Kostroma Province in central European Russia, 58° 14'N – 44°25' E. The only other collection from European Russia was made by Broterus in Arkhangelsk in 1872, but that specimen was erroneously identified as *Myuroclada maximowiczii*. Thus, the latter species is excluded from the bryoflora of Europe.

Резюме

Bryhnia novae-angliae найдена в новых сборах из Костромской области, 58° 14'N – 44°25' E. В европейской части России этот вид известен еще только по одной находке Бротеруса в Архангельске, в 1872 г., по образцу, который был неверно определен как *Myuroclada maximowiczii*. Последний вид, таким образом, должен быть исключен из бриофлоры Европы.

Bryhnia novae-angliae is a very common species in eastern Asia and southeastern North America. It is especially abundant in Japan, many provinces of China, Korea, Taiwan, and the Russian Far East, while it is rarer in the Mongolian Republic, and southern and western Siberia (Noguchi, 1991; Redfearn & al., 1996; Bardunov & Cherdantseva, 1982; Ignatov, 1998). Similarly, in North America, it is common throughout the Atlantic States of U. S. A., becoming less so westward, extending as far as Ontario, Wisconsin, Missouri, and Arkansas (Crum & Anderson, 1981). *Bryhnia novae-angliae* also is known from northwestern Europe, at a very few localities in Norway and southwestern Sweden (Nyholm, 1965; Soderstroem, 1996), and from northwestern North America, in southwestern Alaska, probably penetrating there through the Aleutian Islands/Bering Land Bridge from the Russian Far East. There are a number of species with a similar distribution: common on the eastern sides of both continents, but restricted on the western sides of both or occurring in the west

only on one. Examples include *Pylaisiella selwynii* (Kindb.) Crum & al., *Entodon challengerii* (Par.) Card., *Loeskeobryum brevirostre* (Brid.) Fleisch., and *Fabronia ciliaris* (Brid.) Brid.

Bryhnia novae-angliae is one of the most polymorphous species in the family Brachytheciaceae. The diversity in leaf shape led Takaki (1956) to split the eastern Asian population into ca. 10 species. Later, however, the great variation characteristic of *B. novae-angliae* was recognized and most of these species have been placed into synonymy with *B. novae-angliae* (Iwatsuki & Noguchi, 1973; Noguchi, 1991). Leaf shape varies markedly from southern to northern populations. Most collections from eastern North America, Japan, and China have acute to acuminate leaves with quite numerous cells projecting on the abaxial surface of branch leaves (Ignatov & all., in prep.). Siberian and Scandianvian population often have in proximal parts of shoots many strongly concave, obtuse leaves. On the other hand, projecting cells are more rare to nearly lacking. However, a careful comparison of

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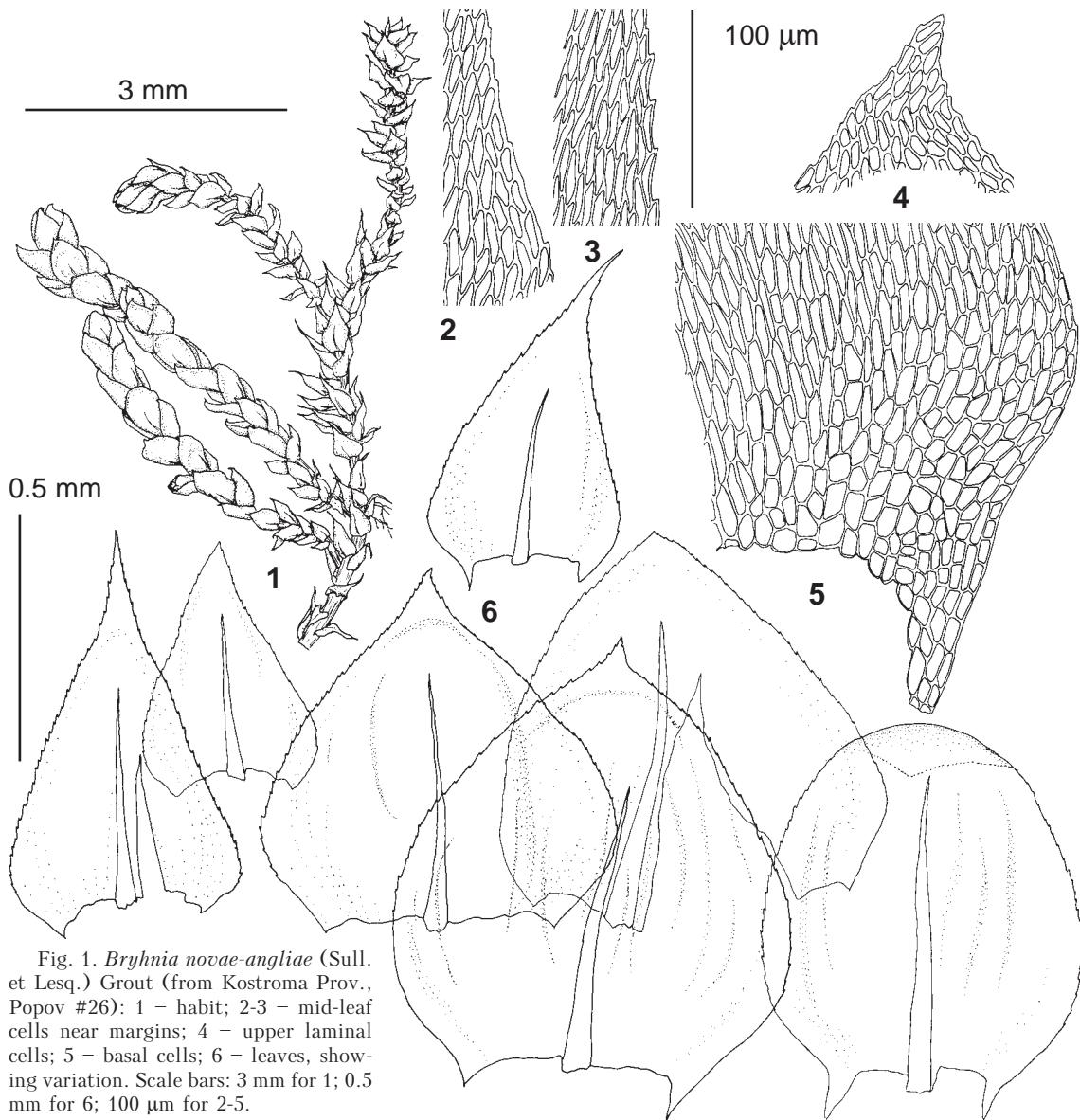


Fig. 1. *Bryhnia novae-angliae* (Sull. et Lesq.) Grout (from Kostroma Prov., Popov #26): 1 – habit; 2-3 – mid-leaf cells near margins; 4 – upper laminal cells; 5 – basal cells; 6 – leaves, showing variation. Scale bars: 3 mm for 1; 0.5 mm for 6; 100 µm for 2-5.

an extensive series of transitional forms makes it possible to attribute these plants to a single species, *B. novae-angliae* (Grout, 1898; Ignatov, 1998). Plants of the latter phenotype (Fig. 1) were found in 1999 in Kostroma Province of Russia (Popov, #13 & #26, 11.V.1999, MHA).

These plants with suborbicular leaves nearly to the tips of many shoots compelled us to make comparison with the closely related genus, *Myuroclada*. The latter is comprised of a single species, *M. maximowiczii*, which is widely distributed in eastern Asia, relatively common in southern Siberia and known from a few localities in northern Siberia and north-

western North America. It was only once reported from the northern European Russia, from a collection made by Brotherus near Archangelsk. However, careful study of this specimen revealed that it is also represents *B. novae-angliae*. Though most leaves are broadly rounded and concave, several shoots have acute and almost plane leaves, which ensure that this is not *Myuroclada* (Fig. 2). Sparse shoots of *Myuroclada* have smaller and longer leaves, but they remain invariably strongly concave, more closely imbricate, and somewhat piliferous, with the acumen often reflexed (Fig. 3). In other words, they approach *Cirriphyllum*, not *Eu-*

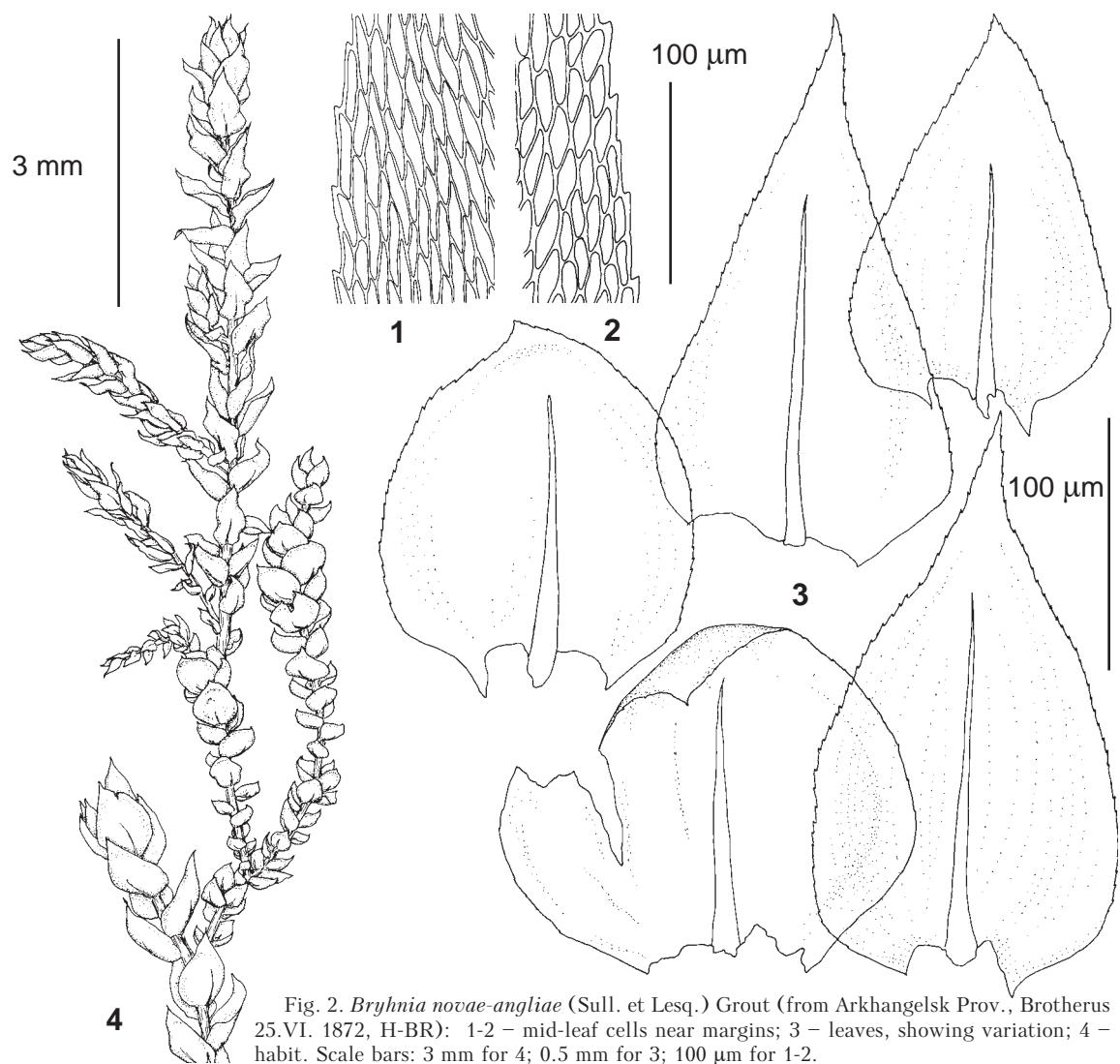


Fig. 2. *Bryhnia novae-angliae* (Sull. et Lesq.) Grout (from Arkhangelsk Prov., Brotherus 25.VI. 1872, H-BR): 1-2 – mid-leaf cells near margins; 3 – leaves, showing variation; 4 – habit. Scale bars: 3 mm for 4; 0.5 mm for 3; 100 µm for 1-2.

rhynchium, as *Bryhnia* does. The text of the label reflects Lindberg's conflicting ideas on this curious specimen he identified as follow: "Eu-*rhynchium*! [in pensil = *Myuroclada concinna* ster. = *M. maximowiczii*!] H{ypnum}, archangelicum Lindb. n. sp., Rossia, loco umbroso silvo ad ripam argill. fl. Dvina, pr. opp. Archagel, socio Timmia megapol., 25 Junii 1872, V. F. Brotherer" [handwriting of S. O. Lindberg] (H-BR 2869013). It is not especially surprising, that Lindberg did not compare it with *Bryhnia*. It was not until some years later that the latter genus was discovered in Europe, in Norway (Kaurin, 1892). Furthermore, North American and Asian plants of *Bryhnia* that Lindberg might have seen, are quite different from the northern phenotype described above.

Among the species in the European Russian flora, *B. novae-angliae* might most readily be confused (in the field) with *Brachythecium rivulare* B. S. G. As with *B. novae-angliae*, the latter species also occasionally has broadly rounded leaves on proximal shoots, and is somewhat similar in habit. However, *B. rivulare* sharply differs from *Bryhnia*, since the former has short laminal cells and the costa abruptly ends in a stout tooth.

The typical habitat of *Bryhnia* is wet or damp soil of floodplains, and the margins of temporary brooks and streams. In Kostroma Province *B. novae-angliae* was found in Manturovo Distr., at the Kostroma taiga Station of Russian Academy of Science ($58^{\circ} 14'N - 44^{\circ} 25'E$). The vegetation of this area belongs to the Southern Taiga type. *Bryhnia* grows on the steep slope to the Unzha

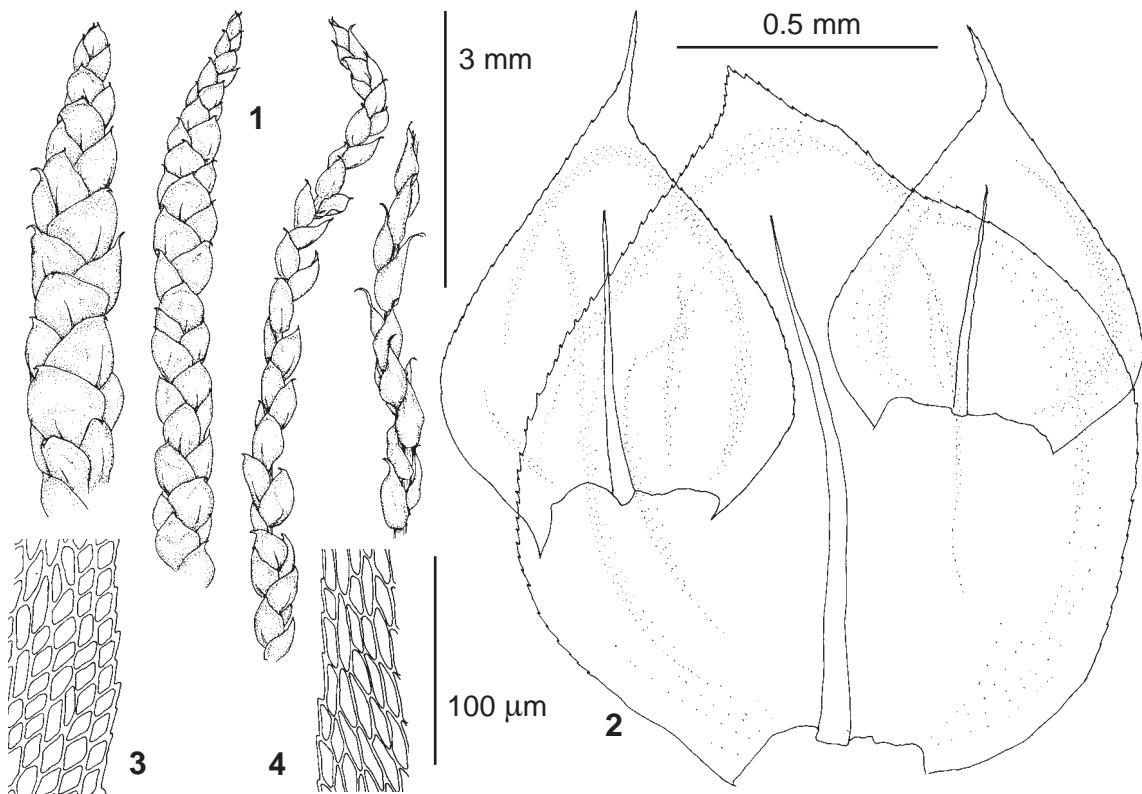


Fig. 3. *Myuroclada maximowiczii* (Borszcz.) Steere et Schof. (Tomsk Prov., P. Krylov 2.VIII.1903, H-BR): 1 – shoots, showing variation; 2 – leaves; 3-4 – mid-leaf cells near margins. Scale bars: 3 mm for 1; 0.5 mm for 2; 100 μ m for 3-4.

River (between Nikitino and Khalbuzh), in *Alnus incana*–*Ulmus glabra*–*U. laevis* forest, with occasional occurrence of *Picea*, *Abies*, *Quercus*, *Acer*, and *Populus tremula*. Herbaceous plants include *Urtica dioica*, *Chaerophyllum aromaticum*, *Campanula latifolia*, and *Angelica sylvestris*. The soils are glacial till and Yura clays, and rather calcareous. *Bryhnia* was collected in two places: (1) on rotten log in a ravine with a 30° incline; and (2) at the base of a slope on the edge of a forest

and willow thicket (*Salix triandra*, *S. dasyclados*) among hygrophilous herbs (*Lysimachia nummularia*, *Phalaroides arundinacea*, *Mentha arvensis*, *Stachys palustris*, etc.), on clayey, damp soil.

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