

LIVERWORTS OF THE SETTE-DABAN RANGE (EASTERN YAKUTIA)

ПЕЧЕНОЧНИКИ ХРЕБТА СЕТТЕ-ДАБАН (ВОСТОЧНАЯ ЯКУТИЯ)

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Abstract

Annotated list of liverworts of the Sette-Daban Range is presented. It includes 47 species, 45 of them are recorded for the Sette-Daban Range for the first time. Data on habitat, substrates and reproduction are provided. A number of rare and interesting species of the area is revealed: *Fossombronia alaskana*, *Lophozia perssonii*, *Mannia pilosa*, *M. sibirica*.

Резюме

Приводится список печеночников хребта Сетте-Дабан, включающий 47 видов, из них 45 видов приводится впервые для флоры печеночников хребта. В списке для каждого вида указаны местообитания, субстрат и наличие органов размножения. Выявлен ряд редких и интересных видов: *Fossombronia alaskana*, *Lophozia perssonii*, *Mannia pilosa*, *M. sibirica*.

KEYWORDS: Eastern Yakutia, ecology, flora, Hepatics, Sette-Daban Range

INTRODUCTION

The paper presents the results of the hepatics studies in the Sette-Daban Range, where this group has never been examined before. Only 2 species were reported previously from this area: *Lophozia perssonii* (Sofronova, 2001, 2005) and *Fossombronia alaskana* (Sofronova, 2010). The first author collected hepatics in localities #4, 5 and 6 (Fig. 1) in 2000, and also checked hepatics from moss samples collected by E.I. Ivanova and K.K. Krivoshapkin in localities #1 and #3 (cf. Fig. 1) in 1999. Afterwards both authors collected liverworts in the Neprokhodimiy Stream valley (#2 in Fig. 1) in 2001. In total, over 300 samples were obtained and identified.

The Sette-Daban Range is located in the southern part of the Verkhojansk Mountain System in Yakutia. The range is mostly a highland in its northern part with elevation from 400 to 2100 m, decreasing towards the south to gently sloping hills with elevation from 600 to 900 m. The Range is composed mostly of Paleozoic

carbonate rocks: sandy limestones, dolomites, rarely of sand-shale rocks (Middle Carboniferous – Upper Jurassic).

CLIMATE AND VEGETATION

The climate of the Sette-Daban is moderate-continental, average temperatures of January and July are –40–44°C and +10–14°C correspondingly, average annual precipitation is 400–700 mm (Atlas..., 1989). Permafrost is developed under all the types of vegetation and soils, except for soil under rivers.

The studied area belongs to the subzone of the northern boreal forest region. *Larix cajanderi* Mayr forests are most widespread, and at places *Picea obovata* Ledeb. occurs, being more strictly confined to river valleys. Rather limited areas are covered by *Betula lanata* (Regel) V.N. Vassil. stands. Shrub communities of *Salix* spp., *Duschekia fruticosa* (Rupr.) Pouzar, *Betula exilis* Sukacz. and *Vaccinium uliginosum* L. are widespread.

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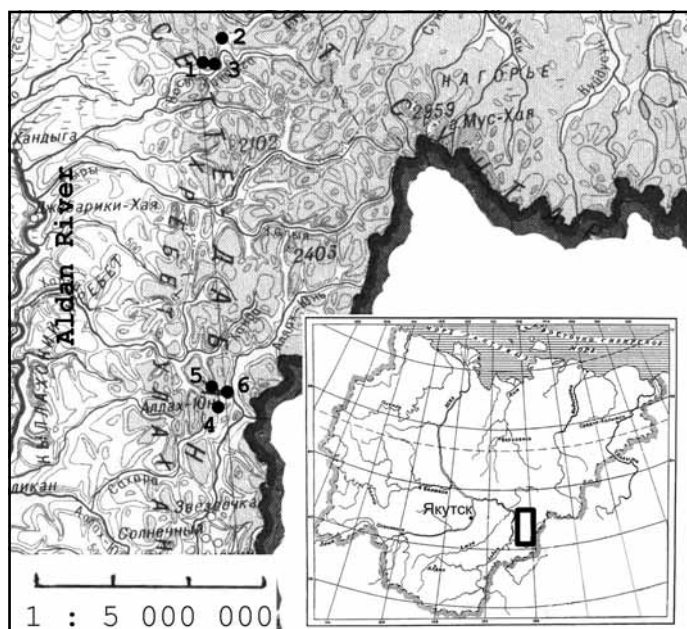


Fig. 1. Collecting localities of liverworts in the Sette-Daban Range
1 – vicinity of Rossomakha Settlement, 63°02'N, 137°58'E.

2 – the upper reaches of the Ne-prokhodimyi Stream, 63°15'N, 138°10'E.

3 – Siegeliekh River valley, 63°01'N, 138°01'E.

4 – Selyakh Creek, 61°06'N, 137°58'E.

5 – Khotun-Yuryakh Creek, 61°07'N 138°00'E.

6 – vicinity of Allakh-Yun settlement, 61°08'N, 138°03'E.

Forest reaches 1200 m elev., replaced above by *Pinus pumila* (Pall.) Regel thickets, which form usually a rather narrow strip, and further upward the mountain tundra occurs, composed by communities of shrublets and mosses.

ANNOTATED LIST OF SPECIES

Species are annotated with location sites (according to Fig. 1); substrates, habitats and altitude. Then, the information on the presence of reproductive structures is provided, using the following abbreviations: gem. – gemmae, per. – perianthia, pseudoperianthia or other protective structures, and. – androecia, spor. – sporophytes. For species recorded in the study area once or twice, the associated species are given as well as the date of collection. Specimens are deposited in SASY, some species rare in Russia were transferred to LE. Species names are given according to Potemkin & Sofronova (2009).

Aneura pinguis (L.) Dumort. – 1, 2, 4, 6. On soil, rocks covered with soil: *Picea* forest, willow shrubberies, tundras, rock outcrops and road tracks in forest belt. 400–1400 m. Per.

Asterella gracilis (F. Weber) Underw. – 4. On rocks covered with soil: rock outcrops. 700 m. 30.VIII.2000. Spor.

Barbilophozia barbata (Schmidel ex Schreb.) Loeske – 3. At trunk bases of *Betula lanata*: *Betula lanata* forest. 900 m. 21.VI.1999.

Blasia pusilla L. – 1, 3, 4, 6. On soil: *Betula lanata* and *Picea* forests, *Betula exilis* and willow shrubberies, track of roads and stream banks. 400–900 m. Gem.

Blepharostoma trichophyllum (L.) Dumort. – 1–6. On soil, decaying wood, rocks covered with soil, *Sphagnum*: larch, *Betula lanata* and *Picea* forests, willow and *Duscheckia fruticosa* shrubberies in forest belt, tundras, stream banks, fell-fields, rock outcrops. 400–1500 m. Per.

Calypogeia muelleriana (Schiffn.) Müll. Frib. – 3, 5. On *Sphagnum* and soil: larch forests, stream banks. 700–900 m.

Cephalozia pleniceps (Austin) Lindb. – 2, 4, 5. On soil, decaying wood and *Sphagnum*: larch forests, tundras, *Vaccinium uliginosum* community, stream banks. 650–1400 m. Per.

Cephaloziella divaricata (Sm.) Schiffn. – 6. On soil: track of road. 600 m. 23.VIII.2000. Per.

Crossocalyx hellerianus (Nees ex Lindenb.) Meyl. – 5. On decaying wood: stream banks. 750 m. 29.VIII.2000. Gem.

Fossombronina alaskana Steere et Inoue – 6. On soil: track of road, among mosses. 600 m. 23.VIII.2000. Juv. and. (protoandrous).

Jungermannia borealis Damsh. et Váňa – 4, 5. On rocks covered with soil: rock outcrops. 650–700 m. Per.

Leiocolea badensis (Gottsche) Jørg. – 2, 4. On soil, rocks covered with soil: willow communities, tundras, stream banks, rock outcrops. 700–1600 m. Per.
L. heterocolpos (Thed. ex C. Hartm.) H. Buch – 3–5. On soil, decaying wood: larch forests, fell-fields,

- stream banks. 650–900 m. Gem., per.
- Lejeunea cavifolia* (Ehrh.) Lindb. – 4. On soil: stream banks, mixed to *Blepharostoma trichophyllum*, *Radula complanata*. 700 m. 30.VIII.2000; 4. On rocks covered with soil: fell-fields, mixed to *Scapania gymnostomophila*. 700 m. 30.VIII.2000.
- Lepidozia reptans* (L.) Dumort. – 5. On decaying wood, soil, *Sphagnum*: larch forests, rock outcrops, stream banks. 650–850 m. Per, spor.
- Lophozia excisa* (Dicks.) Dumort. – 5. On soil, decaying wood: larch forests, *Duschekia fruticosa* shrubberies. 650–850 m. Gem.
- L. cf. longiflora* (Nees) Schiffn. – 5. On decaying wood, *Sphagnum*: larch forests, stream banks. 650–750 m. Gem.
- L. perssonii* H. Buch et S.W. Arnell – 2. On soil: tundras, mixed to mosses. 1450 m. 9.VIII.2001. Gem.; 6. On soil: track of road. 600 m. 23.VIII.2000. Gem.
- L. ventricosa* (Dicks.) Dumort. s.l. – 5. On soil, rocks covered with soil, *Sphagnum*: rock outcrops, stream banks. 650–700 m. Gem.
- Mannia pilosa* (Hornem.) Frye et L. Clark – 5. On rocks covered with soil: rock outcrops. 750 m. 29.VIII.2000. Spor.
- M. sibirica* (Müll. Frib.) Frye et L. Clark – 5. On rocks covered with soil. 700 m. 30.VIII.2000. Spor.
- Marchantia latifolia* Gray – 6. On soil: track of road. 600 m. 23.VIII.2000.
- Mesoptychia sahlbergii* (Lindb.) A. Evans – 2, 4–6. On soil, rocks covered with soil, decaying wood: willow and *Duschekia fruticosa* shrubberies in forest belt, stream banks, rock outcrops. 600–1500 m.
- Odontoschisma macounii* (Austin) Underw. – 2, 4. On soil: larch forests, tundras, stream banks. 700–1500 m. Per.
- Orthocaulis binsteadii* (Kaal.) H. Buch – 6. On soil: *Betula exilis* shrubberies, among mosses. 600 m. 23.VIII.2000.
- O. kunzeanus* (Huebener) H. Buch – 2, 3. On soil, rocks covered with soil: tundras, fell-fields. 900–1500 m.
- Pellia neesiana* (Gottsche) Limpr. – 2, 6. On soil: stream banks, *Betula exilis* and willow shrubberies. 600–1000 m. Per.
- Plagiochila porelloides* (Torrey ex Nees) Lindenb. – 2, 3, 5, 6. On soil, rocks covered with soil, decaying wood: *Betula lanata* forests, willow shrubberies, stream banks. 600–1200 m. Per., and.
- Preissia quadrata* (Scop.) Nees – 1–6. On soil, rocks covered with soil: *Betula lanata* and *Picea* forests, tundras, stream banks, rock outcrops, fell-fields, track of road in forest belt. 400–1600 m. Spor.
- Ptilidium ciliare* (L.) Hampe – 3–5. On soil, decaying wood: larch forests, stream banks. 650–900 m.
- P. pulcherrimum* (Weber) Vain. – 5. On decaying wood: stream banks. 750 m. 29.VIII.2000.
- Radula complanata* (L.) Dumort. – 2, 4, 6. On soil, rocks covered with soil, bark: larch forests, tundras, fell-fields, stream banks. 600–1500 m.
- Riccia fluitans* L. – 6. On soil: river bank. 600 m. 23.VIII.2000.
- Scapania brevicaulis* Taylor – 6. On soil: *Betula exilis* communities, mixed to *Pellia neesiana*. 600 m. 23.VIII.2000. Gem.
- S. crassiretis* Bryhn – 5, 6. On soil, rocks covered with soil, decaying wood: willow and *Duschekia fruticosa* shrubberies, rock outcrops, stream banks. 600–800 m. Gem.
- S. gymnostomophila* Kaal. – 2–5. On soil, rocks covered with soil: *Betula lanata* and larch forests, tundras, rock outcrops, stream banks. 650–1500 m. Gem., and.
- S. mucronata* H. Buch – 3, 6. On soil: larch forests, *Betula exilis* and willow shrubberies. 600–900 m. Gem.
- S. paludicola* Loeske et Müll. Frib. – 5, 6. On soil: *Betula exilis* and willow shrubberies, *Vaccinium uliginosum* community. 600–700 m.
- S. scandica* (Arnell et H. Buch) Macvicar – 5. On *Sphagnum*: larch forest, mixed to *Blepharostoma trichophyllum*, *Calypogeia muelleriana*, *Cephalozia pleniceps*, *Lophozia cf. longiflora*. 750 m. 29.VIII.2000. Gem., per., and.
- S. simmonsii* Bryhn et Kaal. – 2–5. On soil, rocks covered with soil: tundras, stream banks, fell-fields, rock outcrops. 700–1500 m. Per.
- Schistochilopsis incisa* (Schrad.) Konstant. – 5. On decaying wood: *Duschekia fruticosa* communities. 800 m. 29.VIII.2000.
- Solenostoma hyalinum* (Lyell) Mitt. – 6. On soil: willow shrubberies. 600 m. 23.VIII.2000. Per.
- Sphenolobus minutus* (Schreb.) Berggr. – 4, 5. On soil, decaying wood, rocks covered with soil, *Sphagnum*: larch forests, rock outcrops, stream banks. 650–850 m. Gem., per, spor.
- S. saxicola* (Schrad.) Steph. – 3. On soil: larch forests, mixed to mosses. 900 m. 21.VI.1999.
- Tritomaria exsectiformis* (Breidl.) Loeske – 5. On soil: larch forest, mixed to *Sphenolobus minutus*. 650 m. 29.VIII.2000. Gem. On decaying wood: stream banks. 750 m. 29.VIII.2000. Gem., per.
- T. quinquentata* (Huds.) H. Buch – 3, 5. On soil, rocks covered with soil: larch and *Betula lanata* forests, stream banks, fell-fields, rock outcrops. 650–900 m. Per.
- T. scitula* (Taylor) Jørg. – 5. On soil: stream banks, mixed to *Blepharostoma trichophyllum*. 750 m. 29.VIII.2000. Gem.

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