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Authors: Juutinen, Riikka, Åkesson, Richard, Syrjänen, Kimmo, and Virtanen, Risto

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The annual excursion of the Nordic Bryological Society (NBS) and the Finnish Bryophyte Expert Group to Kuusamo (Finland) in 2014

Riikka Juutinen, Richard Åkesson, Kimmo Syrjänen and Risto Virtanen

R. Juutinen (riikka.juutinen@metsa.fi), Metsäballitus/Parks and Wildlife Finland, PO Box 8016, FI-96101 Rovaniemi, Finland. – R. Åkesson, Höganäs, Sweden. – K. Syrjänen, Finnish Environment Institute SYKE, Helsinki, Finland. – R. Virtanen, Botanical museum, Oulu, Finland.

The Nordic Bryological Society had its annual meeting and excursion on 21 to 24 of August 2014 in Kuusamo, Koillismaa biogeographical province (Ks) in northeast Finland close to Russian border. In total 23 participants attended the extremely rainy excursion. Despite the weather we made nice discoveries of Red Listed species typical for Kuusamo area e.g. *Arnellia fennica*, *Campylophyllum balleri*, *Conocephalum salebrosum*, *Palustriella commutata* and *Philonotis calcarea*. *Lophozia pellucida* was discovered new to Finland from Vasajängänoja. *Encalypta alpina* and *Riccardia incurvata* were collected for the first time from Ks. Total of 47 nationally Red Listed and seven regionally threatened species were recorded during the excursion.

The Nordic Bryological Society had its annual meeting and excursion on 21 to 24 August 2014 in Kuusamo, Koillismaa (Ks) biogeographical province in northeast Finland (Fig. 1). From 1966 to 2013 NBS excursions have been in Finland altogether eight times, last one seven years ago (Lammi, south Finland). NBS made excursion to Kuusamo also in 1976 (Koponen and Ulvinen 1977). The number of participants in 2014 Kuusamo excursion totaled 23 and they were citizens of seven countries: Finland (12), Sweden (2), Germany (2), Norway (1), Denmark (1), China (1) and United Kingdom (1) (Fig. 2). The excursion was housed in Oivanki youth center some 15 km north from Kuusamo.

The bryophyte flora of Koillismaa is a mixture of north and south, west and east, continental and oceanic (Koponen and Ulvinen 1977, Viramo 1994). The area is characterized by meandering rivers, lakes, gorges, pine and spruce forests and aapa mires. All these, and here and there occurring calcareous bedrock, have caused the rich bryophyte and vascular plant flora that has at-

tracted biologists for centuries (Halonen et al. 1994). Altogether, 450 mosses and 173 liverworts are known to occur in Koillismaa biogeographical province (Juutinen and Ulvinen 2015). Of these, 393 mosses and 171 liverworts are known from Kuusamo (Ulvinen and Juutinen 2015), which is over 65% of all bryophytes in Finland. The National IUCN Red List status is according to Syrjänen et al. (2010) and regional according to Sannalyöryhmä (2015). Possible Red List status is given when a species is mentioned for the first time (EN endangered, VU vulnerable, NT near threatened, DD data deficient, RT regionally threatened). Observations presented here were made mainly by the authors. A few observations were made by other excursion participants and are mentioned with their consent. He, Laaka-Lindberg and Callaghan have published their records previously (He et al. 2015).

Friday 22 August

First location of the day was Korvasjärvi in Liikasenvaara area in Oulanka National Park, in a restricted access border zone between Finland and Russia. We split into

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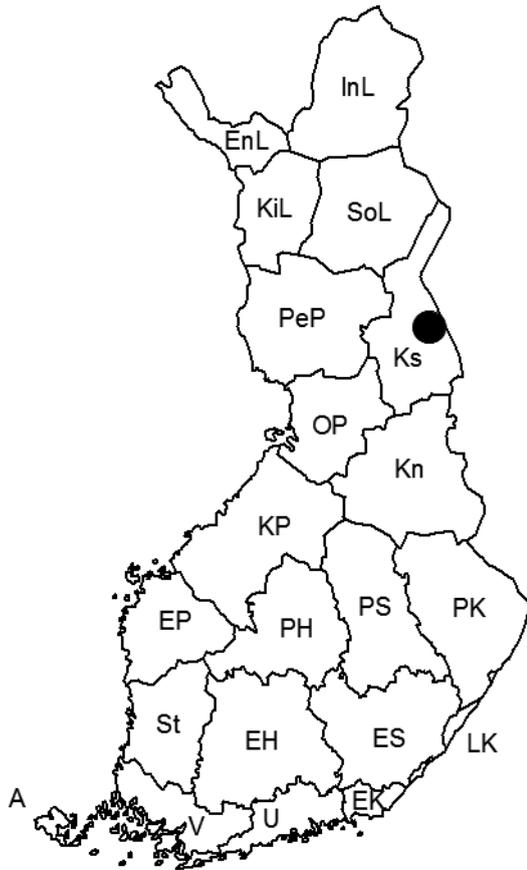


Figure 1. Finnish biogeographical provinces and the location of the excursion.

two groups: the majority of the bryologists headed to the south shore of lake Korvasjärvi and the rest to north shore. Previous collections from the area were made decades ago, during 1937–1939, by Auer, Kotilainen, Vaarama and Tuomikoski (Eliölajit administrative database for Red Listed species).

The south group went east through a spruce forest to inspect some low dolomite outcrops adjacent to mire. They found several interesting bryophytes, including *Arnellia fennica* (VU), *Cyrtomnium hymenophylloides* (NT), *Plagiopus oederianus* and *Scapania gymnostomophila* (NT). From there they continued south across a mire containing both rich and poor areas. In the more lime affected parts they observed e.g. *Barbilophozia kunzeana*, *B. quadriloba*, *Campylium stellatum*, *Catoscopium nigratum*, *Leiocolea rutheniana*, *Scorpidium scorpioides* and *Sphagnum warnstorffii*. South of the mire was a herb-rich spruce swamp with spring fens. There we saw e.g. *Cinclidium stygium*, *Meesia uliginosa*, *Moerckia hibernica s.lat.* (VU), *Rhizomnium magnifolium*, *R. pseudopunctatum*, *Tayloria lingulata* and *Tritomaria polita*. On rocks and humus in a small stream grew *Leiocolea bantriensis* (NT), *L. collaris* (NT) and *Hy-*

grohypnum species. The north group had a hasty run of 1.5 km to the dolomite outcrops near the north shore of Korvasjärvi. From the rather low, sheltered calcareous walls they found abundant *Encalypta streptocarpa*, *Seligeria diversifolia* (NT) and *Tortella tortuosa*.

The other half of the day was spent in *locus classicus* of *Kobresia myosuroides* south of Korvasvaara hill near lakes Kotilaisenlampi and Vanhalampi (Liikasenvaara, Oulanka National Park). From Korvasvaara road we found tiny *Aongstroemia longipes* (EN) growing rather abundant. Accompanying species included *Leiocolea badensis* (VU) and *Riccardia incurvata* (NT, new to Ks province). Next stop was a periodically drying pond where grew e.g. *Calliergonella lindbergii*, *Pseudocalliergon angustifolium* (VU) and *Scorpidium cossonii*. The slopes of Korvasvaara were filled with calcareous springs and spring brooks with *Cratoneuron filicinum*, *Palustriella commutata* (VU), *P. decipiens* (NT), *P. falcata* (NT) and *Philonotis calcarea* (EN). *Amblyodon dealbatus* (VU), *Catoscopium nigratum*, *Leiocolea* spp., *Lophozia grandiretis* (EN), *Oncophorus virens* and *Tritomaria polita* were growing on the banks. After inspecting some springs we split into two groups: half of us headed for gorge Kettukuru NWW of Vanhalampi pond and the rest continued to study calcareous fens and spring brooks. In the end, Kettukuru was actually not studied because before our group could get there they found something better: a narrow calcareous ravine under rapids Sirkkakoski. *Conocephalum salebrosum* (VU), *Cratoneuron filicinum* and *Pellia endiviifolia* (NT) were abundant in a small brook flowing at the bottom of the gorge.

The quickest ones had even some time to investigate rocks near rapids Kiutaköngäs. They found e.g. *Fissidens viridulus* (RT) and *Pseudoleskeella nervosa*. It was raining more or less the whole day.

In the evening we microscoped our specimens and enjoyed of the expertise and great company.

Saturday 23 August

On Saturday morning we split into three groups: one went to Jäkälävuoma ('the gorge with lichen'), one to Lammasvuoma ('the gorge with sheep') gorge and the last to Kallioniitynkuru–Vasajängänoja gorge in Salla commune. The first two locations are situated in Juuma area in Oulanka National Park, Kuusamo commune and the third some 25 km northwest of these in Salla commune. Jäkälävuoma was thought to be the best and the most scenic bryophyte location so that bus was full in no time. Rest of us divided between the two other less studied calcareous locations. During the day it was mostly raining, occasionally very heavily.

On the way to Jäkälävuoma gorge we passed calcareous fens where e.g. *Brachythecium turgidum*, *Bryum weigelii*, *Catoscopium nigratum*, *Meesia uliginosa*, *Onco-*



Figure 2. Excursion participants, Oivanki, Kuusamo. Front row from left to right: Kimmo Syrjänen and Krister Karttunen. Middle row: Per Darell, Kristian Hassel, Antje Neumann, Sanna Huttunen, Inkeri Ahonen, Riikka Juutinen, Niina Onttonen, Ari Parnela, Tuomo Kuitunen, Richard Åkesson. Top row: Christine Daute, Des Callaghan, Jan Larsen, Turkka Korvenpää, Timo Kypärä, Xiaolan He. Missing from the picture: Sanna Laaka-Lindberg and Anni-Elina Aittamäki.

phorus virens, *Palustriella falcata* (NT), *Scapania hyperborea*, *S. paludicola* and *Splachnum vasculosum* grew. In the canyon, we started directly to search for dolomite rock walls and found some *Campylophyllum halleri* (NT), *Cyrtomnium hymenophylloides* (NT), *Encalypta raptocarpa* var. *leptodon* (DD), *Gymnostomum aeruginosum* (NT), *Hypnum recurvatum*, *Orthothecium strictum* (NT), *Preslia quadrata*, *Plagiopus oederianus*, *Scapania gymnostomophila* (NT), *Timmia austriaca* and a lot more. Higher up grew large cushions of *Bartramia halleriana*. In scree and on stones we saw *Anastrophyllum saxicola*, *Grimmia longirostris*, *Myliia taylorii* (NT) and *Tetralophozia setiformis*. At a base of a rock wall with seepage flow grew a lot of *Conocephalum salebrosum* (VU). In a small forest lake grew a thick carpet of *Warnstorfia trichophylla* and lots of *Rhizomnium magnifolium*. On the way back to the parking lot, we passed the river Kitkajoki in Vattumutka ('the bend with *Rubus idaeus*'). Here at block *Hygroamblystegium fluviatile*, *Fontinalis hypnoides*, *Dichodontium pellucidum*, *Dichelyma falcatum*, *Campyliadelphus elodes* (VU).

In Lammasvuoma, we discovered *Arnellia fennica* (VU) and *Cyrtomnium hymenophylloides* (NT) to be fairly

common. Other species we collected included e.g. *Campylophyllum halleri* (NT), *Encalypta alpina* (NT, new to Ks province), *Hypnum recurvatum*, *Orthothecium strictum* (NT) and *Timmia austriaca*. Besides the cliffs we visited small mire W of Kallioportti and refound an abundant population of *Hamatocaulis vernicosus* (VU) and a nice patch of *Moerckia hibernica* s. lat. (VU).

The river gorges of Kallioniitynkuru and Vasajängänoja north of Oulanka National Park exhibit remarkable range of different bryophyte habitats from 20 m high calcareous rock walls to seasonally wet calcareous ponds. Both gorges host large populations of *Arnellia fennica* (VU), *Orthothecium intricatum* (NT), *Scapania gymnostomophila* (NT) and *Timmia comata* (VU). Also *Gymnostomum aeruginosum* (NT), *Hymenostylium recurvirostrum* (NT), *Mannia pilosa* (NT) and *Orthothecium strictum* (NT) were present in both gorges. On the former grows also *Athalamia hyalina* (NT), *Seligeria donniana* (NT), *S. brevifolia* (VU), *S. tristichoides* (VU). *Anomodon viticulosus*, *A. longifolius*, *Encalypta streptocarpa* and *Neckera complanata* represent southern element of moss flora in Kallioniitynkuru. Seasonally wet ponds in Vasajängänoja gorge have extensive mats of

Pseudocalliergon angustifolium (VU). From Vasajängänoja, we found *Lophozia pellucida* (VU) as new to Finland. It was growing on moist dolomite wall mixed with *Arnelia fennica*. Both gorges have also a rich vascular flora e.g. on walls of Vasajängänoja gorge grows a large population of threatened *Arenaria pseudofrigida*. These gorges are still not fully explored, but their current bryophyte records with many endangered or rare species strongly motivate their protection and inclusion to the Oulanka National Park.

In the evening there was the annual meeting of NBS, some more microscoping and organizing specimens collected in soggy paper bags. All day outside in the rain and having sauna on top of that took its toll on most but some stayed to microscope until midnight.

Sunday 24 August

About half of excursion participants headed home after breakfast but the rest of us made an excursion to Ruka fjell. First we tried unsuccessfully to find the doubtful *Lophozia debilisformis* (DD) from its only known locality in Finland. Afterwards we went to see some misty scenery from the top of Ruka fjell and found e.g. *Diphyscium foliosum* (NT) and *Marsupella sprucei* (EN).

We then continued to Saaruansuo E of Ruka to see some common Sphagna. For example, *S. warnstorffii*, *subsecundum*, *subnitens*, *subfulvum*, *teres* and *riparium* were found only some five meters from the road. On a tree branch in the river there was a little of *Campylophyllum sommerfeltii*.

We ended the excursion to some random rapid we just located from the map. The rapid was never reached by most of us because of the unstable ditch and a fence blocking our way but we didn't mind. There was after all that interesting ditch there.

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