

NEW DATA ON DISTRIBUTION OF LIVERWORTS ON KAMCHATKA
PENINSULA (NORTH-WEST PACIFIC, RUSSIA)

НОВЫЕ СВЕДЕНИЯ ПО РАСПРОСТРАНЕНИЮ ПЕЧЕНОЧНИКОВ НА
ПОЛУОСТРОВЕ КАМЧАТКА (СЕВЕРО-ЗАПАДНАЯ ПАЦИФИКА, РОССИЯ)

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Abstract

An overview is presented of studies of Kamchatka's liverworts investigated in the last two years, since the publication of "Preliminary checklist..." (Bakalin, 2003a). The list of hepatics revealed by the author as the result of identification of his own collection as well as some miscellaneous materials in VLA is provided. The list includes 151 species, 33 of them are recorded for the peninsula for the first time. According to the published data, the liverwort flora of Kamchatka includes 202 species, being the most diverse among the regional floras of Russia.

Резюме

Приводится очерк истории исследования печеночников Камчатки за последние три года, прошедшие после публикации «Предварительного списка» (Bakalin, 2003a). Составлен список печеночников, включающий 151 вид, выявленный автором в результате определения собственных коллекций и гербарных материалов, хранящихся в гербарии VLA. 33 вида приводятся для территории полуострова впервые. Согласно опубликованным к настоящему времени данным, флора полуострова насчитывает 202 вида печеночников, занимая первое место по таксономическому разнообразию среди регионов России.

INTRODUCTION

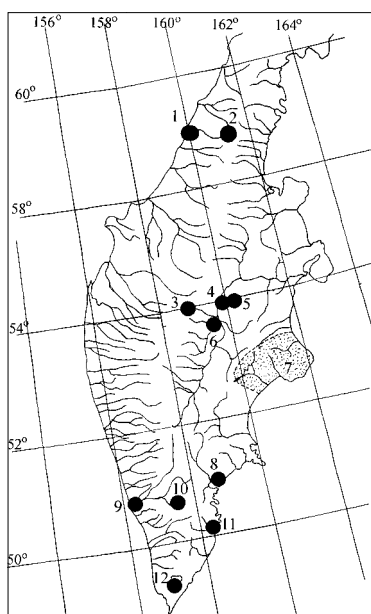
Although the check-list of Kamchatian liverworts has been published quite recently (Bakalin, 2003a), it is already partly out of date, reflecting an active exploration of liverworts of the peninsula. During the last two years the following studies were done.

Czernyadjeva & Potemkin (2003) have published a paper on the bryophyte flora of the South-West Kamchatka. In that paper 57 liverwort species were listed, four of them new for the peninsula: [*Orthocaulis floerkei* (F. Weber et D. Mohr) H. Buch, *Lophocolea itoiana* H. Inoue (as *Chiloscyphus itoianus* (H. Inoue) J.J. Engel et R.M. Schust.), *Plectocolea obscura* (A. Evans) A. Evans (as *Jungermannia evansii* Vana) and *Lophozia ascendens* (Warnst.) R.M. Schust.]. Potemkin (2003) has reported 25 hepatics rare in

Kamchatka, with *Cladopodiella francisci*, *Riccia huebeneriana* Lindenb., *Cephalozia otaruensis* Steph. and *Marsupella adusta* (Nees) Spruce recorded for the Peninsula for the first time. Also Neshataeva & al. (2003) have described the vegetation of declining stone-birch forests of South-West Kamchatka, mentioning 16 hepatic species.

Bakalin (2004a) described the liverwort flora of West Kamchatka and listed 41 species. Neshataeva & al. (2004a) described *Chosenia* forests of South-West Kamchatka, providing a list of bryophytes with 2 hepatic species. Potemkin & Bakalin (2004) have compiled a list of rare liverworts, based on both published and unpublished data, with recommendation of their inclusion in the Red-data book of Kamchatskaya Province. The list comprises 57 taxa from the Kamchatka Peninsula and the Commander Archipelago. Some

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Map 1. Collecting localities of liverworts in Kamchatka (collections of Bakalin, if not specified otherwise)

1. The vicinity of Palana Settlement (coll. 2003).
2. The northern end of Sredinny Range (coll. 2003).
3. The vicinities of Esso Settlement (coll. 2003 and 2004).
4. The vicinities of Kozyrevsk Settlement (coll. 2003).
5. Ushkovsky volcano (coll. 2003).
6. The vicinities of Atlasovo Settlement (coll. 2003).
7. Kronotsky State Nature Reserve (a number of collectors, 1970th).
8. The vicinities of Petropavlovsk-Kamchatsky (coll. 2004).
9. Ust'-Borsheretsk area (coll. 2003).
10. The vicinities of the Apache Hot Springs (coll. 2003).
11. The vicinities of the Russkaya (Akhomten) Bay (coll. 2004).
12. The vicinities of Kurilskoye Lake (coll. 1982 by Neshatayeva).

hepatics are mentioned by Bakalin & Vetrova (2004) that treats relationships of vegetation character and permafrost depth in frozen soils. In the same year the overview of pristine declining spruce forests of the Yelovka River Basin (Central Kamchatka) (Neshataeva & al., 2004b) was published. The authors listed 8 species of liverworts being more or less common in Kamchatka. At least in the end of 2004 a description of the recently described and poorly known species *Cephalozia pachycaulis* and its differentiation, distribution and ecology were published in the Russian Botanical Journal (Konstantinova & al., 2004). The species was recorded from Eurasia in South Siberia (the Khamar-Daban Range) and some localities in Kamchatka.

In 2005 (Czernyadjeva & al., 2005), a checklist of bryophytes of the Mutnovsky Hot Springs (southern Kamchatka) including of 39 hepatic species was published. Two taxa (*Cephalozia ambigua* and *Cephaloziella varians* (Gottsche) Steph.) were recorded for the first time in Kamchatka. The same year V.A. Bakalin (2005a) published a report on two monotypic genera of hepatics found in Kamchatkan flora: *Schofieldia* Godfrey (*Schofieldia monticola*) and *Cryptocoleopsis* Amakawa (*Cryptocoleopsis imbricata*) new to Russia. The first one was previously treated as an endemic genus of north-western North

America, and the second one – as endemic of Japan. The paper provides the data on the species morphology, ecology, distribution and distinctive characters as well as their illustrations. In the autumn of 2005 (Neshatayeva & al., 2005) a report on pristine flood-plain forest of South-West Kamchatka (based on the fieldwork in the Upper Nachilova River) was published. The report includes data on distribution of 19 liverwort specimens including *Chiloscyphus* cf. *coadunatus* (Sw.) J.J. Engel et R.M. Schust. newly recorded in Kamchatka and in Russia in general.

In the papers listed above (excluding those of the author of the current article) 11 taxa are revealed for the first time in Kamchatka. In the same time, the publications of Bakalin dealt with more or less negligible part of the specimens gathered during the field work of 2003 and 2004. Throughout the trips some barely accessible localities were studied (Map 1.). About 1200 hepatic specimens were collected. In addition the researches covered some districts previously having only scant data on liverwort flora (for example, northern Kamchatka). Earlier (Bakalin, 2003a) it was supposed, that in the Kamchatkan flora it would be possible to find some taxa known from the Koryak Uplands as well as some taxa of Arcto-alpine distribution. This idea has been fully confirmed. Almost all of the species known from Koryakiya,

but in that time not found in Kamchatka, have been collected. The author revealed 33 species new for the Peninsula, excluding the findings that have been published by other researchers since Bakalin (2003). However, there is one error that should be corrected. Earlier (Bakalin, 2003a: 85) it was written: "it is estimated that the number of hepatics known from Kamchatka could increase by 35-40 taxa". This was clearly an underestimate. At the present day 44 species were found new for the Peninsula. I think it is possible that at least 10 additional species will be discovered.

At present, 202 species are recognized in Kamchatka's flora and it is largest number among the regional floras in Russia. Whereas studies on species composition of Kamchatka, in general, are getting better understood, the data on distribution of liverworts within the peninsula remain very patchy. Data on hepatic distribution in the east of northern Kamchatka, the north of eastern Kamchatka (Kronotsky and Kamchatsky Peninsulas), and the oceanic coast of southern Kamchatka are inadequate. The study on the flora of those places needs further research.

The list of species presented in the current paper is based on identification of the author's collection of 2003 and 2004. Some specimens from Kurilskoye Lake Area (coll. Neshataeva, locality 12) were studied as well. In addition, the collection from Kronotsky State Nature Reserve was identified (locality 7, mainly collected by Neshataeva and A.G. Mikulin; a paper devoted to this reserve is under preparation).

THE LIST OF SPECIES

Nomenclature follows Bakalin (2003a) with exception for names absent in that paper. In the latter case it follows Konstantinova & al. (1992). The authors of the names cited are as proposed by Brummit & Powel (1992). Additional information on distribution within collection localities as well as geographic and taxonomic notes on some species, are provided. The original collection of the author is kept in KPABG. The list includes all taxa identified by the author since publication of "Preliminary checklist..." (Bakalin, 2003a). Taxa that were not included to the former checklist (l.c.) are marked with asterisk if ones were not mentioned in the literature by other researchers.

- Aneura pinguis* (L.) Dumort. – 1, 3, 5, 8, 9, 10
Anthelia juratzkana (Limpr.) Trevis – 1, 2, 3, 5, 7, 8, 9, 10, 11
 **Asterella gracilis* (F. Weber) Underw. – 5
 **Athalamia hyalina* (Sommerf.) S. Hatt. – 1, 2, 5
Barbilophozia barbata (Schmidel ex Schreb.) Loeske – 1, 3, 9
B. hatcheri (A. Evans) Loeske – 1, 3, 4, 5, 6, 7, 8, 9
B. lycopodioides (Wallr.) Loeske – 1, 7
 **B. rubescens* (R.M. Schust. & Damsholt) Karttunen & Soederstroem – 1, 3, 5 – This is the southernmost locality of the species. Previously (Konstantinova, 2000), the species was treated as Arctic with unclear area and distributed in Europe, Greenland and the north of eastern Siberia (Yamal Peninsula). In 2001 (Konstantinova, Kuzmina) it was recorded in the Chukotsky Autonomous Region from the Koryak Uplands. Presented here is the second report of the species for Asia. In addition the author studied the material of this species from the north of the Chukotsky Autonomous Region (Gilmimlineysky Hot Springs Area, coll. A.E. Katenin, det. Bakalin, unpublished).
Bazzania tricrenata (Wahlenb.) Lindb. – 10
Blasia pusilla L. – 1, 3, 4, 7, 8, 10
Blepharostoma trichophyllum (L.) Dumort. var. *trichophyllum* – 1, 2, 3, 4, 5, 6, 8, 9
 -*var. *brevirete* Bryhn et Kaal. – 2, 3
Calycularia laxa Lindb. et Arnell – 3, 5, 8, 10
Calypogeia integristipula Steph. – 1, 3, 6, 10
C. muelleriana (Schiffn.) Müll.Frib. – 3, 9, 10, 11
C. sphagnicola (Arnell et J.Perss.) Wamst. et Loeske – 3, 9
Cephalozia ambigua C. Massal. – 5
C. bicuspidata (L.) Dumort. – 1, 2, 3, 5, 8, 9, 10, 11
C. leucantha Spruce – 9
C. lunulifolia (Dumort.) Dumort. – 1, 3, 4, 7, 9, 12
C. pachycaulis R.M. Schust. – 1, 2, 9
C. pleniceps (Austin) Lindb. – 1, 2, 3, 5, 8
Cephaloziella arctogena (R.M. Schust.) Konstant. – 1, 4
C. divaricata (Sm.) Schiffn. – 1, 3, 5, 8, 10
 **C. elegans* (Heeg.) Schiffn. – 3, 6
 **C. grimsulana* (J.B. Jack ex Gottsche et Rabenh.) Lacout – 7 – This is one of the southernmost localities in the world distribution.
C. rubella (Nees) Wamst. – 3, 4, 6, 8
C. spinigera (Lindb.) Wamst. – 3 – in Bakalin, 2003a, was erroneously printed as "*C. springera*"
 **C. varians* (Gottsche) Steph. – 3, 5
Chiloscyphus fragilis (Roth) Schiffn. – 3
C. polyanthos (L.) Corda – 8, 10
Cladopodiella fluitans (Nees) H. Buch – 9
C. francisci (Hook.) H. Buch ex Joerg. – 3, 9
Conocephalum conicum (L.) Underw. – 1, 7, 8, 10
C. japonicum (Thunb.) Grolle – 5, 7

- **Cryptocolea imbricata* R.M. Schust. – 2 – This is the southernmost locality of the species.
- **Cryptocoleopsis imbricata* Amakawa – 3, 10 – The special treatment of this discovery was published by Bakalin (2005).
- Diplophyllum albicans* (L.) Dumort. – 2, 3, 10
- **D. obtusifolium* (Hook.) Dumort. – 8, 10
- D. taxifolium* (Wahlenb.) Dumort. – 1, 2, 3, 5, 8, 9, 10, 11, 12
- **Eremonotus myriocarpus* (Carrington) Lindb. & Kaal. – 2, 5 – This species was treated by N.A. Konstantinova (2001) as one distributed in mountainous regions with oceanic and suboceanic conditions and found in isolated localities. It was recorded in Asia in China, Japan and the Chukotsky Autonomous Region (the Koryak Uplands) (l.c.). The current research reports this species from two localities in eastern and northern Kamchatka. In addition *E. myriocarpus* is common in the Commander Archipelago and the Northern Kuriles (unpublished data of the author). The species seems to be not rare in East Asia, but is readily overlooked as a result of the minute size of plants.
- Frullania bolanderi* Austin – 4, 10
- Gymnocolea inflata* (Huds.) Dumort. – 1, 2, 9
- Gymnomitrium apiculatum* (Schiffn.) Müll.Frib. – 2, 3, 10
- G. cinnatum* (Lightf.) Corda – 2, 3, 5, 8, 10
- G. corallioides* Nees – 3, 5, 7
- **G. pacificum* Grolle – 2, 10 – In Russia the species was earlier known only from the Chukotka Peninsula (Afonina, Duda, 1993), outside Russia it has been found in Japan and the northern part of northwestern North America (Kitagawa, 1963, Schuster, 1974). In addition *G. pacificum* was also found by the author in the Commander Archipelago and the Northern Kuriles (unpublished).
- Hygrobiella laxifolia* (Hook.) Spruce – 5
- Isopaches bicrenatus* (Schmidel ex Hoffm.) H. Buch – 1, 5, 8, 9
- **I. decolorans* (Limpr.) H. Buch – 10
- Jungermannia atrovirens* Dumort. – 11
- J. eucordifolia* Schljakov – 1, 2
- J. exsertifolia* Steph. – 2
- J. polaris* Lindb. – 5
- J. pumila* With. – 2, 5, 8
- Kurzia sylvatica* (A. Evans) Grolle – 7
- Leiocolea gillmanii* (Austin) A. Evans – 1, 2, 8
- L. heterocolpos* (Thed. ex Hartm.) H. Buch – 1, 2, 5
- Lepidozia reptans* (L.) Dumort. – 4, 6
- Lophocolea heterophylla* (Schrad.) Dumort. – 4, 9, 10
- Lophozia excisa* (Dicks.) Dumort. – 1, 2, 3, 5
- L. lacerata* N. Kitag. – 3
- **L. lantratoviae* Bakalin – 3 – This recently described species was previously recorded from Siberia (southern Yakutia and Baikal Lake Area; Bakalin, 2003b); in the current paper also registered for East Asia.
- L. longidens* (Lindb.) Macoun – 1, 2, 3, 4, 6, 7, 8, 10
- **L. pellucida* R.M. Schust. var. *rubrigemma* (R.M. Schust.) Bakalin – 2 – The author considers the taxon described as *L. rubrigemma* R.M. Schust. to be a variety within *L. pellucida*. The explanation of this point of view was provided in Bakalin (2005b). This is the southernmost locality of the variety and the species in general.
- **L. polaris* (R.M. Schust.) R.M. Schust. et Damsholt – 5 – This is the southernmost locality of the species.
- L. propagulifera* (Gottsche) Steph. [= *L. latifolia* R.M. Schust. and *L. jurensis* Meylan, see Bakalin, 2003a] – 1, 3
- L. savicziae* Schljakov – 2, 3, 5, 8, 9
- L. silvicola* H. Buch – 3, 4, 6, 8, 9, 10
- L. silvicoloides* N. Kitag. – 8
- L. sudetica* (Nees ex Huebener) Grolle – 2, 3, 5, 8, 9, 10, 11
- L. ventricosa* (Dicks.) Dumort. var. *ventricosa* – 2, 3, 5, 7, 8, 9
- *var. *guttulata* (Lindb. et Arnell) Bakalin – 10
- *var. *longiflora* (Nees) Macoun – 1, 2, 3, 5
- L. wenzelii* (Nees) Steph. var. *groenlandica* (Nees) Bakalin – 5
- *var. *lapponica* H. Buch et S.W. Arnell – 2, 5, 8
- Macrodidiphyllum microdontum* (Mitt.) H. Perss. – 3
- M. plicatum* (Lindb.) H. Perss. – 2, 3, 7, 8, 9, 10
- Marchantia alpestris* (Nees) Burgeff – 3, 7, 8, 10
- M. polymorpha* L. – 4, 6, 7
- Marsupella alpina* (Gott. ex Limpr.) H. Bemt – 1, 2, 5, 8, 10
- M. boeckii* (Austin) Lindb. ex Kaal. – 2
- M. brevissima* (Dumort.) Grolle – 2
- **M. commutata* (Limpr.) H. Bemt – 5
- **M. condensata* (Aongstr. ex C. Hartm.) Lindb. ex Kaal. – 3, 8
- M. emarginata* (Ehrh.) Dumort. – 5, 10, 11
- M. sphacelata* (Gieseke ex Lindenb.) Dumort. – 5, 10, 11
- **M. sprucei* (Limpr.) H. Bern. – 8
- Mylia anomala* (Hook.) Gray – 3, 7, 9
- Nardia breidleri* (Limpr.) Lindb. – 2, 8
- N. compressa* (Hook.) Gray – 11
- N. geoscyphus* (De Not.) Lindb. – 1, 2, 3, 4, 5, 8, 9
- N. insecta* Lindb. – 3, 9, 10
- N. japonica* Steph. – 1, 2, 8
- N. scalaris* Gray – 8, 9, 10
- **Odontoschisma elongatum* (Lindb.) A. Evans – 3
- Orthocaulis attenuatus* (Mart.) A. Evans – 7
- O. binsteadii* (Kaal.) H. Buch – 1, 3, 7, 9
- **O. hyperboreus* (R.M. Schust.) Konstant. – 2 – This is the southernmost locality of the species.
- O. kunzeanus* (Huebener) H. Buch – 1, 3, 5, 7, 9

- **O. quadrilobus* (Lindb.) H. Buch – 3, 5
Pellia endiviifolia (Dicks.) Dumort. – 2, 3, 5, 8
P. neesiana (Gottsche) Limpr. – 1, 5, 6, 7, 8, 9, 11, 12
Peltolepis quadrata (Saut.) Müll.Frib. – 5, 7
Plagiochila porelloides (Torrey ex Nees) Lindenb. – 3, 5, 8
Plectocolea hyalina (Lydell) Mitt. – 5, 9, 10
P. subelliptica (Lindb. ex Kaal.) A. Evans – 1, 3, 5, 8, 9
P. vulcanicola Schiffn. – 7
Pleurocladula albescens (Hook.) Grolle – 2, 3, 5, 8, 10
 **Prasanthus suecicus* (Gott.) Lindb. – 5 – This is the southernmost locality of the species. The distribution of *P. suecicus* in the extreme south of its area is restricted to fresh volcanic ash deposits. In similar conditions it was found in the Northern Kuriles (Paramushir; Bakalin, unpublished).
Preissia quadrata (Scop.) Nees – 1, 2, 3, 5, 7, 8
Protolophozia debiliformis (Schust.) Konstant. – 3, 5, 8
Ptilidium californicum (Austin) Pears. – 10
P. ciliare (L.) Hampe – 2, 3, 4, 7, 9, 10
P. pulcherrimum (G. Weber) Vainio – 1, 3, 4, 5, 6, 7, 8, 10
Radula complanata (L.) Dumort. – 5, 8
 **R. constricta* Steph. – 8 – This is the northernmost locality of this species. The taxon (Yamada, 1979) is distributed in southern East Asia: India, Nepal, Taiwan, Korea and Japan. It was also reported from the Primorsky Territory (Gambaryan, 1992). The diagnostic characters of this species are (Yamada, 1979: 231): “(1) the moderately to loosely imbricate, widely spreading, widely ovate leaf-lobes, (2) the frequent presence of marginal discoid gemmae on leaf-lobes, (3) the thin walled cells with minute trigones, and (4) the quadrate leaf-lobes with a slightly or not elongate apex, and an arched or bluntly angular base covering the stem 1/2-3/4 of the stem width”. The species differs from *R. complanata* distributed in the Russian Far East in dioicous inflorescence and abundant discoid gemmae on the leaf-margin.
 **R. prolifera* Arnell – 2, 3 – This is the southernmost locality for this species.
 **Riccardia chamaedryfolia* (With.) Grolle – 9 – This is the northernmost locality in Asia. The species was reported in Asia from China, Japan and South Siberia (Konstantinova & al, 1992; Piippo, 1990; Furuki, Mizutani, 1994). The distribution of *R. chamaedryfolia* is similar to that of the fern *Osmundastrum asiaticum* (Fern.) Tagawa more or less common in southern East Asia, but found in Kamchatka (also the northernmost locality of species) also only in western Kamchatka (the Vorovskaya River: Skiba, 1975). As it was indicated (l.c.), the water-logged plains in western Kamchatka were free of ice during the Pleistocene-Holocene glaciations. Based on this fact (l.c.) locality of *O. asiaticum* was treated as relict in Kamchatka. So, it is highly possible that *Riccardia chamaedryfolia* is also a relict species in western Kamchatka.
R. latifrons (Lindb.) Lindb. – 3, 8
 **R. palmata* (Hedw.) Carruth. – 3
 **Riccia cavernosa* Hoffm. – 4
 **R. glauca* L. – 4
Saccobasis polita (Nees) H. Buch – 5
 **Sauteria alpina* (Nees) Nees – 2, 5
 **Scapania brevicaulis* Taylor – 3
S. curta (Mart.) Dumort. – 5
 **S. gymnostomophila* Kaal. – 5
S. hyperborea Joerg. – 1, 2, 3, 5, 8
S. irrigua (Nees) Nees – 1, 3, 5, 7, 8, 9
 **S. kaurinii* Ryan – 2, 3 – All identifications of this species are based on sterile material, so the reports of this species are tentative until fertile material is found.
S. lingulata H. Buch – 1, 3, 5
S. mucronata H. Buch – 1, 5, 9
S. paludicola Loeske et Müll.Frib. – 3, 5, 8
S. paludosa (Müll.Frib.) Müll.Frib. – 2, 7, 11, 12
S. parvifolia Warnst. – 1, 3, 5, 8, 9, 10
S. subalpina (Nees ex Lindenb.) Dumort. – 3, 5, 6, 8, 10
Schistochilopsis grandiretis (Lindb. ex Kaal.) Konstant. – 3, 5
S. hyperarctica (R.M. Schust.) Konstantinova, – 3
S. incisa (Schrad.) Konstant. – 1, 2, 3, 5, 8, 9, 10
 **S. laxa* (Lindb.) Konstant. – 7 – This is the second report of the species in Asia. Previously it was recorded from the Stanovoye Nagor’ye Uplands (East Siberia; Bakalin, 2004b)
S. opacifolia (Culm. ex Meyl.) Konstant. – 1, 3, 5, 8
 **Schofieldia monticola* Godfrey – 2 – The special treatment of this discovery was published in Bakalin (2005a).
Solenostoma caespiticium (Lindenb.) Steph. – 9
S. confertissimum (Nees) Schljakov – 1, 3, 5
S. fusiforme (Steph.) R.M. Schust – 3 – This species was erroneously published as *Plectocolea vulcanicola* Schiffn. in *Hepaticae Rossicae Exsiccatae*, N^o 42 (Bakalin, Konstantinova, 2004). Prof. J. Vana (pers. comm.) pointed out this mistake, so the report of *P. vulcanicola* in Bakalin (2003a) from “CK: 5 (= locality 3 in Fig. 1 here)” should be referred to *Solenostoma fusiforme*.
S. jenseniana (Grolle) Bakalin – 1
S. sphaerocarpum (Hook.) Steph. – 1, 3, 4, 5, 8, 9, 10
 **Sphenolobus cavifolius* (H. Buch et S.W. Arnell) Müll.Frib. – 3 – This is the southernmost locality for this species.
S. minutus (Schreb.) Berggr. – 1, 2, 3, 5, 7, 8, 10
S. saxicola (Schrad.) Steph. – 3, 7
Tetralophozia setiformis (Ehrh.) Schljakov – 2, 3, 10
Tritomaria exsectiformis (Breidl.) Schiffn. ex Loeske – 3, 4, 6, 7
T. quinquentata (Huds.) H. Buch – 1, 2, 3, 5, 6, 7, 8

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APPENDIX

The species not mentioned in the present list, but enumerated for Kamchatka by other authors. Most species were included in previous checklist of Kamchatian hepatics (Bakalin, 2003a), if not – a reference is given.

- Anastrophyllum sphenoloboides* R. M. Schust.
Anthelia julacea (L.) Dumort.
Apometzgeria pubescens (Schrank) Kuwah.
Asterella saccata (Wahlenb.) A. Evans.
Bazzania bidentula (Steph.) Steph.
Bazzania ovifolia (Steph.) S. Hatt.
Calypogeia azurea Stotler et Crotz
Cephalozia connivens (Dicks.) Lindb.
Cephalozia otaruensis Steph. (Potemkin, 2003)
Cephaloziella rubella (Nees) Warnst.
Cephaloziella uncinata R. M. Schust.
Cephaloziella varians (Gottsche) Steph. (Czernyadjeva & al., 2005)
Chiloscyphus pallescens (Ehrh. ex Hoffm.) Dumort.
Chiloscyphus rivularis (Schrud.) Hazsl.
Chiloscyphus cf. *coadunatus* (Sw.) J.J. Engel et R.M. Schust. (Neshatayeva & al., 2005)
Crossogyna autumnalis (DC.) Schljakov
Diplophyllum obtusatum (R. M. Schust.) R. M. Schust.
Fossombronia sp.
Frullantia dilatata (L.) Dumort.
Harpanthus flotovianus (Nees) Nees

- Jungermannia borealis* Damsh. et Vana
Leiocolea bantriensis (Hook.) Joerg.
Leiocolea rutheana (Limpr.) Müll. Frib.
Lophocolea itoiana H. Inoue (Czernyadjeva & Potemkin, 2003, as *Chiloscyphus itoianus* (H. Inoue) J.J. Engel et R.M. Schust.)
Lophocolea minor Nees
Lophozia ascendens (Warnst.) R.M. Schust. (Czernyadjeva & Potemkin, 2003)
Lophozia heteromorpha R. M. Schust. et Damsh.
Lophozia schusteriana Schljakov
Mannia pilosa (Hornem.) Frey et Clark
Marsupella adusta (Nees) Spruce (Potemkin, 2003)
Marsupella funckii (F. Weber et D. Mohr) Dumort.
Metzgeria furcata (L.) Dumort.
Moerckia blyttii (Moerck.) Brockm.
Nardia assamica (Mitt.) Amakawa
Nardia unispiralis Amakawa
Obtusifolium obtusum (Lindb.) S. W. Arnell
Orthocaulis floerkei (F. Weber et D. Mohr) H. Buch (Czernyadjeva & Potemkin, 2003)
Pellia epiphylla (L.) Corda
Plectocolea infusca (Mitt.) Steph.
Plectocolea obovata (Nees) Lindb.
Plectocolea obscura (A. Evans) A. Evans (Czernyadjeva & Potemkin, 2003, as *Jungermannia evansii* Vana)
Riccia huebeneriana Lindenb., (this paper)
Riccia lamellosa Raddi
Ricciocarpos natans (L.) Corda
Scapania brevicaulis Taylor
Scapania cuspiduligera (Nees) Muell. Frib.
Scapania glaucocephala (Taylor) Austin
Scapania obcordata (Berggr.) S. W. Arnell
Scapania scandica (Arnell et H. Buch) Macvicar
Scapania uliginosa (Lindenb.) Dumort.
Scapania umbrosa (Schrad.) Dumort.
Scapania undulata (L.) Dumort.
Solenostoma gracillimum (Sm.) R. M. Schust.
Targionia hypophylla L.
Tritomaria exsecta (Schmidel) Loeske