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SPHAGNUM ALASKENSE (SPHAGNACEAE, BRYOPHYTA), A NEW SPECIES FOR RUSSIA

SPHAGNUM ALASKENSE (SPHAGNACEAE, BRYOPHYTA) – НОВЫЙ ВИД ДЛЯ РОССИИ

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Abstract

Sphagnum alaskense, a species described recently from the Alaska, is revealed in Russia, in East Yakutia, Chukotka, Magadan Province, Sakhalin and Kuril Islands. Description and illustrations of plants from Asia are provided, and its distribution in Russia is mapped.

Резюме

По результатам ревизии гербарных материалов сфагновых мхов секции *Sphagnum* впервые для России указывается *Sphagnum alaskense,* недавно описанный с Аляски. Приводится описание, рисунок вида и карта распространения на территории России.

KEYWORDS: mosses, *Sphagnum*, taxonomy, new records, Russia

In the course of a revision of the material of *Sphagnum* sect. *Sphagnum* (LE, MHA, MW, SASY) from the Chukotka, Kamchatka and Russian Far East we found a number of pale pinkish specimens previously referred to *Sphagnum magellanicum* Brid. Afonina (2004) reported this species to be common in Chukotka, which disagree with other authors (Savicz-Lyubitskaya, 1952; Katz, 1971; Yurkovskaya, 1980, 1992), who characterized this species as a relatively southern, and absent in high Arctic. According to Katz (1971), *S. magellanicum* is common in East Siberia and Russian Far East only in Amur River basin and in the southern part of Sakhalin, being substituted in more northern areas by *S. fuscum* (Schimp.) Klinggr. and *S. lenense* H. Lindb. ex Pohle.

The reexamination of '*S. magellanicum'* from NE Asia revealed that it belongs to *S. alaskense* R.E. Andrus & Janssens recently described from Alaska (Andrus & Janssens, 2003), while no *S. magellanicum* collection have been found in Chukotka and NE Yakutia up to now.

Below is the description of this species based on collections from Russia.

Sphagnum alaskense R.E. Andrus & Janssens, *Bryologist* 106: 435. f. 1, 3. 2003. Fig. 1.

Plants medium-sized to large, in loose or compact tufts, capitulum distinct, large, flattened at the top, pinkish brown or red-brown. Stem brown, hyalodermis 2-3(4)-layered, cells of outer layer usually with 2-4 pores per cell, without fibrills or with very thin fibrills. Stem leaves lingulate to spatulate, 1.0-1.3(-1.7)×0.7-0.8(-1.0) mm; hyaline cells nonseptate or rarely septate. Branches short, erect (in plants from the Arctic) or long and tapering (in plants from Kunashir Island). Branch fascicles with 2 spreading and 2 pendent branches. Branch leaves broadly ovate, 2.0-2.5(-3.0)×1.3–1.7(2.0) mm; hyaline cells on convex

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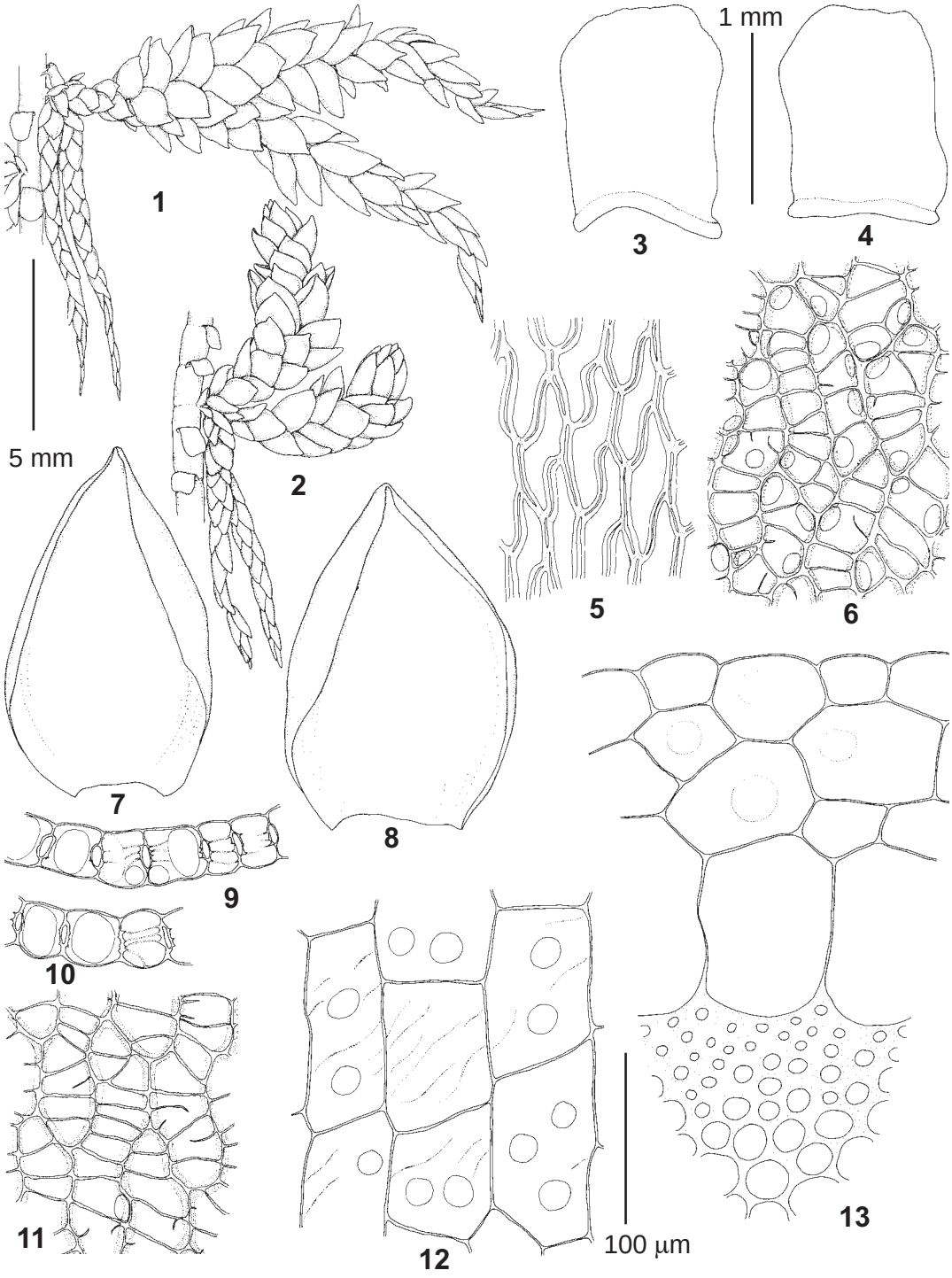

Fig. 1. *Sphagnum alaskense* R.E. Andrus & Janssens. 1 – branch fascicle and part of stem (plant from Kunashir Island); 2 – branch fascicle and part of stem (plant from the Arctic); 3-4 – stem leaves; 4 – upper cells of stem leaf, convex surface; 5 – median cells of branch leaf, convex surface; 7-8 – branch leaves; 9-10 – branch leaf transverse sections; 11 – median cells of branch leaf, concave surface; 12 – outer cells of hyalodermis; 13 –stem transverse section. Scale bars: 5 mm for 1-2; 1 mm for 3-4, 7-8; 100 mm for 5-6, 9-13.

surface in upper part of leaf with elliptic pores along the commissures, on concave surface at midleaf without pores, near leaf margins with large rounded pores not on commissures. Chlorophyllous cells elliptical and enclosed on both surfaces in transverse section, without thickened end walls; hyalyne cells at places overlaying chlorophyllose cells often with few comb-fibrils which are seen only in transverse section (Fig. 1.9,10). Dioicous. Sporophytes unknown.

Differentiation. Habitually *Spagnum alaskense* is most similar to *S. magellanicum* and *S. centrale*. Chlorophyllous cells in leaf transverse section of *S. alaskense* resemble those of *S. centrale*, but differ in non-thickened cell ends. Distribution areas of *S. alaskense* and *S.centrale* do not overlap, the latter species is restricted to the boreal zone. *Sphagnum alaskense* grows mainly in open oligotrophic habitats near sea shores. *Sphagnum magellanicum* differs from *S. alaskense* in purplish colour of the plants and medium- sized rounded capitulum, while plants of *S. alaskense* are usually pale pinkish, with large flattened capitulum; in addition, chlorophyllous cells in leaf transverse section are slightly longer in *S. alaskense*. Also comb-fibrills seen in leaf transverse section (especially near junction of two chlorophyllous cells) differentiate *S. alaskense* from both *S. magellanicum* and *S. centrale*.

Presence of comb-fibrils makes possible confusion of *S. alaskense* with species of *S. imbricatum*-complex*: S. affine, S. austinii, S.steerei* and *S. imbricatum* s.str. (Flatberg, 1984; Andrus, 1987; Maksimov, 2007). However, all species of *S. imbricatum*-complex have triangular clorophyllous cells in leaf tfansverse section while they are elliptical in *S. alaskense*.

Ecology. Tundras: hummocky sedge-*Sphagnum*, herb-sedge-mossy, sedge-cotton-grass-*Sphagnum*, shrublet-sedge-mossy; bogs: low hummocky, sedge-*Sphagnum*, cotton-grass-sedge-*Sphagnum* (in hollow); hummocky willow stand at lake shore; boggy forest.

Distribution. According to Andrus & Janssens (2003), *S. alaskense* occur in the western North America (Alaska, British Columbia, Washington).

In Russia *S. alaskense* was found in northern and southern Far East, from the arctic regions of Chukotka to the southern Kuril Islands and westward to Indigirka River in Yakutia (Fig. 2).

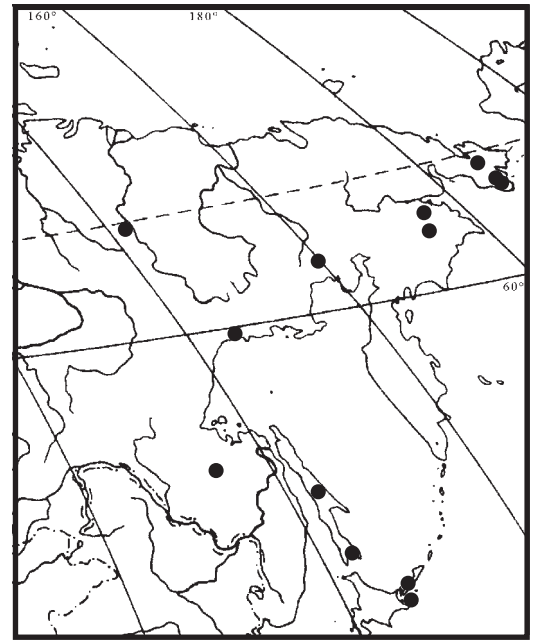

Fig. 2. Distribution of *Sphagnum alaskense* R.E. Andrus & Janssens in Russia.

Specimens examined: RUSSIA: EASTERN SIBERIA: **Republic Saha/YakutiaЯкутия**: Indigirka River basin, Silennyakh Creek valley near Ojyun-Koel (69° 08' N), 30.VIII.1935, *Sheludyakova s.n.*, as *S. centrale* (LE). NORTHERN FAR EAST. **Chukotka:** hot springs at Gilmimliveem Creek (15 km E of Ioni Lake), 26.VII.1977, *Afonina s.n.* (LE); central part of Anadyr River basin, 40 km S of Snezhny settlement, 17.VII. 1945, *Avramchik #60* (LE); Anadyrsky Distr., Kanchalan River basin, 27.VII. 1978, *Afonina s.n.* (LE); Provideniya Bay, Emma Bight, Ureliki setllement surroundings, 04.VII.1969, *Afonina s. n.* (LE, PTZ); Iultinsky Distr., Kresta Bay, 3 km S from Olovyannaya airport, low sea terrace, 26.VII.1951, *Golendukhina #125* (LE, MW); same place, 25 km S from airport, low sea terrace, 26.VII.1951, *Reutt s.n.* (MW);Severo-Evenkijsky Distr., Okhotskoe Sea shore, Vilinga River mouth, 11.IX.1938, *Medvedev s.n.* (LE); Ioni Lake surroundings, Ioniveem Risver, Ioni Mt., 10.VII.1977, *Afonina s.n.* (LE); **Magadan Province:** Ten'kinsky Distr., 20 km SE of Ust-Omchuga, 21.VII.1972, *Blagodatskikh s.n.* (LE). **Khabarovsk Territory:** Okhotsky Distr.: 3 km N of Okhotsk settlement, sea terrace, 31.VIII.1972, *Blagodatskikh s.n.* (LE, PTZ); 3 km N of Okhotsk settlement, hills near sear shore, 28.VIII.1972, *Blagodatskikh s.n.* (LE, PTZ); Verkhnebureinsky Distr., Dusse-Alin Range, Bureinsky Nature Reserve, Watershed of Bureya and Amgun Rivers, 6.VIII.1989,

Khasanov s.n. (MW); Chumikansky Distr., Takatynskaya mar', 2.VIII.1961, *Khokhlova s.n.* (MW). **Sakhalinskaya Province:** Sakhlin, Nabilsky Range, 500 m alt., *Ignatov #06-648* (MHA); Mereya River, 20 m alt., *Ignatov #06-708* (MHA); Kuril Islands, Kunashir Island: near Saratovka Creek mouth, *Ignatov #06-1372, 06-1398* (MHA); Kuril Islands, Shikotan, Malokurilsk, 216 m alt., *Bakalin K-64-3-07* (VLA, MHA).

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LITERATURE CITED

[AFONINA, O.M.] АФОНИНА О. М. 2004. Конспект флоры мхов Чукотки. – [Conspectus of the Moss Flora of Chukotka] *С.-Петербург [St.-Petersburg]: 260 pp*.

ANDRUS R. E. 1987. Nomenclatural changes in *Sphagnum imbricatum* sensu lato. – *Bryologist* **90**: *217-220*.

ANDRUS R. E., JANSSENS J. A. 2003. *Sphagnum alaskense*, a new species from western North America. – *Bryologist* **106**: *435-438*.

[IVANOVA, E.I., E.A. IGNATOVA, M.S. IGNATOV, V.I. ZOLOTOV, K.K. KRIVOSHPKIN] ИВАНОВА Е.И., Е.А. ИГНАТОВА, М.С. ИГНАТОВ, В.И. ЗОЛОТОВ, К.К. КРИВОШАПКИН 2005. Листостебельные мхи. – [Mosses] В кн.: Разнообразие растительного мира Якутии (ред. Н.С. Данилова) *Новосибирск, СО РАН [In: Danilova, N.S. (ed.), Raznoobrazie rastitel'nogo mira Yakutii, Novosibirsk, Sib. Otd. RAS]: 105-125.*

FLATBERG K. I. 1984. A taxonomic revision of the *Sphagnum imbricatum* complex – *K. Norske Vidensk. Selsk. Skr*. **3**: *1-80.*

[KATZ, N.YA.] КАЦ Н.Я. 1971. Болота земного шара. – [Bogs of the World]. *M. [Moscow]: 295 pp*.

MAKSIMOV, A.I. 2007. Sphagnum imbricatum complex (Sphagnaceae, Bryophyta) in Russia. – *Arctoa* **16**: *25-34*.

[SAVICZ-LYUBITSKAYA, L.I.] САВИЧ-ЛЮБИЦКАЯ Л. И. 1952. Сфагновые (торфяные) мхи. – [Sphagnum (peat) mosses] *В кн.: Флора споровых растений СССР. Т. 1. Листостебнльные мхи (ред. Савич, В.П.) М.- Л., АН СССР [In: Savicz, V.P. (ed.) Flora sporovykh rastenii SSSR] Vol. 1: 254 pp.*

[YURKOVSKAYA, T.K.] ЮРКОВСКАЯ Т.К. 1980. Болота. – [Mires] *Растительность Европейской части СССР [Rastitel'nost' Evropeiskoi chasti SSSR] Л., Наука [Lenigrag, Nauka]:300-345.*

[YURKOVSKAYA, T.K.] ЮРКОВСКАЯ Т.К. 1992. География и картография растительности болот Европейской России и сопредельных территорий. – [Geography and mapping of mire vegetation of the European Part of Russia and surrounding territory] *St. Petersburg: 256 pp*.