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THE BRYOPHYTE FLORA OF THE MIDDLE WESTERN SIBERIA
ФЛОРА МОХООБРАЗНЫХ СРЕДНЕЙ ПОЛОСЫ ЗАПАДНОЙ СИБИРИ

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Abstract

The preliminary list of bryophytes of Middle Western Siberia is based upon the results of researche of authors in Tomsk Province and in northen part of Novosibirsk Province and a review of literature data. The study covers the lowland of Western Siberia south of Northern taiga zone and north of forest-steppe zone. The list includes 78 species of liverworts and 260 species, 1 subspecies and 6 varieties of mosses. Each species is annotated by its occurrence in 12 studied areas within this region. 23 species are first reported for this area. Distribution of some species is discussed.

Резюме

Обобщены результаты многолетних исследований авторов на территории Томской и севере Новосибирской областей и литературных данных. Рассматриваемая территория включает равнинные районы Западной Сибири южнее границы северной тайги и севернее лесостепной зоны. Предварительный список включает 78 видов печеночников и 260 видов, 1 подвид и 6 разновидностей листостебельных мхов. 23 вида приводятся для данного региона впервые. Обсуждается характер распространения некоторых видов.

Introduction

Bryological exploration of different regions of northern Eurasia is very uneven. Siberia is one of the most poorly investigated areas. Relatively well-known are the Arctic part (Abramova & al.,1961; Shljakov,1976-1982; Stepanova,1986; Potemkin, 1993; Afonina, Czernyadjeva, 1995, etc.) and the mountains of the Southern Siberia (Bardunov,1974; Vasiliev,1992; Ignatov,1994; Vana, Ignatov,1995, etc.). Middle Western Siberia is a flat lowland with extensive boggy areas and attracts little attention by bryologists. Up to the recent time the publication of Krylov was the only + comprehensive list for this territory (1924). Some data were published by Ivanovskij (1913), Korotkevich (1965), Kosacheva (1974), Muldiyarov (1979).

Between 1969-1987 we collected bryophytes during numerous expeditions in Tomsk region. The results of these expeditions together with literature data were published in "Handbook of the mosses of Tomsk province" (Muldiyrov, 1990). This handbook describes the ecology and distribution of 220 species of mosses. Subsequently, Muldiyarov & al. (1996) added 15 more species, Muldiyarov & Lapshina (1995) also published a bryoflora of Pichtovka Station in the north of Novosibirsk Province, and Dyachenko & al. (1995), published the bryoflora of the "Malaja Sosva" Reserve in Western Siberian Trans-Urals. Seven species of mosses new for Western Siberia were found in 1995-1996.

In recent years we have also extensively studied liverworts, which were practically unknown for this area. Therefore a considerabe number of liverworts are reported here for the first time for the study area. In addition, a study of herbarium from the South-East of Tomsk region revealed 56 species of liverworts. Identifications were carried out with the considerable help of Klaus Dierssen (University of Kiel, Germany), for which we are grateful to him.

Study area

Middle Western Siberia includes the territory south of Northern taiga zone and north of forest-steppe zone (area with scattered birch forests). The western boundary is along the base of

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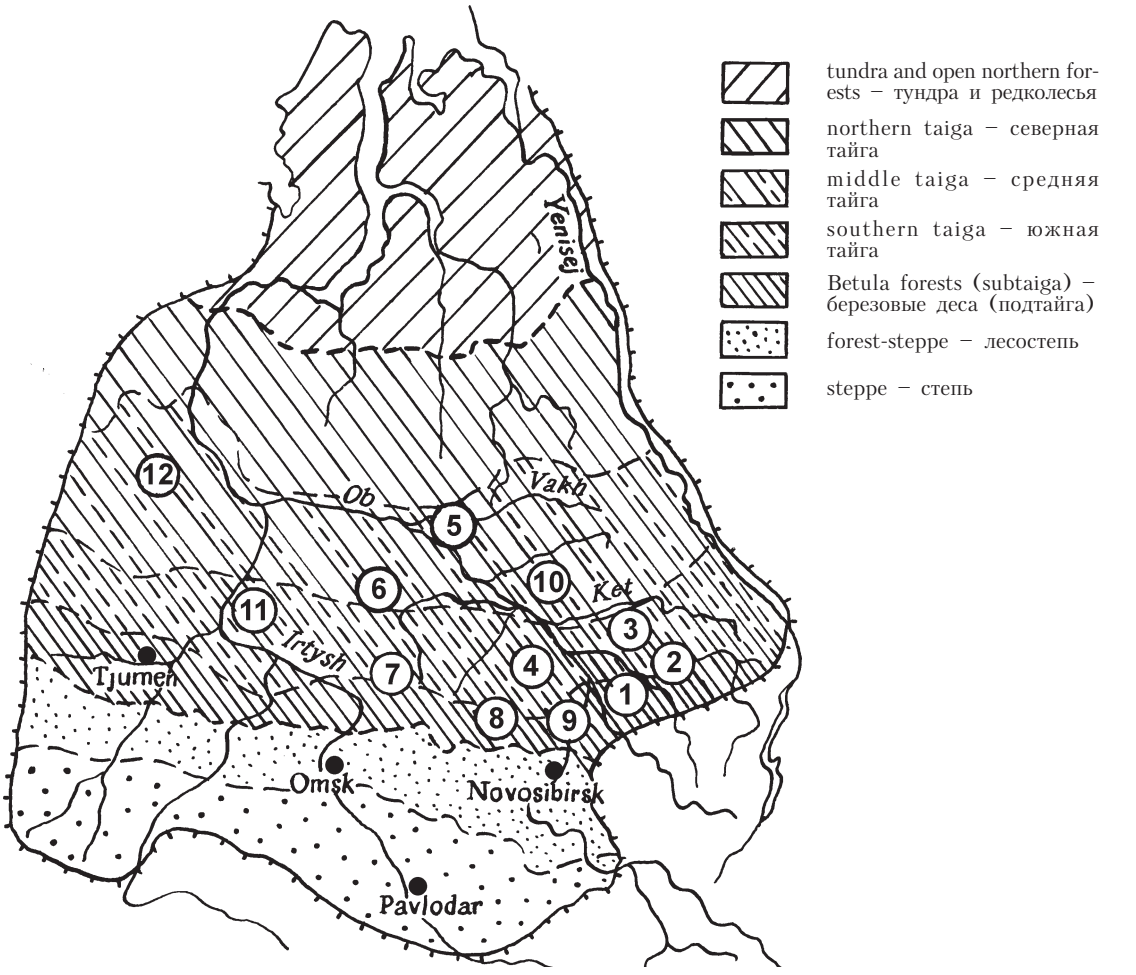

Fig.1. Zonal division of vegetation cover of the West Siberian plain (according to Il'ina & al., 1985) with localities of moss sampling – Зональное деление растительного покрова Западно-Сибирской равнины (по: Ильина и др., 1985) с районами сбора мохообразных:

1 – Northern end of Tomsk mountain-range and Ob-Tom watershed;
2 – Prichulymye (middle course of Chulym River);
3 – Watershed of Ket and Uluyul Rivers (surroundings of Yagodniy);
4 – Basin of Chaya River near Plotnikovo & Polinyanka;
5 – Surroundings of Strezhevoy;
6 – Watershed of Vasyugan and Bolshoj Yugan Rivers (near Pionerny);
7 – Upper course of Vasyugan River (near Igol);
8 – Upper course of Baksa River, tribulary of Shegarka River near Pichtovka Station;
9 – Flood plain of Ob River in the south of Tomsk Province;
10 – Watershed of Ket and Tym Rivers;
11 – Surroundings of Tobolsk;
12 – State Reserve "Malaja Sosva".

1 – Северная оконечность Томского кряжа и Обь-Томского междуречья;
2 – Причулымье (бассейн среднего течения р. Чулым)
3 – Кеть-Улуюльское междуречье (окрестности пос. Ягодный)
4 – Бассейн р. Чая у сс. Плотниково и Полынянка
5 – Район города Стрежевой
6 – Междуречье рр. Васюган и Б. Юган (пос. Пионерный)
7 – Верховья бассейна р. Васюган (пос. Игол)
8 – Верховья р. Бакса, притока р. Шегарка (Пихтовский стационар)
9 – Пойма Оби на юге Томской области
10 – Кеть-Тымское междуречье
11 – Окрестности города Тобольска
12 – Заповедник "Малая Сосьва".

the Urals, the eastern boundary runs along the Yenisey River.

Twelve localities were bryophytes have been collected are shown in Fig. 1.

Our collections (1976-1996) have been made in localities 1-10. Collections made by many botanists between 1886-1919 and cited by Krylov (1925) are from localities 1-7, 10. Collections of Ivanovskij made near Tobolsk in 1904-1906 (Ivanovskij, 1913; Korotkevich,1965) are from locality 11. Collections made by Kosaczeva in 1966-1968 are mainly from locality 4. For the latter we also use the data of Valutskij (Valutskij, 1982; Chramov & Valutskij, 1977). Collections of Taran (1994, 1995) are from locality 5. Bryophytes of locality 12, the "Malaja Sosva" Reserve, are published by Dyachenko & al. (1995).

List of species

The species, not included in the lists of mosses and liveworts for Western Siberia by Ignatov & Afonina (1992) and Konstantinova & al., (1992) are indicated by asterisk (*). "?" means that the locality is to be confirmed.

Hepaticae

Aneura pinguis (L.) Dum. – 2,4,7,11
**Apometzgeria pubescens* (Schrank) Kuwah. – 11
**Arnellia fennica* (Gott.) Lindb. – 7,11
Barbilophozia barbata (Schmid. ex Schreb.) Loeske – 3,11
B. lycopodioides (Wallr.) Loeske – 3
Blasia pusilla L. – 3,5,6,11
Blepharostoma trichophyllum (L.) Dum. – 1-9,11
Calypogeia muelleriana (Schiffn.) K.Muell. – 2-4,6,7,11
C. neesiana (C. Mass. et Carest.) K. Muell. – 1-3,7
C. sphagnicola (H. Arnell et J. Perss.) Warnst. et Loeske – 3-7
Cephalozia affinis Lindb. ex Steph. – 11
C. bicuspidata (L.) Dum. – 2-6,10,11
**C. connivens* (Dicks.) Lindb. – 4,5,11
**C. leucantha* Spruce- 5,6
**C. loitlesbergeri* Schiffn. – 2,4,6
C. lunulifolia (Dum.) Dum. – 1-3,5-8,11
C. pleniceps (Aust.) Lindb. – 2-4,7,9
Cephaloziella divaricata (Sm.) Schiffn. – 3,5-7,11
**C. elachista* (Jack ex Gott. et Rabenh.) Schiffn. – 4-7,9
C. hampeana (Nees) Schiffn. – 4,7,11
C. rubella (Nees) Warnst. – 2,3
**C. subdentata* Warnst. – 1,3,5-7
C. violacea Schljak. – 4
Chiloscyphus pallescens (Ehrh. ex Hoffm.)Dum. – 2-7,9,11
C. polyanthos (L.) Corda – 2,3,6-9,11
Cladopodiella fluitans (Nees) Buch – 3-7,11
**Crossocalyx hellerianus* (Nees ex Lindenb.) Meyl. – 7,11
Crossogyna autumnalis (DC.) Schljak. – 2-4,6-11
Frullania davurica Hampe – 11
**Geocalyx graveolens* (Schrad.) Nees- 4,5,7
Gymnocolea inflata (Huds.) Dum. – 3,4,6,7
**Leiocolea gillmanii* (Aust.) Evans – 11
L. heterocolpos (Thed. ex Hartm.) Buch – 11
**L. rutheana* (Limpr.) K. Muell. – 2,7
Lepidozia reptans (L.) Dum. – 1-8,11
Lophocolea heterophylla (Schrad.)Dum. – 1-11
L. minor Nees – 1-9,11
Lophozia excisa (Dicks.) Dum. – 2,11
L. longidens (Lindb.) Macoun – 2,3,10,11
L. longiflora (Nees) Schiffn. – 2,7,12
**L. ventricosa* (Dicks.) Dum. – 1,3,4,6-8,10,11
**Marchantia alpestris* (Nees) Burgeff – 5?
**M. aquatica* (Nees) Burgeff – 11
M. polymorpha L. – 1-11
Mylia anomala (Hook.) S. Gray – 1-8,10,11
Orthocaulis attenuatus (MÍrt.) Evans – 2,3,6,10
O. floerkei (F. Web. et Mohr) Buch – 2
O. kunzeanus (Hueb.) Buch – 2,3,6,11
Pedinophyllum interruptum (Nees) Lindb. – 11
Pellia epiphylla (L.) Corda – 1,2
P. neesiana (Gott.) Limpr. – 3,11
Plagiochila porelloides (Torrey ex Nees) Lindenb. – 1-4,7-9
Plectocolea hyalina (Lyell) Mitt. – 11
Porella platyphylla (L.) Pfeiff. – 11
Ptilidium ciliare (L.) Hampe – 2,3,8,11
P. pulcherrimum (G. Web.) Vain. – 1-11
Radula complanata (L.) Dum. – 2,4-8,11
Riccardia latifrons (Lindb.) Lindb. – 2-4,6,7,11
R. multifida (L.) S. Gray – 11
R. palmata (Hedw.) Carruth. – 2,7,11
Riccia bifurca Hoffm. – 5
R. cavernosa Hoffm. – 2,5,11
R. fluitans L. – 3,5,9
R. frostii Aust. – 3,11
**R. huebeneriana* Lindenb. – 5?
Ricciocarpos natans (L.) Corda – 3,5
Scapania apiculata Spruce – 2
S. curta (Mart.) Dum. – 2,3,6,11
**S. degenii* Schiffn. ex K.Muell. – 3
S. irrigua (Nees) Nees – 2,6,7,11
**S. mucronata* Buch – 3,7
S. paludicola Loeske et K. Muell. – 3
**S. undulata* (L.) Dum. – 2,3,6
Schistochilopsis incisus (Schrad.) Konst. – 3,6,7
**Solenostoma caespiticium* (Lindenb.) Steph.- 5
Sphenolobus minutus (Schreb.) Berggr. – 3
Tritomaria exsecta (Schmid. ex Schrad.) Loeske – 2,3
T. exsectiformis (Breidl.) Schiffn. ex Loeske – 2,3,6,10

MOSSES

Abietinella abietina (Hedw.) Fleisch. – 1,2,8,11
**Aloina brevirostris* (Hook. et Grev.) Kindb. – 11
Amblystegium serpens (Hedw.) B.S.G. – 1-9,11
– var. *juratzkanum* (Schimp.) Rau et Herv. – 1-4,7-9,12
A. varium (Hedw.) Lindb. – 2,4,9
Atrichum flavisetum Mitt. – 1,2,4,10,11
A. tenellum (Rohl.) B.S.G. – 1,2
A. undulatum (Hedw.) P. Beauv. – 1,2
Aulacomnium palustre (Hedw.) Schwaegr. – 1-12
A. turgidum (Wahlenb.) Schwaegr. – 4,12
**Barbula convoluta* Hedw.- 1
B. unguiculata Hedw. – 1,9,11
Brachythecium albicans (Hedw.) Schimp. – 2,5
B. campestre (C. Muell.) B.S.G- 2,4,8?
B. erythrorrhizon B.S.G. – 7
B. latifolium Kindb. – 4,7?
B. mildeanum (Schimp.) Schimp. ex Milde – 1-4,7,9,12
B. oedipodium (Mitt.) Jaeg.– 1,2,4,7,9,12
**B. populeum* (Hedw.) B.S.G. – 2
B. reflexum (Starke) B.S.G. – 1-9
B. rivulare B.S.G. – 1,2,4
**B. rutabulum* (Hedw.) B.S.G. – 1
B. salebrosum (Web. et Mohr) B.S.G. – 1-12
– var. *capillaceum* (Starke) Moenk. – 1,8
B. starkei (Brid.) B.S.G. – 1,2-4,7-8,12
**B. turgidum* (Hartm.) Kindb. – 2,4,9?
B. velutinum (Hedw.) B.S.G. – 2,8,12
Bryhnia sp.- 1
Bryoerythrophyllum recurvirostre (Hedw.) Chen – 1-4,9,11
Bryohaplocladium microphyllum (Hedw.) Wat. et Iwats. – 4,6,11
Bryum algovicum Sendtn. ex C. Muell. – 11
B. argenteum Hedw. – 1-3,5,9,11
B. caespiticium Hedw. – 1,2,4-6,8
B. capillare Hedw. – 1,4
B. creberrimum Tayl. – 1-9,11,12
B. funckii Schwaegr. – 1
B. intermedium (Brid.)Bland. – 5,7,9,11
B. neodamense Itzigs. – 9
B. pallens (Brid.) Sw. et Roehl. – 1,2,4,6,11,12
B. pallescens Schleich. ex Schwaegr. – 1,4,9
B. pseudotriquetrum (Hedw.) Gaertn. et al. – 1-4,6-9,11,12
– var. *bimum* (Schreb.) Lilj. – 2,4-9,11,12
**B. purpurascens* (R. Br.) B.S.G. – 2,12
**B. schleicheri* Schwaegr. – 12
**B. uliginosum* (Brid.) B.S.G – 11
B. weigelii Spreng. – 9
Buxbaumia aphylla Hedw. – 1,11
**Callialaria curvicaule* (Jur.) Ochyra – 5?
Callicladium haldanianum (Grev.) Crum – 1-9,12
Calliergon cordifolium (Hedw.) Kindb. – 1-12
C. giganteum (Schimp.) Kindb. – 1-4,7-9,12
**C. megalophyllum* Mikut.- 7
C. richardsonii (Mitt.) Kindb. – 3,11?
C. stramineum (Brid.) Kindb. – 1-8,10,12
Calliergonella cuspidata (Hedw.) Loeske – 2-4,6-9
Campylium hispidulum (Brid.) Mitt. – 1-10,12?
C. chrysophyllum (Brid.) J. Lange – 4?
C. polygamum (B.S.G.) C. Jens. – 2-9,12
**C. radicale* (P. Beauv.) Grout – 9
C. sommerfeltii (Myr.) J.Lange – 1,2,4,6-9,11
C. stellatum (Hedw.) C. Jens. – 1,2,4,6-9
– var. *protensum* (Brid.) Bryhn ex Grout – 4,9,11
Ceratodon purpureus (Hedw.) Brid. – 1-11
Cinclidium stygium Sw. – 3
Cirriphyllum piliferum (Hedw.) Grout – 1,2,8,12
Climacium dendroides (Hedw.) Web. et Mohr. – 1-12
Cratoneuron filicinum (Hedw.) Spruce – 1,2,4,9
Cynodontium tenellum (B.S.G.) Limpr. – 3
**Dichelyma falcatum* (Hedw.) Myr. – 3
Dicranella cerviculata (Hedw.) Schimp. – 1,3,12
D. crispa (Hedw.) Schimp. – 1,4,11
D. heteromalla (Hedw.) Schimp. – 1,3
D. schreberiana (Hedw.) Hilp. ex Crum et Anderson – 1,4,9
**D. subulata* (Hedw.) Schimp. – 1,3,11
D. varia (Hedw.) Schimp. – 1,4,11
Dicranum bergeri Bland. – 3-8,10-12
D. bonjeanii De Not. – 1-10
D. congestum Brid. – 1-8,11,12
D. fragilifolium Lindb. – 2-8,11,12
D. fuscescens Turn. – 1-10,12
**D. leioneuron* Kindb. – 9
D. majus Sm. – 2,6
D. muehlenbeckii B.S.G. – 2-4,8
D. polysetum Sw. – 1-12
D. scoparium Hedw. – 1-7,9,12
D. spadiceum Zett. – 3
Didymodon fallax (Hedw.) Zander – 1,4
**D. icmadophyllus* (Schimp. ex C. Muell.) Saito – 1
**D. rigidulus* Hedw. – 1,5
Discelium nudum (Dicks.) Brid. – 6,11
Distichium capillaceum (Hedw.) B.S.G. – 1,4,9,11
D. inclinatum (Hedw.) B.S.G. – 9
Ditrichum cylindricum (Hedw.) Grout – 1,4
**D. heteromallum* (Hedw.) Brid. – 1,4,12
D. pusillum (Hedw.) Hampe – 1,3,4
Drepanocladus aduncus (Hedw.) Warnst. – 1-12
– var. *polycarpus* (Bland. ex Voit) G. Roth – 1,2,10,11
– var. *kneffii* (Schimp.) Moenk. – 1,4,6,11
D. sendtneri (Schimp. ex C.Muell.) Warnst. – 2,4,6,7,9,11
Encalypta vulgaris Hedw. – 1,11
Eurhynchium hians (Hedw.) Sande Lac. – 1,2,4,8
E. pulchellum (Hedw.) Jenn. – 1-4,7,8,12
Fissidens adianthoides Hedw. – 2,9
F. bryoides Hedw. – 1,2,6,10,11

F. osmundoides Hedw. – 2,9
F. viridulus (Sw.) Wahlenb. – 1,2,4,8,9
Fontinalis antipyretica Hedw.– 1-4,6,12
F. hypnoides Hartm. – 12
Funaria hygrometrica Hedw. – 1-7,9-12
* *Hamatocaulis lapponicus* (Norrl.) Hedenaes – 1,2
H. vernicosus (Mitt.) Hedenaes – 1-4,6,7,9,11
Helodium blandowii (Web. et Mohr) Warnst. – 1-12
Herzogiella turfacea (Lindb.) Iwats. – 2,4,6,7,10,12
Heterocladium dimorphum (Brid.) B.S.G. – 1,8?
Homalia trichomanoides (Hedw.) B.S.G. – 1,2,4,9,10
Hygroamblystegium tenax (Hedw.) Jenn. – 1
Hygrohypnum luridum (Hedw.) Jenn. – 1,9
H. ochraceum (Turn. ex Wils.) Loeske – 3
Hylocomiastrum pyrenaicum (Spruce) Fleisch. – 3
Hylocomium splendens (Hedw.) B.S.G. – 1-12
Hypnum cupressiforme Hedw. – 2,4,9
H. lindbergii Mitt. – 1-12
H. pallescens (Hedw.) P. Beauv. – 1,4,7,11,12
H. plicatulum (Lindb.) Jaeg. – 4,10,12
H. pratense Koch ex Spruce – 1,2,4,6-9
Isopterygiopsis pulchella (Hedw.) Iwats. – 1,4,6,7
Leptobryum pyriforme (Hedw.) Wils. – 1-12
Leptodictyum humile (P. Beauv.) Ochyra – 2,9
L. riparium (Hedw.) Warnst.– 1-12
Leskea polycarpa Hedw. – 1,2,4,7-10,12
* *Leskeella nervosa* (Brid.) Loeske – 1,9
* *Limprichtia cossonii* (Schimp.) Anderson et al. – 2
* *Loeskypnum badium* (Hartm.) Paul – 5,6
Meesia longiseta Hedw. – 2
M. triquetra (Richter.) Aongstr. – 2-4,7,9,11,12
M. uliginosa Hedw. – 8,11
Mnium marginatum (Dicks.) Beauv. – 4
* *M. spinosum* (Voit) Schwaegr. – 1,4,6,12
M. spinulosum B.S.G. – 11
M. stellare Hedw. – 1-4,6-9,12
Myrinia pulvinata (Wahlenb.) Schimp. – 4,9-12
Myurella julacea (Schwaegr.) B.S.G. – 9
M. sibirica (C. Muell.) Reim. – 1
Myuroclada maximoviczii (Borszcz.) Steere et Schof. – 1,4
Neckera pennata Hedw. – 4,6,8,11
Oncophorus virens (Hedw.) Brid. – 9
O. wahlenbergii Brid. – 1-12
Orthodicranum flagellare (Hedw.) Loeske – 1-12
O. montanum (Hedw.) Loeske – 1-4,7,8,11,12
Orthotrichum obtusifolium Brid. – 1-4,6,7,9,11,12
O. speciosum Nees – 1-12
Paludella squarrosa (Hedw.) Brid. – 2-4,11,12
Palustriella commutata (Hedw.) Ochyra – 1,2,4
* *Phascum cuspidatum* Hedw. – 1
Philonotis fontana (Hedw.) Brid. – 12
Physcomitrella patens (Hedw.) B.S.G. – 5
Physcomitrium eurystomum Sendtn. – 5?
P. sphaericum (Ludw.) Brid. – 2,5
Plagiomnium confertidens (Lindb. et H. Arnell) T.Kop. – 1,2,4,6,7,12
P. cuspidatum (Hedw.) T. Kop. – 1-12
P. drummondii (Bruch et Schimp.) T. Kop. – 1,2,4,6-11
P. ellipticum (Brid.) T. Kop.– 1-10,12
P. medium (Bruch et Schimp.) T. Kop. – 1,2,4,9 – ssp. *curvatulum* (Lindb.) T. Kop. – 9
P. rostratum (Schrad.) T. Kop. – 4,8,9
Plagiothecium denticulatum (Hedw.) B.S.G. – 1-12
P. laetum B.S.G. – 2-4,7-9,12
P. latebricola B.S.G. – 4-6
Platydictya jungermannioides (Brid.) Crum – 8
Platydictya subtilis (Hedw.) Crum – 4,9
Platygyrium repens (Brid.) B.S.G. – 1-4
Pleurozium schreberi (Brid.) Mitt. – 1-10,12
Pogonatum dentatum (Brid.) Brid. – 6
P. urnigerum (Hedw.) P.Beauv. – 1,2,6,11
* *Pohlia alba* Lindb. – 3?
* *P. bulbifera* (Warnst.) Warnst. – 12
P. cruda (Hedw.) Lindb. – 9,11
P. lescuriana (Sull.) Grout – 5
* *P. melanodon* (Brid.) Shaw – 1,11
P. nutans (Hedw.) Lindb. – 1-12
* *P. proligera* (Kindb. ex Breidl.) Lindb. ex H. Arnell – 1,6
P. sphagnicola (Bruch et Schimp.) Lindb. et H. Arnell – 2-6,12
P. wahlenbergii (Web. et Mohr) Andrews – 1-4,9
Polytrichum commune Hedw. – 1-10,12
P. formosum Hedw. – 4
* *P. jensenii* Hag. – 3,12
P. juniperinum Hedw.– 1-8,10,12
P. longisetum Sw. ex Brid. – 3,4,8,10
P. piliferum Hedw. – 1-5,10,12
P. strictum Brid. – 1-12
P. swartzii Hartm. – 3
Pottia intermedia (Turn.) Fuernr. – 1
P. truncata (Hedw.) Fuernr. – 1,11
Pseudobryum cinclidioides (Hueb.) T. Kop. – 1-4,6-10,12
Pseudocalliergon trifarium (Web. et Mohr) Loeske – 9
* *Pseudoleskea incurvata* (Hedw.) Loeske – 9
* *Pseudoleskeella tectorum* (Funck ex Brid.) Kindb. – 1
* *Pterygoneurum subsessile* (Brid.) Jur. – 1
Ptilium crista-castrensis (Hedw.) De Not. – 1-12
Pylaisiella polyantha (Hedw.) Grout – 1-12
P. selwynii (Kindb.) Crum et al. – 1,6
* *Racomitrium aciculare* (Hedw.) Brid. – 2
Rhizomnium pseudopunctatum (Bruch et Schimp.) T. Kop. – 2-4,6-9
R. punctatum (Hedw.) T. Kop. – 1-4,6-9,11,12
Rhodobryum roseum (Hedw.) Limpr. – 1-4,6,11,12
Rhytidiadelphus subpinnatus (Lindb.) T. Kop. – 1,2,12
R. triquetrus (Hedw.) Warnst. – 1-12
Rhytidium rugosum (Hedw.) Kindb. – 1
Saelania glaucescens (Hedw.) Broth. – 4,11
Sanionia uncinata (Hedw.) Loeske – 1-12
* *Sarmentypnum sarmentosum* (Wahlenb.) Tuom. et T. Kop. – 2

Schistidium apocarpum (Hedw.) B.S.G. – 1
**Schistostega pennata* (Hedw.) Web. et Mohr – 9
Scorpidium scorpioides (Hedw.) Limpr. – 2,8
Sphagnum angustifolium (Russ. ex Russ.) C. Jens. – 1-12
S. aongstroemii C.Hartm. – 3,4,12
S. balticum (Russ.) Russ. ex C. Jens. – 1-7,10,12
S. capillifolium (Ehrh.) Hedw. – 1-12
S. centrale C. Jens. ex H.Arnell et C. Jens. – 1-10,12
S. compactum DC. – 1-4,6,7,10,12
S. contortum Schultz – 3,10
S. cuspidatum Ehrh. ex Hoffm. – 4,6,12
S. fallax (Klinggr.) Klinggr. – 1-7,10,12
S. fimbriatum Wils. – 1-4,6-10,12
S. flexuosum Dozy et Molk. – 1-7,10,12
S. fuscum (Schimp.) Klinggr. – 1-12
S. girgensohnii Russ. – 1-7,10-12
S. jensenii H. Lindb. – 3-7,10,12
**S. imbricatum* Hornsch. ex Russ. – 10
S. lenense H. Lindb. ex Pohle – 10
S. lindbergii Schimp. ex Lindb. – 4,6,7,10,12
S. magellanicum Brid. – 1-10,12
S. majus (Russ.) C. Jens. – 1-7,10,12
S. obtusum Warnst. – 2-7,10,12
S. palustre L. – 1-4
S. papillosum Lindb. – 3-7,10,12
S. platyphyllum (Lindb. ex Braithw.) Sull. ex Warnst. – 2,3
S. quinquefarium (Lindb. ex Braithw.) Warnst. – 2,3
S. riparium Aongst.– 1-7,9-12
S. rubellum Wils. – 2-5,8,10,12
S. russowii Warnst. – 2-7,10,12
S. squarrosum Crome – 1-12
**S. subnitens* Russ. ex Warnst. – 2,3
S. subsecundum Nees ex Sturm – 2-7,10-12
S. teres (Schimp.) Aongstr. ex Hartm. – 2-4,6,7,9,12
S. warnstorfii Russ. – 1-10,12
S. wulfianum Girg. – 1-12
Splachnum ampullaceum Hedw. – 4,11
S. luteum Hedw. – 3,12
S. rubrum Hedw. – 3,12
**S. vasculosum* Hedw. – 12
Tetraphis pellucida Hedw. – 1-12
Tetraplodon angustatus (Hedw.) B.S.G. – 6,10,12
T. mnioides (Hedw.) B.S.G. – 3,10
Thuidium philibertii Limpr. – 1,2,4,7,9
T. recognitum (Hedw.) Lindb. – 1-4,6-9,11
Timmia megapolitana Hedw. – 1-4,6-9,11
– var. *bavarica* (Hessl.) Brid. – 1,2,4
Tomentypnum nitens (Hedw.) Loeske – 1-12
Tortella fragilis (Hook. et Wils.) Limpr. – 9
Tortula mucronifolia Schwaegr. – 1,11
**T. obtusifolia* (Schwaegr.) Mathieu – 11
Warnstorfia exannulata (B.S.G.) Loeske – 1-10,12
W. fluitans (Hedw.) Loeske – 2-7,9-12
**W. pseudostraminea* (C. Muell.) Tuom. et T. Kop.- 5,6
Weissia brachycarpa (Nees et Hornsch.) Jur. – 1
W. controversa Hedw. – 1,11
Zygodon rupestris Schimp. ex Lor. – 5,6

DOUBTFUL AND ERRONEOUS RECORDS

Eurhynchium praelongum (Hedw.) B.S.G.
E. schleicheri (Hedw.f.) Jur.
Plagiomnium affine (Bland.) T.Kop.
P. elatum (Bruch et Schimp.) T.Kop.
Plagiothecium succulentum (Wils.) Lindb.
Pogonatum aloides (Hedw.) P. Beauv.

DISCUSSION

The preliminary list of bryophytes of Middle Western Siberia includes 78 species of liverworts and 260 species, 1 subspecies and 6 varieties of mosses.

The distribution of many species is still known to be incomplete, so conclusions of their rare or restricted occurrence in most cases are somewhat premature. However, for some species preliminary conclusions can be made as follow:

Splachnum vasculosum occurs only in the North-West (Dyachenko & al.,1995).

Rather rare in the forest zone of Western Siberia are *Sphagnum contortum, S. platyphyllum, S.quinquefarium, S.subnitens, S. palustre, S. cuspidatum*. Frequent mentions of *S. cuspidatum* in geobotanical papers (cf. Liss, Berezina,1981; Glebov & al.,1978), obviously, relate to aquatic phenotypes of *S. majus*.

Sphagnum imbricatum (Glebov,1969) and *S. lenense* (Muldiyarov & al.,1996) were found only in the region close to Yenisej River, in hummock-hollow bogs.

Polytrichum shwartzii, Dichelyma falcatum, Schistostega pennata, Dicranum leioneuron are known from only one locality each, and are probably rare in Middle West Siberia.

Of interest are isolated localities of some hypoarctic and arcto-alpine species, including *Hamatocaulis lapponicus, Scorpidium scorpidioides, Aulacomnium turgidum, Brachythecium turgidum, Calliergon sarmentosum*. These species occur in the forest zone, mostly in open peat bogs. Locally, some of these species can dominate, for example *Scorpidium scorpioides* in the Bolshoye Vasjuganskoe bog (Yasnopolskaya, 1965).

Species diversity is obvioulsy increasing to the South-East of the West Siberian plain, where mixed coniferous forests with *Abies sibirica* house many nemoral species. These nemoral spe-

cies penetrate from refugia of South Siberian mountains. Widespread species include *Atrichum undulatum, Amblystegium varium, Plagiomnium drummondii, Brachythecium oedipodium, Eurhynchium hians, Rhytidiadelphus subpinnatus*. The last three species are dominants or codominants of the forest floor in some types of forests. Some rare species, such as *Atrichum tenellum, Heterocladium dimorphum, Myrinia pulvinata, Brachythecium rutabulum, Bryhnia sp*. also have a similar distribution.

Many species have peculiar distribution due to the absence of suitable habitats. Many of them were found on the soil banks along the rivers Tom' and Irtish in the surroundings of Tomsk and Tobolsk and include species such as *Bryum funckii, Didimodon icmadophyllus, D. rigidulus, Encalypta vulgaris*. For some species localities are more remote from the main area of their distribution in xeric regions of the South; examples of such species include, *Pterygoneurum subsessile, Phascum cuspidatum, Tortula obtusifolia, Aloina brevirostris*, *Wiessia controversa, W. brachycarpa*.

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