International Russulales Workshop

Borgsjö, Sweden, August 26th – September 1st 2018

EXCURSIONGUIDE

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Excursionguide Russulales, Borgsjö 2018

This guide also available as pdf at www.myko.se

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Cover: Painting by Rolf Lidberg during workhop in Borgsjö 1997 with Mauro Sarnari, Annemieke Verbeken and others. Photo: Hjördis Lundmark

Håkan Lindström and Rolf Lidberg at the first Cortinarius workshop in Borgsjö 1982.

This excursion guide is dedicated to Rolf Lidberg (1930–2005) and Håkan Lindström, (1950–2018) head authors of Medelpads Flora (2010) and friends at many exciting fungi excursions.

Medelpads Flora (2010) about the vascular plants of Medelpad. Wonderful paintings by Rolf of orchids and other plants. Detailed descriptions by Håkan of every plants special ecology just in Medelpad. The mangificent volume can be bought by Hjördis Lundmark for 10 euros.

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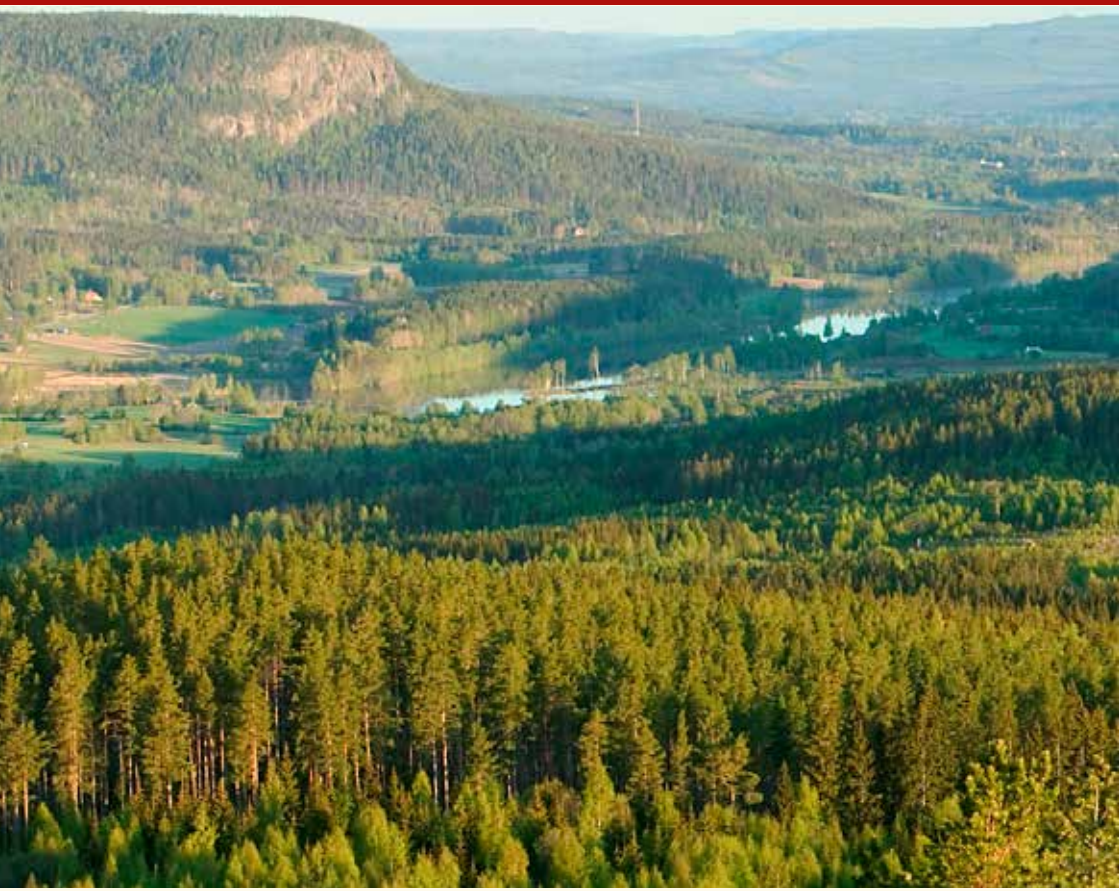
Erikslunds Folkets Hus, our working site.
Photo: Olga Morozova



Welcome to the Russulales workshop in Borgsjö 2018!

Sundsvall Mycological Society has since 1982 arranged 16 mycology workshops in Borgsjö, often in collaboration with Karin Kellström, Lars Lundberg, Maj-Britt Såthe and other friends of Östersund Mycological Society. A very exciting and stimulating broad social teamwork. We have also a close collaboration with Karin Andersson, Siv Norberg and others in "The Wool dyeing Society".

The Borgsjö Gate between the magnificent diabase mountains Rankleven and Öberget.
Photo: Sven Halling

We have studied mycorrhiza forming fungi, mostly in fascinating calcareous coniferous forests with Hepatica nobilis and earthworms from Borgsjö and Torp parishes in Medelpad to the forests on lime rock around Östersund in central Jämtland. We have also studied the special and threathened mycoflora at meadows in Medelpad and Jämtland treated in an oldfashioned way. We have invited mushroom researchers from all over Europe. We have got many mycological friends among amateurs and researchers. During 3 workshops we focused on *Cortinarius* with Tor Erik Brandrud as skillful and popular leader.

Håkan Lindström and Karl Soop held appreciated presentations at the *Cortinarius* table about "brown mushrooms" in *Cortinarius* subgenus *Telamonia* at almost every

Hjördis Lundmark and Jan-Olof Tedebrand at mushroom excursion.
Photo: Håkan Sundin

workshop in Borgsjö since 1982, often assisted by Ilkka Kytövuori. Jacques Melot has commented extremely difficult taxanomic matters in *Cortinarius*. During 3 *Russula* workshops we invited researchers as Henri Romagnesi, Henning Knudsen, Juhani Ruotsalainen and Jukka Vauras. In 1997 we studied *Lactarius* together with Jacob Heilmann-Clausen, Mauri Korhonen, Ilkka Kytövuori, Annemieke Verbeken and Jan Vesterholt as invited scientific experts. We have also attended Nordic Mycological Congresses since more than 30 years, seen wonderful nature and established bonds of friendship with many mycologists. Social mycology is equal interesting as scientific mycology!

We will think of our finnish friends Pirjo and Ilkka Kytövuori, Eine and Mauri Korhonen, Juhani Ruotsalainen, Jukka Vauras when discussing *Lactarius* and *Russula* species out in the forests or in the working hall. We will also think of our local friends Håkan Lindström and Siw Muskos who can no longer join our organization team. We are so glad to meet old friends. Stig Jacobsson has visited Jämtland and Medelpad at many autumns. Together with Lars Lundberg, now 96 years of age, Stig has studied fungi in different parts of Jämtland, from the deep forests to the alpine heaths. We are also glad to meet Russulales friends from the far east: Yoshito Shimono , Kazako Shimono, Mako Sato and Hiroatsu Sato from Japane.

Annemieke Verbeken about Russulales workshops

In 2010, an international Russulales congress was organized by the Association des Mycologues Francophones de Belgique à Massembre (Belgium). This congress gathered hundred mycologists interested in the systematics and ecology of Russulales and had a well-filled program with lectures, field excursions, workshop-conferences, work in the microscopy room and an artistic session bringing together five very good water colour artists.

After this meeting we concluded that it is most important and instructive to be in the field and behind the microscope together with other Russulales-passionate people and to have intensive discussions about methods, characters, species delimitation etc. Therefore a core group of Russulales researchers decided to organize a biannual meeting in different locations in Europe in order to explore new areas and to bring together Russulales-oriented mycologists (both professional and amateurs) to focus on the observation of macro- and microscopical characters and exchange ideas concerning identification and identification tools. The first international Russulales workshop was held in Germany, Sondershausen, in august 2012, where we had the wonderful help of Felix Hampe, Robin Dost and Jesko Kleine as organizers. In 2014 we were in Slovakia, Jedľové Kostoľany, under the guidance of Slavomir Adamçik and his team. Two years ago, the workshop was organized in Piombino, Tuscany, Italy where we explored the Mediterranean Russulales thanks to the fantastic help and guidance of Umberto Pera, Mauro Bellucci and the local mycological associations.

The Russulales workshops brought together more than 130 mycologists from 4 different continents and were a boost for contacts and research exchange.

It is a logic step to plan his one in the northern part of Europe where such a particular diversity of Russulales occurs and where the mushrooms sometimes are larger than their ectomycorrhizal hosts. Borgsjö is a legendary place, almost a mycological pilgrimage. We can rely on a solid team of warm and friendly organizers who have good experience in guiding mycologists in their most wonderful kingdom of Scandinavian mycology.

Our county governor Berit Högman will open *Russulales* workshop sunday afternoon at 17 o´clock. Also we are interested in wool dyeing with mushrooms. At the tourist office at Träporten inn you can see mushroom coloured textiles in all fantastica rainbow colours. At saturday the 1th of september between 11-15 o´clock Margareta Byström, Hjördis Lundmark and Siv Norberg from the Musroom Dying Society will show mushroom dyeing for us and for local people living in the Ljungan valley and in Bräcke county.

Russulales workshop in Borgsjö 2018 is a stimulating teamworkrbetween functionaires with their own special areasand the participants. Let's make *Russulales* 2018 a fine and memorable workshop. All participants will have a fine commented report home in their mail boxes as Christmas gift 2019!

An amazing rainbow over the beautiful landscape in Borgsjö: Mount Bergåsen, red cottages and the river Ljungan. Photo: Tatyana Svetasheva

We hope this fungi excursion guide also will also be used after the *Russulales* workshop in 2018. Slavomir Adamcik, Herbert Kaufmann, Lars Ljungberg, Jacques Melot and Annemieke Verbeken have tried to correct the worst faults in the text. Annemieke has also put in some interesting comments. We apologize for all remaining faults in the guide.

The summer in Medelpad and Jämtland has been warm. Much rain has fallen since the 20th of july and we wish all of you good mushroom hunting.

Welcome to the Russulales workshop in Borgsjö 2018!

Sundsvall Mycological Society

Hjördis Lundmark **Jan-Olof Tedebrand**

Cortinarius Flora Photographica group at the *Cortinarius* workshop in Borgsjö 2003. From the left: Hans Marklund, Jacques Melot, Tor Erik Brandrud, Siw Muskos, Håkan Lindström. Photo: Hjördis Lundmark

What is Russulales workshop in Borgsjö 2018 really about?

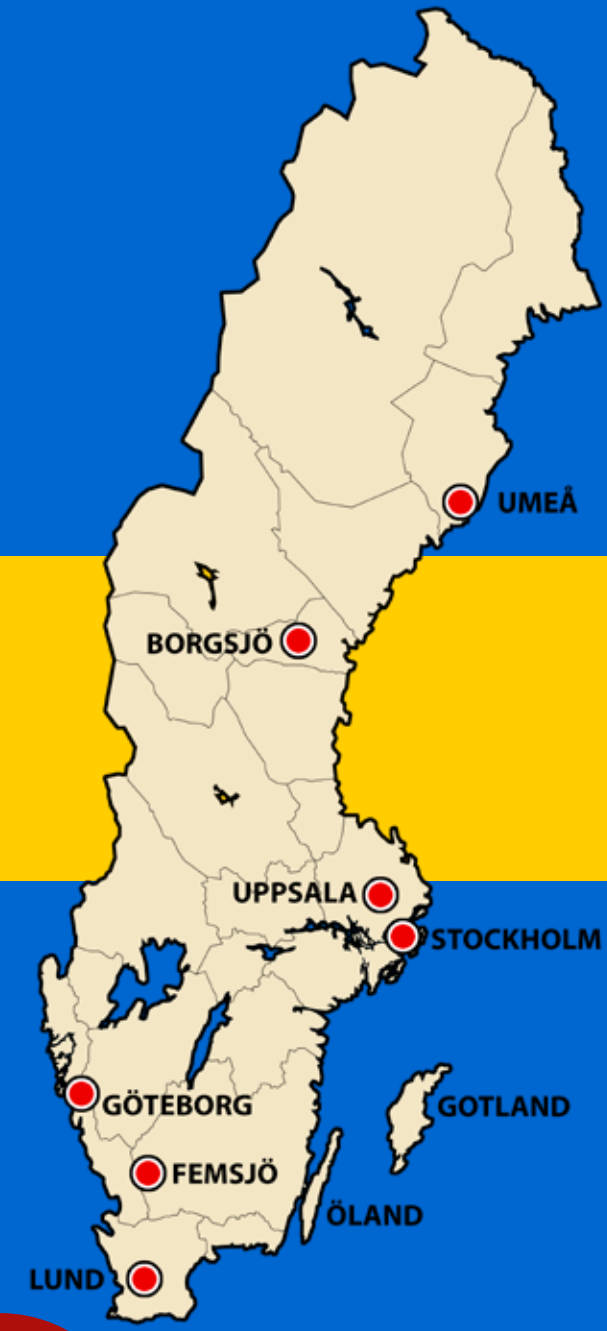
Fungi are indispensable links in the eternal cycle of nature.
Some of them break down branches, trunks, leaves and other debris to forest soil. A large group of fungi like species in *Lactarius* and *Russula* have an intimate relationship with living plants, including our forest trees, forming ectomycorrhizal associations. Mushrooms provide important ecosystem services for the whole mankind.

The root system of a tree is enlarged a thousand times via the fungal hyphae and provides increased nutitional uptake. There may be 1-5 million root tips from the trees that are connected to the fungus network in the soil. Per square meter! This co-habitation is very important for the growth and well-being of trees and other plants. TED is a digital forum for scientific talks in the USA. See at TED Paul Stamets homage to the mushroom internet: www.ted.com, search for "six ways in which mushrooms can save the world" (text in various languages). Anders Dahlberg is our own "rock star" among Swedish mycorrhiza researchers. He has, during many workshops in Borgsjö, in a dramatic way and like an actor on the stage explained latest news from the research front about the underground forest network. The most eloquent star at the mycorrhiza researchers heaven is perhaps Suzanne Simard at University of British Columbia in Canada, who also gives TED speaks: http://www.ted.com/talks/suzanne_simard_how_trees_talk_to_each_other. Fungal networks are present in all ecosystems on earth. The boreal forests we will take you to are dominated by ectomycorrhizal trees and we walk on soil that is home to a huge network of mycelia connecting the trees and transferring nutrients from one tree to another.

Cortinarius Flora Photographica (CFP)

Elias Fries (1794–1878) was particularly interested in *Cortinarius,* the largest ectomycorrhiza forming fungus genus in boreal forests and of vital importance for the circulation of nutrition and water in the northern forest ecosystem. In 1982, a venture began in Borgsjö. As a result "*Cortinarius* Flora Photographica" (CFP), an annotated photographic book consisting of five volumes, was published in four languages during 1989-2018. In 2016 the latest *Cortinarius* meeting took place in Borgsjö, see report: http://www.myko.se/wp-content/uploads/2014/05/Svampraprapport_Borgsjo_2016.pdf. On pages 183-186 of this report, Herbert Kaufmann also describes with microscopical details his findings of 24 Russula species during the *Cortinarius* workshop in Borgsjö 2016.

You can buy CFP by Tania Böhning during Russulales workshop in Borgsjö.



Sweden

Sweden is situated in North-western Europe and has temperate, boreal and subarctic tundra ecosystems. Elias Fries, who lived 1794-1878 and is often referred as ”the Father of Mycology”, was born in Femsjö: a small village in southwestern Sweden. In 1979, the Swedish Mycological Association (SMA) was established in Fensjö. The promoters and initiators were artist Rolf Lidberg and troubadour Bengt Sändh. SMA currently publishes Svensk Mykologisk Tidskrift (SMT), earlier named Jordstjärnan. The editor of SMT is Mikael Jeppson, also an authority on gasteromycetes. SMA has just published Mikaels wonderful book about ”Puffballs of Northern and Central Europe”, see www.svampar.se

Participants

Belgium
Ronnie Boeykens
Eske De Crop
Glen Dierickx
Wim Dewitte
Omer van de Kerckhove
Ruben de Lange
Lynn Delgat
Nathan Schoutteten
Stephanie de Schrijver
Annemieke Verbeken

Bulgaria
Pavel Nedelev and his sister

Finland
Tero Taipale

France
Jacques Melot

Germany
Hjördis Böhning
Tania Böhning
Robin Dost
Ursula Eberhardt
Felix Hampe
Jochen Girwert
Jesco Kleine
Mathias Lüderitz,
Kai Reschke

Greece
Ilias Polemis

Italy
Francesco Bellu
Mauro Belluci
Bruno Brizzi
Ornella Comandini
Umberto Pera
Andrea Rinaldi

Japan
Yoshito Shimono
Kazako Shimono
Maki Sato
Hiroatsu Sato

Saint Olof in Borgsjö church, highest protector of Russulales 2018.

Machiel Noordeloos and a hulder (huldra in Norway, skogsrå in Sweden) at Lactarius workshop in Borgsjö 1997. The hulder has a name: Annemieke Verbeken. Photo: Siw Muskos

The Netherlands

Jorinde Nuytinck
Nathan Schouttelen

Norway

Per Marstad

Slovakia

Slavomir Adamcik
Miroslav Cabon
Sona Jancovicova

Spain

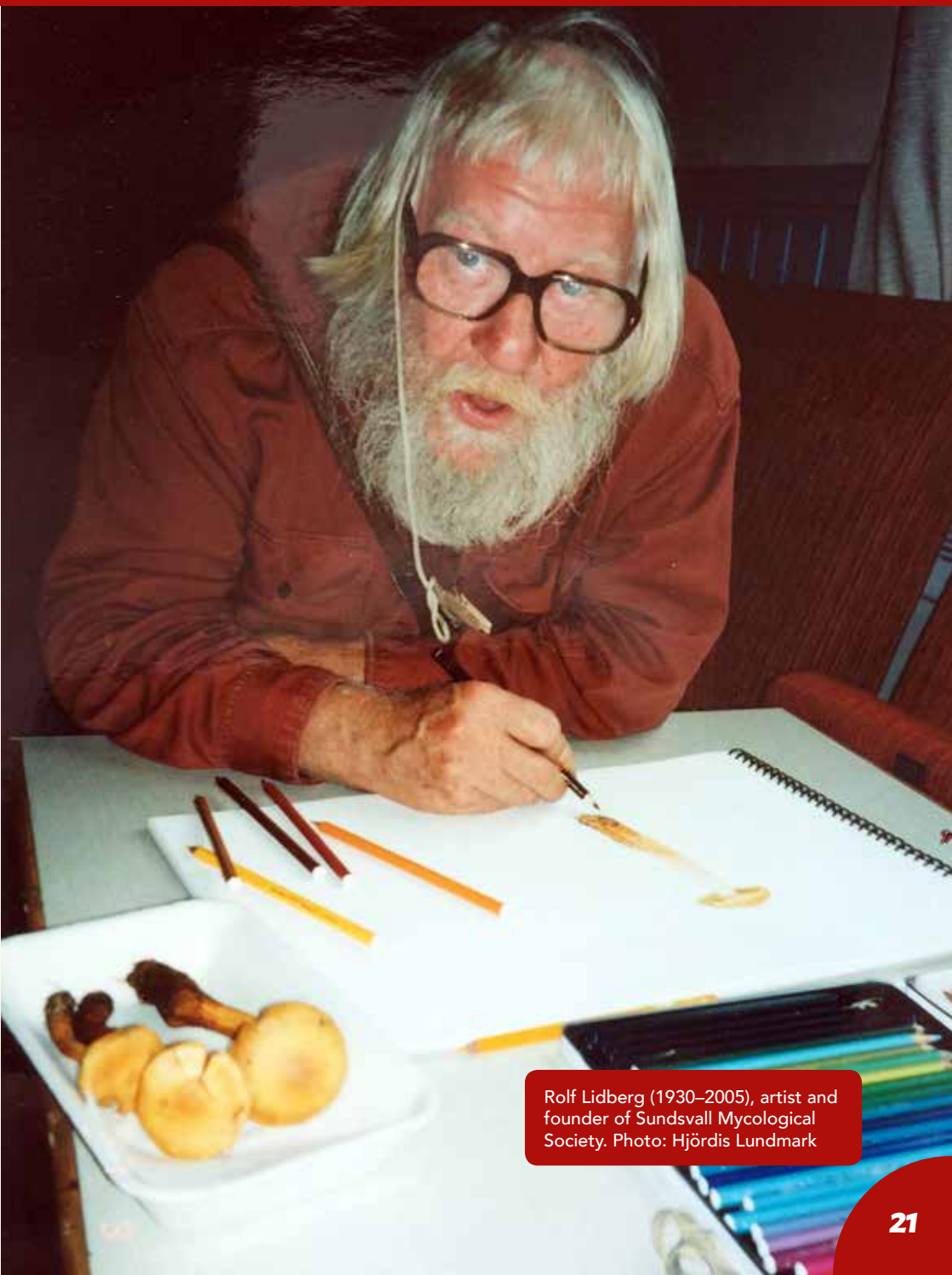
José Maria Traba-Velay

South Korea

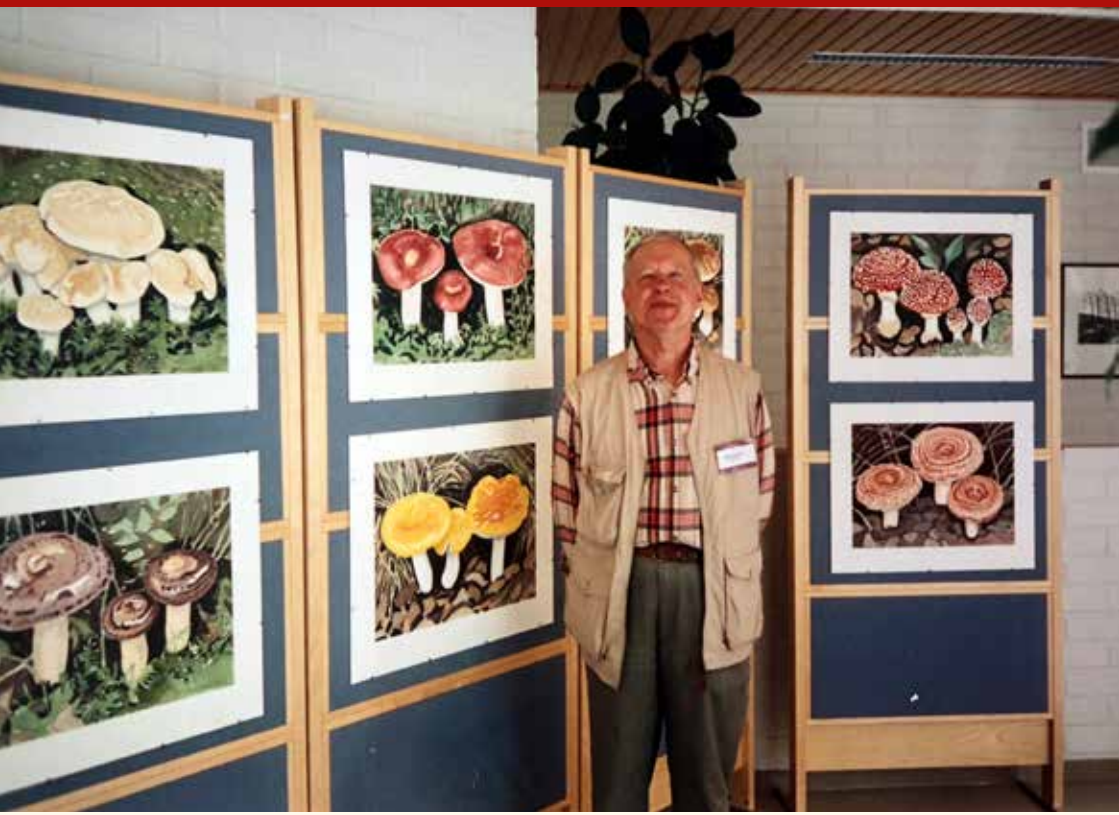
Hyun Lee

Sweden

Leif Andersson
Anders Aronson
Margareta Byström
Rolf-Göran Carlsson
Inga Lill Franzén
Stig Jacobsson
Kurt Anders Johansson
Mats Karlsson
Herbert Kaufmann
Gunilla Kärrfelt
Bengt Larsson
Ellen Larsson
Bernt Linton
Lars Ljungberg
Hjördis Lundmark
Siv Norberg
Jan Olsson
Elisabet Ottosson
Bengt Petterson
Karl Soop
Kristoffer Stighäll
Anita Stridvall
Håkan Sundin
Tony Svensson
Maj-Britt Såthe
Lennart Söderberg
Jeanette Södermark
Jan-Olof Tedebrand
Birgitta Wasstorp



Rolf Lidberg (1930–2005), artist and founder of Sundsvall Mycological Society. Photo: Hjördis Lundmark



Mauri Korhonen. Photo Hjördis Lundmark

Lactarius workshop 1-5/9 1997 in Borgsjö – some nostalgia

Hjördis Lundmark, Nils Lundqvist, Olle Persson, Jan-Olof Tedebrand and Birgitta Wasstorp from Sweden participated 1996 in 13th Nordic Mycological Congress in Mekrijärvi, eastern Karelia. Mauri Korhonen and his friends had arranged an interesting program. In spite of dry weather we found *Lactarius rufus* and *Russula paludosa* at the *Pinus* heaths of Karelen. *Russula vinosa* dominated in *Picea* forest with blueberry. *Russula claroflava* was common in moist *Betula* woods. We also picked lot of cowberry. A group of *Lactarius picinus* at the exhibition table got another name next day: *L. fuliginosus*. Annemieke Verbeken talked about *Lactarius zonarioides* and related species in Europe. We invited Thea von Bonsdorff, Eine and Mauri

Mauro Sarnari with a beautiful Russula in Borgsjö 1997. Photo: Hjördis Lundmark

Mauri Korhonen Russula 1996. Photo Hjördis Lundmark

Korhonen, Ilkka and Pirjo Kytövuori, Annemieke Verbeken, Maria Teresa Basso, Jan Vesterholt and others to join us at workshop 1997 in Borgsjö about *Hebeloma* and *Lactarius*. Mauri had in 1984 published his fantastic book "Suomen rouskot" about *Lactarius* in finnish. Mauri had an exhibition of excellent mushroom paintings in Mekrijärvi 1996, refer to Hjördis photo. Report: http://www.myko.se/wp-content/uploads/2014/06/Borgsjö-1997.pdf

Hot and dry summer

The summer of 1997 had been hot and dry in Borgsjö and in the rest of Sweden. A forest of 500 hectares burnt south of Ånge. Around one hundred of European *Cortinarius* fans gathered in the city of Härnösand in the province of Ångermanland at *Journées Européennes du Cortinaire*. Some of the participants like the Italian *Russula* expert Mauro Sarnari then went to *Hebeloma* and *Lactarius* workshop In Borgsjö.

Mauri Korhonen Russula 1996. Photo Hjördis Lundmark

Some rain had fallen in august further west in Bräcke and Östersund in the county of Jämtland. Everyone called out: go west! At the end of the week mushrooms also appeared in Borgsjö. We were 53 participants and met many of our dear friends like Thea von Bonsdorff, Machiel Noordeloos and Olle Persson. Mauri Korhonen was leader of *Lactarius* workshop with good help of Ilkka Kytövuori, Annemieke Verbeken and Maria Teresa Basso. Mauro Sarnari gave us many inputs about *Russula* and later on Mauro described some new *Russula* species in his *Russula* book based on material from his visit to Mid Sweden. Jan Vesterholt also talked about on *Hebeloma* species. Håkan Lindström and Karl Soop made well appricated presentations every evening at the *Cortinarius* table, mostly about "brown mushrooms" in *Telamonia*. Jacob Heilmann-Clausen and Morten Christensen from Denmark every day came back from the west with full baskets. On friday afternoon Omer Van De Kerckhove showed some of his excellent aquarelles painted during the week. We had also

Mauri and Eine Korhonen, dear friends at Lactarius and Russula workshops in Borgsjö. Photo Hjördis Lundmark

some short slide shows in the nights. Annemieke Verbeken spoke for example about "Infrageneric classification of the genus *Lactarius*", Ilkka Kytövuori about: "Yellow species of the *aspideus* and *scrobiculatus* group" and Machiel Noordeloos about " Problems in brown *Lactarius* species".

The local newspaper had an article of several pages in their sunday paper about Maria Teresa, Rolf Lidberg and about *Lactarius* with many photos and wonderful paintings. Maria Teresa said in the article that she was impressed of the northern forests in the area and that she had found interesting "finnish *Lactarius* species never seen by me before. They were hidden in deep moss in old woods in Medelpad and Jämtland". *Lactarius* species are "so beautiful and quite fantastic" she said. Rolf

Lactarius lignyotus. Painting by Maria Teresa Basso. *L. lignyotus* has an oceanic distribution in mid Sweden: rather common near the bothnian coast, rarely found in forests with more continental climate between the bothnian sea and the atlantic ocean and then again more common in the western part of Jämtland. Many fungi have that kind of oceanic distribution in Medelpad and Härjedalen/Jämtland. *L. lignyotus* and 11 other *Lactarius* species, their ecology and distribution in Sweden is commented by Stig Jacobsson, Anita and Leif Stridvall in the journal Jordstjärnan 1991 (1): 45–63.

Bengt Petterson records today's fungus findings. Photo: Katarina Lundmark

Lidberg translated from Italian to Swedish. He spoke Italian since he spent long periods studying orchids in Italy, especially Sicily. Maria Teresa and Rolf became friends and sent letters to each others. Maria Teresa, Omer van De Kerckhove, Rolf Lidberg and Erhard Ludwig made wonderful paintings of *Lactarius* during the *Lactarius* workshop in Borgsjö 1997.

Mauri Korhonen made a summary at friday evening, see page 8 of the report: "We have collected 40 species of *Lactarius* during the week. A high amount as there are no hazel or beech here in the Borgsjö area. All collections were also in good condition. We have seen almost all *Lactarius* species occurring in the area. A nice week". We found "*Lactarius utilis*" at many localities during the week. But Jan Vesterholt did not accept to separate *L. utilis* from *L. trivialis*. Funga Nordica (2012) includes *L. utilis* in *L. trivialis*. Mauri said that *L. vietus* may include several species. Jacob Heilmann-Clausen and Jan Vesterholt found in Jämtland 3 collections that they identified as *L. syringinus* (near *L. vietus*), a species described from Tjech Republic. *L. syringinus* was not accepted by Maria Teresa in her *Lactarius* book. Funga Nordica (2012) includes *L. utilis* in *L. trivialis*. All this illustrates that even in a relatively well-studied genus as *Lactarius* there are still unresolved questions.

Meantime we also found some *Lactarius* species in Jämtland and Medelpad not mentioned in Mauris list 1997. *Lactarius bertillonii* (now in *Lactifluus*) is found together with the orchid *Calypso bulbosa* in Ensillre kalkbarrskog, Borgsjö. The southern *Lactarius citriolens* is found in bogs with lime in Tysjöarna nature reserve, Jämtland. The alpine *Lactarius brunneoviolaceus* appears also under *Salix* like at the shore of Borgsjön. *Lactarius duplicatus* (=*lapponicus*) is found among *Aconitum* in rich forests along streams all the way to the bothnian coast. During good mushroom years *Lactarius pyrogalus* is common under hazel in eastern Medelpad and is found by Rolf Lidberg and Håkan Lindström at Hattberget in Liden parish, the most northwestern occurence in Sweden for both hazel and *Lactarius pyrogalus*. *Lactarius camphoratus* is another more southern species that only appear near the bothnian coast in Medelpad and Ångermanland. *Lactarius porninsis* was found by danish mycologists (Henning Knudsen, Erik Rald) in 1986 under *Larix* in Siw Muskos homeforest at Torkarlsberget. Both varieties of *L. flexuosus* are found in Medelpad: var. *flexuosus* and var. *roseozonatus*. In 1997 we did not find two rather common *Alnus* species: *Lactarius obscuratus* and *omphaliformis*. *Lactarius lacunarum* is also found in Medelpad. Perhaps a group will go to Stornäset nature reserve near the sea at Alnön with vaste *Alnus, Betula, Salix* swamps at limestone, a hot spot for fungi.

Mauri also mentioned that we found much of *L. theiogalus* during the week, that *L. pilatii* (*i*) is common in Borgsjö in wet areas, and that we found all the northern yellow milked *Lactarius*.

Mycologists at *Lactarius* workshop in Borgsjö 1997: Inga-Lill Franzén, Siw Muskos, Magnus Källberg, Birgit Hagman. Photo: Kjell,Olofsson

Mauri also pointed out that *L. sphagneti* is paler than *L. badiosanguineus* and has different ecology*: L. sphagneti* is found in wet places. *L. badiosanguineus* belongs to the *Lactarius* flora in calcareous *Picea* forests. tFurthermore, we found the alpine *L. subcircellatus* under *Betula* at several places in Borgsjö during the week. Another nice record was *L. spinosulus* at the churchyard around Borgsjö church.

In 1998 Jacob, Jan and Mieke published "The genus *Lactarius*", volume 2 in the danish series "Fungi of northern Europe". In 1999 Maria Teresa published her magnificent volume "*Lactarius* Pers." in the serie "Fungi Europaei". Our insights in the genus and in species delimitation are still growing. In 2008 the milkcaps were split in *Lactarius* and *Lactifluus*, with relatively little nomenclatural consequences for the European milkcaps, since most of the species remain in *Lactarius* and only about a handful of them are recombined in *Lactifluus*. Some of the traditionally accepted and well-known species turn out to be a species complex hiding more than one species, this is e.g. the case for *Lactifluus volemus*. Exploration of good distinguishing features, ecological preferences and exact distribution areas is still needed for many species.

Group photo, *Hebeloma* and *Lactarius* workshop in Borgsjö 1997. Photo: Kjell Olofsson

At this Russulales workshop in Borgsjö, we will present the new volume of Flora Agaricina Neerlandicat. Volume 7 deals about Boletales and *Lactarius/Lactifluus*) in the Netherlands and neighbouring countries and is written by Noordeloos, Verbeken and Nuytinck.

A *Russula* week with Henning Knudsen took place in Borgsjö 1984. In 2001 Juhani Ruotsalainen and Jukka Vauras led us in the fascinating *Russula* world, see report: http://www.myko.se/wp-content/uploads/2014/06/2001-Borgsjöveckan.pdf. At page 16 in the report you can find a list of 70 *Russula* species found in 2001.

Daily program

SUNDAY 26/8

13.00–18.00	Hjördis Lundmark and Jeanette Södermark meet participants at Erikslunds Folkets Hus, will distribute f olders with name slips, maps, preliminary excursion program monday-friday. You can also buy the magnificent volume Medelpads Flora by Rolf Lidberg and Håkan Lindström (10 euro) and Per Marstads book about Nordic *Russula* Species (20 euro). Jeanette Södermark guide to hotel Mittlandia.
17.00	County governor Berit Högman makes a welcome speech, tell about the beautiful county of Västernorrland and opens the *Russulales* workshop 2018 in Borgsjö.
Evening	Later on in Sunday afternoon you can have dinner at Träporten inn until 20.00 or at Mittlandia hotel, find a working place at Erikslunds Folkets Hus, say hello to new and old friends. Closing of working hall at 23 o´clock.

DAILY PROGRAM MONDAY 27/8–FRIDAY 31/8

7.00	Opening of the working hall at Erikslunds Folkets Hus
8.15–8.20	Short planning meeting with functionaires
8.30	Excursion groups leave, bringing lunch packet
14.00	Return to the working hall, group to Jämtland return 15.00–16.00
15.00–16.00	After noon tea or coffee
17.00–19.00	Dinner. Most people have dinner together at Träporten inn. They offer three alternatives: vegetarian food, fish or meat for a price of 120 Swedish crowns (10 euro).Hjördis has a list and you fill in your desires day by day and then Hjördis will give the list to Träporten inn before the dinner so they are prepared
19.00–21.00	Evening the or coffee

Erikslunds Folkets Hus, our working site. Photo: Olga Morozova

19.30	Short presentation of next days excursion goals, you can also read more detailed information about the localities in the excursion guide
20.00–20.30	Presentation of interesting *Lactarius* and *Russula* species.
21.00	Talks some evenings (maximum 20–30 minutes). If you want to present a short talk, please contact Annemieke before the workshop
23.00	Closing of working hall

Wednesday at 08.30 group photo outside Erikslunds Folkets Hus

Cultural events

At 16 o´clock tuesday afternoon those who want gather outside Erikslund´s Folkets Hus. We will visit the Wood Carving Museum close to our working hall where the the rallaren (the navy) Gösta Sundin created very detailed models of life in the old farming society, always in a humerous way and with only knife and sandpaper. Along the old village road east of the wood carving museum there are also big, beautiful old wooden houses with ornate, decorative carvings.

At 16 o´clock on thursday afternoon those who want can gather outside our working hall. Then we visit Borgsjö church, the finest rococo church in Sweden and admire the old paintings and sculptures in the church. Of course we say hallo to Saint Olof (medieval wooden sculpture), highest protector of Russulales workshop in Borgsjö. We also visit the old folk museum (youth hostel) where baking of "tunnbröd" in big stone ovens will be demonstrated.

Of course you must look at exhibitions of nature at Ånge Naturum, Träporten inn. There you can also enjoy Hjördis Lundmark´s and Siv Norberg´s exhibition on mushroom dyeing. You can also visit the city of Sundsvall with famous stone houses and "kulturmagasinet" (library and museum) built after the city fire in 1888. Also the city of Östersund is worth visiting with its old folk museum Jamtli.

Banquet evening thursday at 19 o´clock

At 19 o'clock thursday evening a social evening (banquet) take place at Träporten inn (no payment, included in registration fee). Please tell Hjördis at the arrival sunday afternoon or latest at monday if you plan to join the social dinner)includes in participation fee) and also if you are allergic and have special wishes.

Short talks (max 30 minutes)

Monday evening 21:00

Slavomir Adamcik report about microcopy workshop on Russula in Slovakia during the spring 2018 andabout reliable field collection of Russula

Friday evening 19:00

Summary. We have during the week written at flipover species found in *Lactarius* and *Russula* like we did in 1997. Annemieke Verbeken and Slavomir Adamcik make a short summary of the week and thank all participants and functionaires.

Henri Romagnesi and Jacques Melot at Borgsjö cemetary in 1983. Photo: Siw Muskos

Other ideas for talks

- "Russulales news: what's new in *Russula*" by Felix Hampe
- "Hidden species in *Lactarius*" by Stefanie de Schrijver, Jorinde Nuytinck and Annemieke Verbeken

Flora Agaricina Neerlandica about Boletales and Lactarius

During the workshop a new volume of the FAN (in a completely new format) on *Boletales* and *Lactarius* (Noordeloos, Nuytinck, Verbeken) in the Netherlands and in West Europe will be presented, 800 pages and 550 colour pictures, part 7 in Flora Agaricina Neerlandica.
You can buy FAN from Annemieke Verbeken in Borgsjö.

Åsa Kryus and Mats Hjertsson tell about the collections at the Museum of Evolution in Uppsala for Jeanette Södermark, Hjördis Lundmark and others from Medelpad. Photo: Håkan Sundin

Swedish species information centre

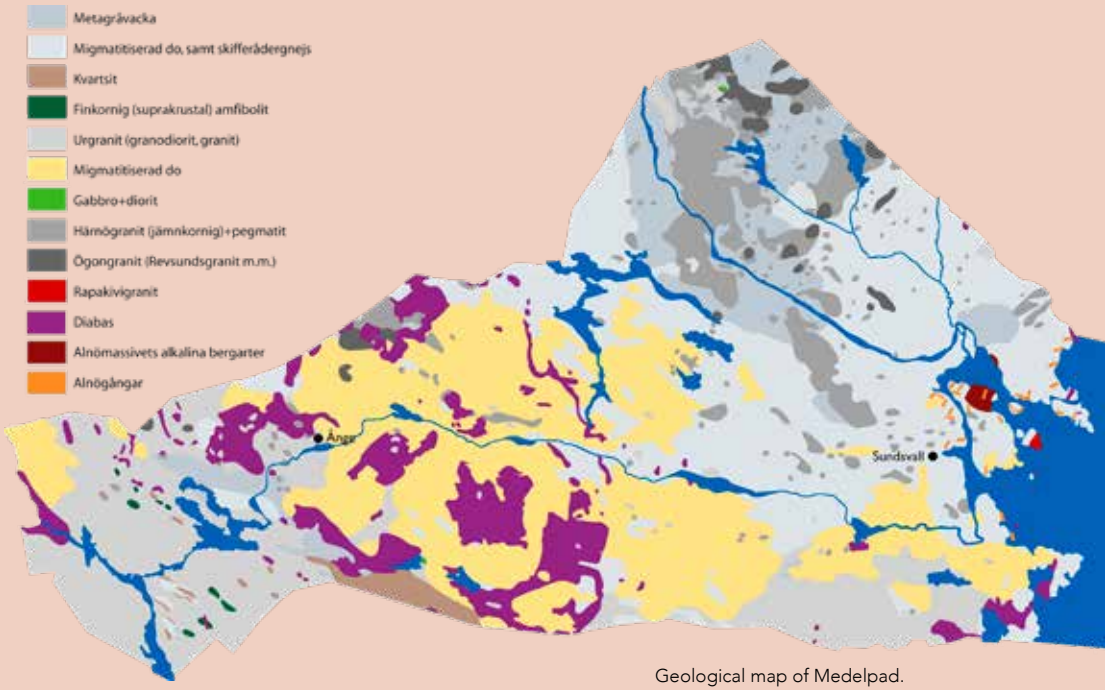
The Swedish Species information Centre (Artdatabanken) at the Swedish University of Agricultural Sciences in Uppsala accumulates, analyses and disseminates information concerning species and habitats in Sweden.

At the home page, http://artportalen.se, you may find information concerning the known distribution of fungi in Sweden. Very popular in Sweden is to report findings of birds, butterflies, fungi and species of other groups to the Swedish Species Gateway (Artportalen). The Swedish

Elisabet Ottosson informing about The Swedish Species Gateway (Artportalen) when botanists from Medelpad in april 2018 visited the Swedish Species Information Centre in Uppsala.
Photo: Håkan Sundin

Taxonomy Initiative began in 2002 and actively remains a part of the Swedish Species Information Centre. This project is globally unique, aims to describe all Swedish multicellular species, which are currently around 60 000. National Red Lists concerning fungi are produced every five years, in close collaboration with the corresponding fungal redlist committee in Norway, chaired by Tor Erik Brandrud. The next redlist will be published in 2020.

Elisabet Ottosson, mycologist at the Swedish Species Information Centre, will join us some days in Borgsjö. In her doctor´s thesis (dissertation) she studied d fungi in dead wood with DNA-methods. In april 2018, Elisabet organized a visit 8tto The Species information Centre for a group of botanists from Medelpad. We also visited The Museum of Evolution in Uppsala.



Geological map of Medelpad.

Excursion areas

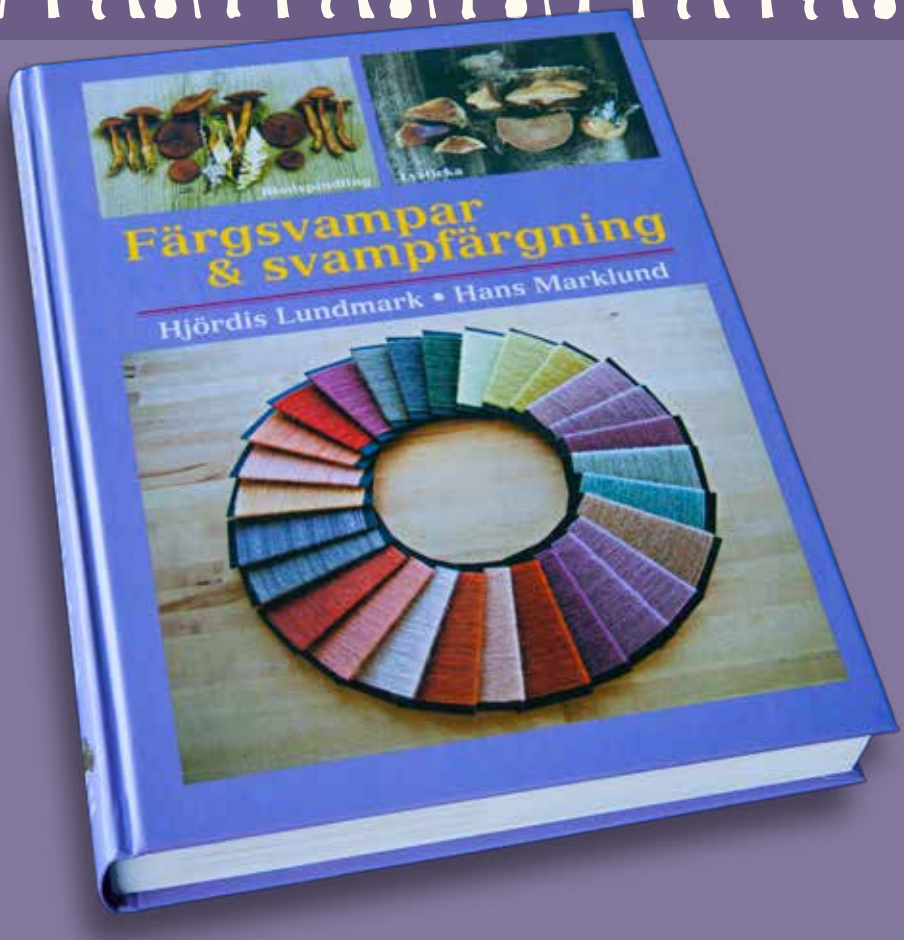
The most common forest type in Sweden and in the excursion area is Picea forest (some Betula and Pinus) with blueberry in the ground layer ("blåbärsgranskog" in swedish). We will mostly visit calcareous, herbrich Picea forests in mountain slopes ("ängsgranskog" in Swedish) for example Granbodåsen and Julåsen. Picea forests and fens of Cypripedium type like Tysjöarna is also interesting for rare species in Russulales like Lactarius olivinus and Russula olivobrunnea. Picea of good quality is also important for Callans Trä AB, the local saw mill that provides many jobs for people in the Borgsjö area.

Dry calcareous Pinus forest on limestone or sand like Andersön and Lombäcksheden have their special Lactarius and Russula species. We will also visit moist Alnus, Betula and Salix areas along lakes and rivers. The Borgsjö valley is surrounded by 3–400 meters high mountains, often with high steeps like Rankleven ("sydväxtberg" in Swedish) with southern and sometimes alpine species. In shady, moist and herbrich

slopes north of the high mountains we find best areas for mushrooms in dry years. We also hope to make short stops at burnt areas near our excursions goals. In Jämtgaveln nature reserve areas have been burnt in 2015 and 2018 just near the forest road by John Granbo and his fellow workers at the County Board. If you want more details about birds, lichens, mosses, butterflies and other species groups in the excursion area, please talk to our guides Bengt Larsson and Håkan Sundin. At Ånge Naturum (at Träporten inn) Maria Stierna and her fellow workers also can tell about nature and culture in Ånge municipality. We have also in nordic nature kind creatures like trolls, hulders and elves. Near old forest meadows like Granbodåsen and Kullbodarna you can meet "the small people" – vittran.

In order to plan our excursions for the Russulales workshop 2018, we focus on places with earlier findings of rare and interesting species in ***Lactarius*** and ***Russula*** g. We plan to have 3-4 excursion groups per day during Russulales workshop. We decide excursions goals at Sunday 26th of august when we know where to find fresh fruitbodies. The evening before the excursion, after the presentation of the excursion sites, you put your name at one group on the lists in the working hall, not more than 15 persons in any group. Please, respect this wish. Of course some participants, who now the excursion areas since earlier workshops, go by themselves.

The excursions start at 8.30 outside the working hall. Group number one drives away first, then group number two and so on. We have two guides per group, one guide drive fist, the other as last car. Every group chooses one or more persons two make a list of species found at every visited locality. Before leaving an excursion place the group gathers and species list is written. After the arrival back to our working hall all lists must be given to Jan-Olof who is responsible for the final report.



Discover the magic of

Mushroom dyeing

Collecting mushroom is exciting and interesting but picking mushrooms for dyeing is magic!

The Mushroom-pigments gives all the beautiful colours of the rainbow, which the plants don´t give. There is an endless range of colours depending on how much/little mushrooms, species of mushrooms and the quality of wool/silk you use.

The process is simple. The mushrooms boil in a dyepot of water, about 1 hour. When the mushrooms is sinking to the bottom of the dye pot it is ready for dyeing. Put in the Wool/silk, which has been mordant with Alumn /creme of tartar and you get a very nice result.

Dyeing with plants is an old tradition. Mushroom colour-chemistry is a new knowledge. When the discovery of the mushroom colour chemistry was made in the middle of 1970, mushroom-dyeing was born.

Hjördis Lundmark

Dermocybe, Cortinarius are perhaps the best colour mushrooms. Cortinarius semisanguineus has given the red colour. Photo: Tatyana Svetasheva

The Ikat is a Japanese technique that you dye multicoloured yarn with. Hjördis and Olga Morozova are talking about it. Photo: Tatyana Svetasheva

Inga-Lill Franzén shows her mushroomdyed silk scarf. Photo: Tatyana Svetasheva

Mushroomdyeing at Hjördis Lundmarks home in Kyrkdal. Photo: Berthold Lundmark

How to describe Russulaceae in field?

Before deciding to make a description, identify a reason why to do it. The most common reason to describe Russulaceae is a difficulty to identify them in the field and need of microscopy for that. Photo may be very useful to document a general view of fungus, but some key characters (taste, odour) are not recorded on the image and, even, colours are modified.

Combining a brief description with photos may serve well to support identification of Russulaceae. The second reason to describe field appearance (macro-morphology) of Russulaceae is gathering of data for taxonomy. In light of current molecular research many of taxonomic novelties are introduced but little attention is paid to morphology. Newly recognised phylogenetic species reflects genetic nature of studied species and their evolution history; yet, their morphological delimitation often remains unresolved.

Compare to traditional morphological concept, phylogenetic results often lump or split species unpredictably and new morphological characters are desired. Even if traditional concept is congruent with the molecular data, sometimes the species limits are blurred by lack of data. In any case, when working with morphology, full and detailed descriptions from multiple collections, originating from distant areas and different habitats are welcome.

Photos

Photos do not show the full information required but still are powerful tool and might represent a useful source of data. They are often a shortcut to identify the species.

A good photo should show:

1. Fruiting bodies in young and mature stage
2. A view of at least one individual showing hymenium in mature stage (with lamellae able to produce spore print), colour and surface aspect of the pileus cuticle, and also one individual cut longitudinally to show the colour change of the context.
3. A scale bar or an object allowing to identify dimensions

Avoid:

1. Combining fruiting bodies collected in different places, always use only individuals expected to origin from a single mycelium; never use individuals that are not clearly the same species.
2. If your collection consists only of one or few fruiting bodies, make more photos in different views
3. Sometimes too much lightness can hide structure of the surface, small colour spots may fade or surface structure can be invisible. Lamellae or surface, may look paler as they are, and the whole picture may by more blue or more yellow as in reality. Check your picture twice.

Brief descriptions

Brief descriptions are useful to support identification using a key. You can check the key and decide which characters are useful. Recommended is to record characters that are not displayed at photos : spore print, taste, odour.

Learning how keys to Russulaceae identification works may help to decide which additional characters are useful to record.

Full descriptions

To decide about morphological variability and delimitation of Russulaceae, all possible and available morphological characters are needed. Or, at least, a selection of many of characters that are consistently recorded for each collection of the studied species. Efficient way how to be consistent and remember to record all required characters is using description forms.

Some description form can be very elaborated like the one presented at Russulales news webpage by Dr. Buyck (http://www2.muse.it/russulales-news/tc_in_the_field.as). Some people may like shorter that are easily kept in herbarium envelopes together with the dried fungal specimen. Example of a smaller description form is on the next page.

Anybody may prepare and modify description form according to his personal preferences and to test it in field. There are several ways how to list characters in the description form.

1. just a simple list of objects to be observed, e.g. pileus, stipe, lamellae edges, context
2. listing of all characters observed, e.g. pileus surface and cuticle peeling, stipe shape and interior, colour and profile of lamellae edges, odour and taste of context
3. listing characters stages to be ready to select by checking of a box or circling a selected option, e.g. pileus viscid and shiny when dry or not viscid and matt when dry; stipe solid, stuffed, cavernate, hollow; lamellae edges entire, serrulate or irregularly dented.

Collecting of Russulaceae

To preserve Russulaceae fruiting bodies in a suitable stage for microscopy and DNA extractions:

1. avoid unnecessary handling especially of lamellae
2. wrap fruiting bodies of each individual collection in aluminium foil or waxpaper
3. do not scratch surface of fruiting bodies with knife or other tools in effort to remove attached soil or litter particles, only gently clean the surface of a dirt

Drying of herbarium specimens

Herbarium specimens became important source of DNA sequence data. The best way to dry specimens for molecular analysis is deep-freezing (lyophilisation), CTAB sampling (buffer) or drying in silica gel. The most common and yet convenient way how to dry Russulaceae is using food dryer (dehydrator). When deciding about the dryer type, choose one with temperature control, best temperature to dry fungi is 40 °C.

During drying, caps should be oriented with hymenium up, because cap cuticle may inhibit the evaporation of the moisture. However, moist and sticky cap cuticle may stick on the racks or papers. To avoid it, move the caps two-three times before they dry, or use fine mosquito mesh (sometimes provided by producer) cut in the shape of the racks.

Russula

Country and geographical location _____

_____

Date _____ Collector _____

Associated plants _____

Pileus size _____

Margin striate at _____

Shape: lobate, long involuted, deep depressed, umbonate _____

Surface _____

Color near margin _____

Color near centre _____

Peeling _____ Thickness of flesh in half diameter _____

Stipe size _____

Surface _____ Color _____

Cortex _____ Medulla _____

Gills width _____ Lamellulae _____

Number on 1 cm near cap margin _____

Edge _____ Furcations _____

Color _____ Spore print _____

Flesh Taste _____ Smell _____

Consistency _____

Color change _____

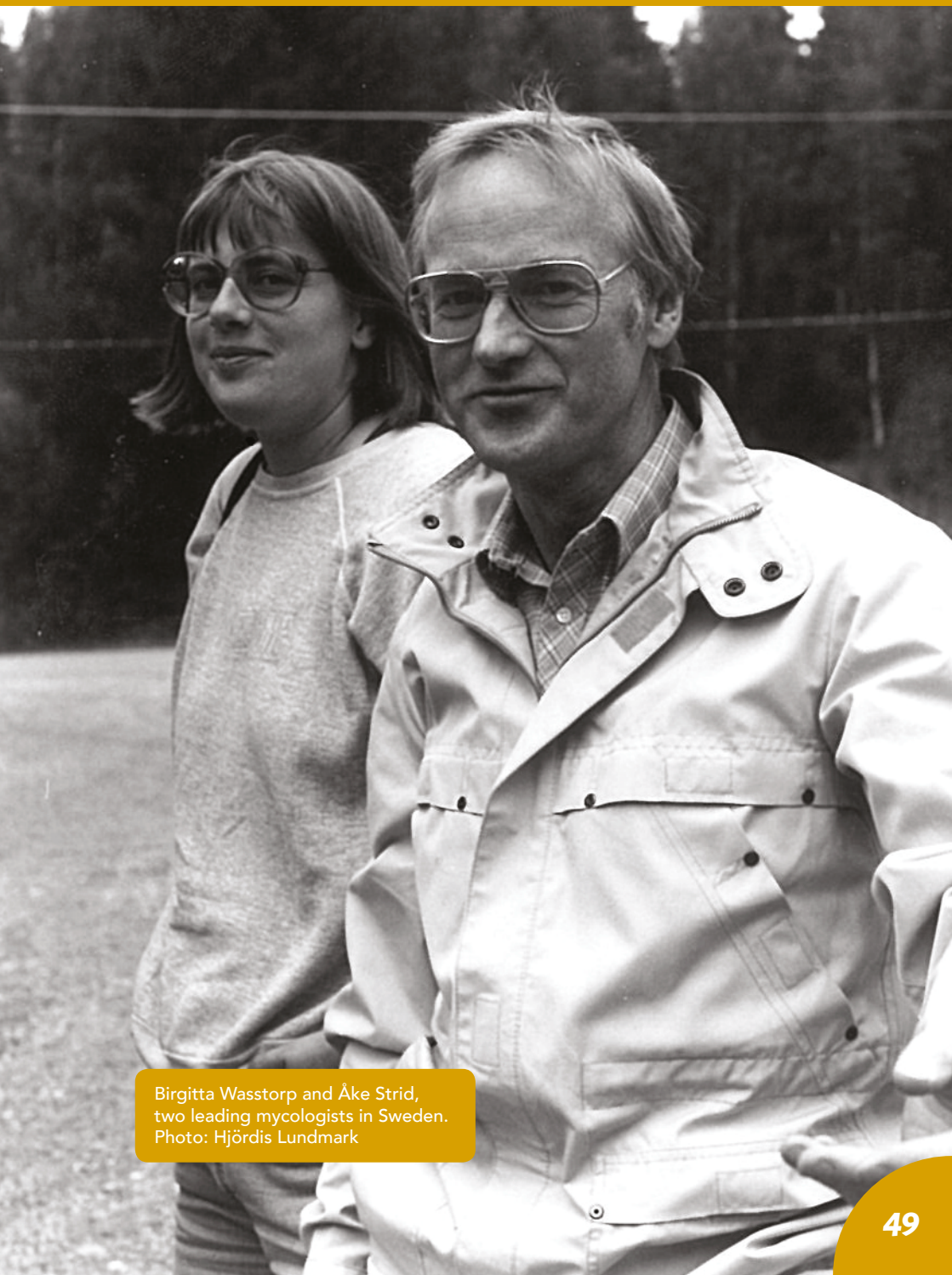
Medelpad
coat of arms

Map of parishes in Medelpad.

Province of Medelpad

Medelpad is a landscape that is wholly part of the county of Västernorrland. Medelpad borders in the south to Hälsingland, in the west to Härjedalen, in the northwest to Jämtland, in the north to Ångermanland and in the east to the Bothnian Sea.

Medelpad is one of Sweden's 25 landscapes, which has the 13th largest area, 13th highest population density and 16th largest population. Of Northern Sweden's nine landscape, Medelpad has the second smallest area, the sixth largest population and the second highest population density. The largest length in the east-west is 140 km, and the largest latitude in the north-south is 90 km.



Birgitta Wasstorp and Åke Strid, two leading mycologists in Sweden. Photo: Hjördis Lundmark

Borgsjö parish

1 Västanå

693534;1506537

Forest along the path south of our working hall down to the river Ljungan. Populus tremula, *Betula, Picea, Pinus, Salix*. Watch out for the train. *Lactarius spinosulus, Russula aquosa, atrorubens, consobrina, firmula, nitida, paludosa, rhodopoda, versicolor, vinosa, xerampelina.*

Also: *Albatrellus syringae, Cantharellus cibarius, Cortinarius argutus, uliginosus, Laccaria amethystina, Stagnicola perplexa, Tricholoma apium, focale, populinum, scalpturatum*

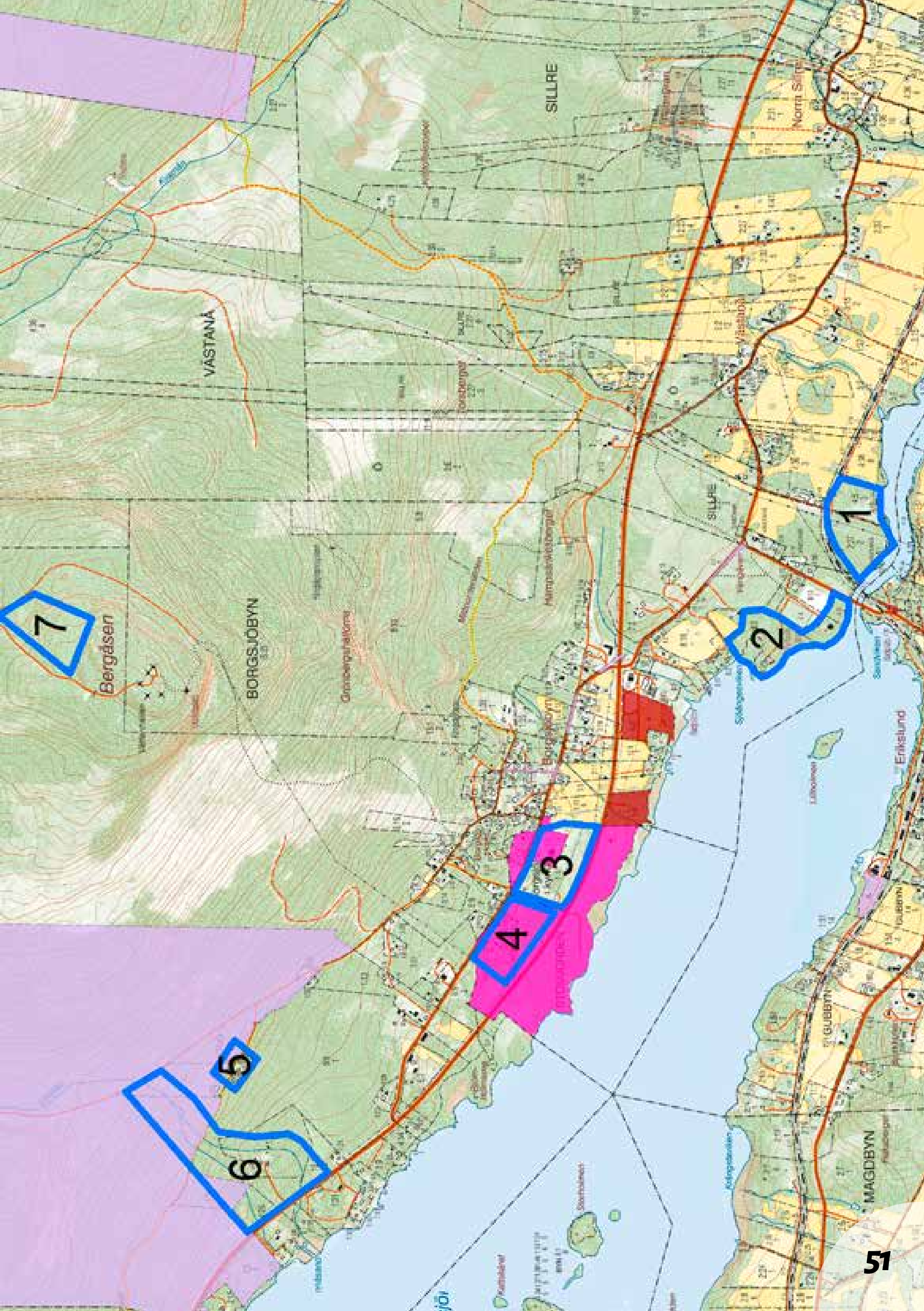
Comment: New type for *Tricholoma stans* from this forest, see danish book about Ridderhatte (Christensen-Heilmann-Clausen 2013, page 76 and 209).

2 The lake forest of Henri Romagnesi

6935635;1505988

Forest along the lake Borgsjön with *Alnus, Populus tremula, Betula* and *Viburnum opulus*. Also swamp area with *Salix*, dry *Pinus* forest near the bridge.

Henri Romagnesi walked 24/8 1983 the path north of the football ground to the lake shore. Henri was extremely delighted to find the small *Amanita friabilis* for the first time in his long life. In swamp area with *Salix* along the lake Ruben Walleyn found in 2001 *Lactarius brunneoviolaceus*, according to Funga Nordica (2012) an alpine *Lactarius* species. Also among Russulas there are alpine species occuring under Salix down to the bothnian coast. Henning Knudsen and Håkan Sundin found in in road ditches 2014 *Russula laccata* under small *Salix triandra* at the shore of Indalsälven in Hässjö parish Medelpad. We also find *Russula laccata.*


SILLRE
VÄSTANÅ
BORGSJÖBYN
Bergåsen
SILLRE
Eriksund
GUBBYN
MAGDBYN
1
2
3
4
5
6
7

Håkan Lindström, Henri Romagnesi and Jan-Olof Tedebrand discuss a *Russula* species during workshop in Borgsjö 1983. Photo: Siw Muskos

road ditches under other Salix bushes.

Lactarius *glyciosmus, lilacinus, L. obscuratus, representaneus, torminosus, trivialis, uvidus.*

Russula *maculata (=globispora*, Lars Lundberg och Stig Jacobsson 1989), *medullata* (Jan-Ola Wimo-Henri Romagnesi 24/8 1983).

Also: *Antrodiella serpula, Coprinopsis pannucioides, Cortinarius lilacinopusillus, uliginosus, violaceus, Eutypa flavovirens, Gyrodon lividus, Mycena corticola, Paxillus filamentosus* (Henri Romagnesi and Jan-Olof Tedebrand 24/8 1983), *Psatyrella pannucioides.*

Russula painting by the young mycologist Hjördis Böhning

Henri Romagnesi, Jacques Melot and Jan-Olof Tedebrand at Ormberget in Borgsjö 1983. Photo: Herbert Kaufmann

Russula workshop with Henri Romagnesi at Borgsjö 1983

During the fall of 1982 Rolf Lidberg, founder of Sundsvall Mycological Society, stayed a long time in Paris. Rolf and Jacques Melot visited Henri Romagnesi at his place of research, a plain botanical library. Rolf spoke fluent french and invited Romagnesi to visit Sweden and Borgsjö the following fall. Around midsummer 1983 a letter with positive answer arrived from Paris together with a menu for the week. Henri wanted grilled beef every day with vegetables. Our innkeeper at Saint Olavs inn ordered moose meat from the local butcher. Henri arrived at Stockholm airport the 20th of August where Erik Malm and Birgitta Wasstorp met and drove him by car to Borgsjö in extreme hot summer weather. Henri had warm winter clothes with overcoat and scarf. Erik Malm had a gift for languages and spoke french. Siw Muskos also made a welcome speech in french. Rolf Lidberg informed the first evening in french about the special nature types of western Medelpad. Among the 20 participants were Jukka Vauras, Eine and Mauri Korhonen from Finland. Mauri collected and made photos of ***Lactarius*** species for his beautiful book about ***Lactarius*** in Finland. He taught us a northern ***Lactarius*** species in calcareous moist ***Betula*** forests that now has got the name ***Lactarius flavopalustris***. Henri Romagnesi was very kind and put some of our ***Russula*** findings under his microscope. For several ours he studied a white

Russula from Mount Välliste in Jämtland, finally he said: "c´est une ***aeruginea très pale***" (that is a pale ***aeruginea***).

Stig Jacobsson commented many findings of ***Russula*** species from the ***Russula*** week with Henri Romagnesi in the journal Jodstjärnan 1984/1. Together with Anita and Leif Stridvall, Stig also presented j facts about 14 ***Russula*** species, their ecology, frequency and distribution in Sweden in Jordstjärnan 1990 (2): "Den svenska utbredningen av några kremlearter". They discussed ***R. aurata, caerulea, consobrina, cyanozantha, farinipes, illota, grata, lepida, mustelina, nigricans, ochroleuca, queletii, sardonia*** and ***virescens***. Stig will join us at ***Russulales*** workhop 2018.

The summer in 1983 had been extremely hot and dry in Sweden. We had to look for Russulas in shady slopes with tall herbs north of high mountains, in brook ravines and along wet fens. Two longer excursions were made to Sällsjö and Mount Välliste in the province of Jämtland where some more rain had fallen. In spite of the dry summer we found 38 ***Russula*** species. 51 collections in all of 32 species were deposited at Natural Historical Museum in Stockholm (S). Henri said that the nature in western Medelpad reminded him of Jura mountains in France. jn n***s*** After ***Russula*** workshop Henri Romagnesi traveled to Uppsala where Svengunnar Ryman presented to him Carl von Linnés farm Hammarby and the Linné garden. Then Åke Strid and Nils Suber showed the herbarium at Swedish Natural Historical Museum in Stockholm (S).

Nils Suber (1890-1985) was a famous and popular mushroom amateur who was very fond of the genus ***Russula.*** He sent two slides of ***Russula*** species to the ***Russula*** workshop in Borgsjö with Henri Romagnesi: ***Russula urens*** Romell from the same place in Karlberg palace park in Stockholm where Romell made his finding and ***Russula adulterina*** Fries from Drottningholm royal palace in Stockholm. Nils Suber also wrote about ***Russula adulterina*** in his book

"I svampskogen" (1950, 1968) and also in Swedish Mycological Societies journal Jordstjärnan 5, 1984: 37-39: " Två sällsynta ***Russula***-arter". John Axel Nannfeldt then kindly commented Subers writings about ***R. adulterina*** in Jordstjärnan 1985 (3) page 8-10: ***Russula adulterina***-ett missbrukat namn". Nannfeldts conclusion was that it is completely unclear what Fries meant by ***Russula adulterina***. He also quoted Singer that "***Russula adulterina***" is two species: ***R. piceetorum*** in coniferous forest and ***R. cinnamomicolor*** (now ***R. cuprea*** according to Herbert Kaufmann) in deciduous forest.

3 Borgsjö cemetery

6936535;1505226

The biological diversity of fungi and other species groups at old cemeteries are worth more attention! Anita and Leif Stridvall for example have invented and written on the lichen flora at cemetaries. Borgsjö is one of the most beautiful rococo churches in Sweden. Old lawns with mostly Betula, but also some *Picea, Pinus, Quercus*, well invented during many workshops in Borgsjö. In addition there are meadows in a memorial grove in the western part with rich grassland fungi, article by Lindström, Nitare, Tedebrand and species list in the SMF journal Jordstjärnan 1992 (2).

Lactarius *flexuosus, necator, spinosulus* Russula *acrifolia, aeruginea, anatina* (Henning Knudsen 1984 (S), *atroglauca, cremeoavellanea, chloroides, cyanoxantha f. peltereaui* (Henning Knudsen 1984), *delica, depallens, foetens, font-queri, gracillima, intermedia, lutea, medullata, pascua, pubescens, roseipes, scotica* (Herbert Kaufmann 2016), *subfoetens* (Henning Knudsen 1984 (S), *violacea* (= *pelargonia* ss Ruotsalainen), *versicolor, violaceoincarnata* (found in 1995 by Ilkka Kytövuori and Hjördis Lundmark under *Betula pendula Dalecarlica*)

Also: *Amanita flavescens, Boletus edulis, Helvella crispa, Mycena cyanorrhiza, stylobates*

Comment: Henning Knudsen and the swedish mycologist Olle Persson collected 24.8.1984 Russula font-queri at the mossy road side outside the cemetary. Along the path in front of the church also *Betula pendula f. dalecarlica* where Hjördis Lundmark and Henning Knudsen found *Russula versicolor* 19.8.1984. At the western part and along the stone wall we almost every year find *Russula foetens* with special, good and strong smell of newly baked bread. *R. foetens* is part of a group of species in section Ingratae. We often find species in this section Ingratae under *Tilia* in parks like at Sättna church and Jacobsdals mansion in Sundsvall. We call them *Russula pectinatoides* but they perhaps constitute a complex of many species? The southern *Russula illota* with almon-scent was found by Hans-Gunnar Unger and a group of Sundsvall mycologists in deciduous, swampy forest at Stornäset nature reserve at the bothnian coast. Funga Nordica (2012) treats 13 species in R. section Ingratae, many with special scent.

Henri Romagnesi considered at his visit in Borgsjö 1983 that *R. foetens* and *R. subfoetens* is the same species with broad variation. Henning Knudsen meant

Håkan Lindström often gathered mushrooms, especially Telamonia species, at alpine heaths of Härjedalen, often together with his friend Håkan Sundin. This photo of Pierre Arthur Moreau is taken during the swedish mycological week in Härjedalen 2006.

at *Russula* workshop in 1984 that they are separate species and we found both species in Medelpad and Jämtland. John Axel Nannfeldt says in his article about *Russula* under *Betula* at his summer place (Svensk Bot. Tidskr. 80, 1986: 303–320) that he had microscoped about 30 swedich collections without finding any clear differences. According to Juhani Ruotsalainen *R. subfoetens* is a good species. Funga Nordica (2012) accepts both species.

Herbert Kaufmann describes findings of 24 *Russula* species with microscopical details and comments at pages 183-186 in a report from the Cortinarius workshop in 2016 *u*k: http://www.myko.se/wp-content/uploads/2014/05/Svamprapport_Borgsjo_2016.pdf Herbert found in 2016 following *Russula* species at Borgsjö cemetary: *Russula pascua, cremeoavellanea, atroglauca, scotica*

Russula *cremeoavellanea*, Medelpad, Timrå parish, Sörberge cemetery 2014, Hjördis Lundmark, Lennart Söderberg, Jan-Olof Tedebrand. Photo: Hjördis Lundmark

During the middle of th 20th century, John Axel Nannfeldt (1904-1985) established a strong scientific mycological environment in Uppsala. Among other well-known and recognized mycologists from Uppsala are Lennart Holm, Nils Lundqvist and Svengunnar Ryman.

Gothenburg has also a strong mycological tradition and is the bakermat of John Eriksson and a group of researchers that became world-leading experts in wood-

inhabiting fungi, mainly *Corticiaceae.* Today, Ellen Larsson, her students, and retired researcher Stig Jacobson (who made a PhD on *Pholiota*), work there.

In 1971-1980, John Axel Nannfeldt studied in detail the rich *Russula* flora at an old lawn of about 350 square meter with ten tall birches at the families summer house at Tolvfors near the city of Gävle in Eastern Sweden (Svensk Botanisk Tidskrift 80, 1986): http://www.diva-portal.org/smash/get/diva2:1202478/FULLTEXT01.pdf. Nannfeldt noted emore than 1150 fruitbodies of *Russula* on this lawnThe most frequent species was *R. velenovskyi* with some 360 fruitbodies. He found in totaly 16 species of *Russula a*: *aeruginea, cfr aurantiolutea, claroflava, cremeoavellanea cfr cuprea, delica, depallens, foetens, font-queri, gracillima, cfr lutea var. roseipes, pectinata, velenovskyi, versicolor, vesca, xerampelina var.*

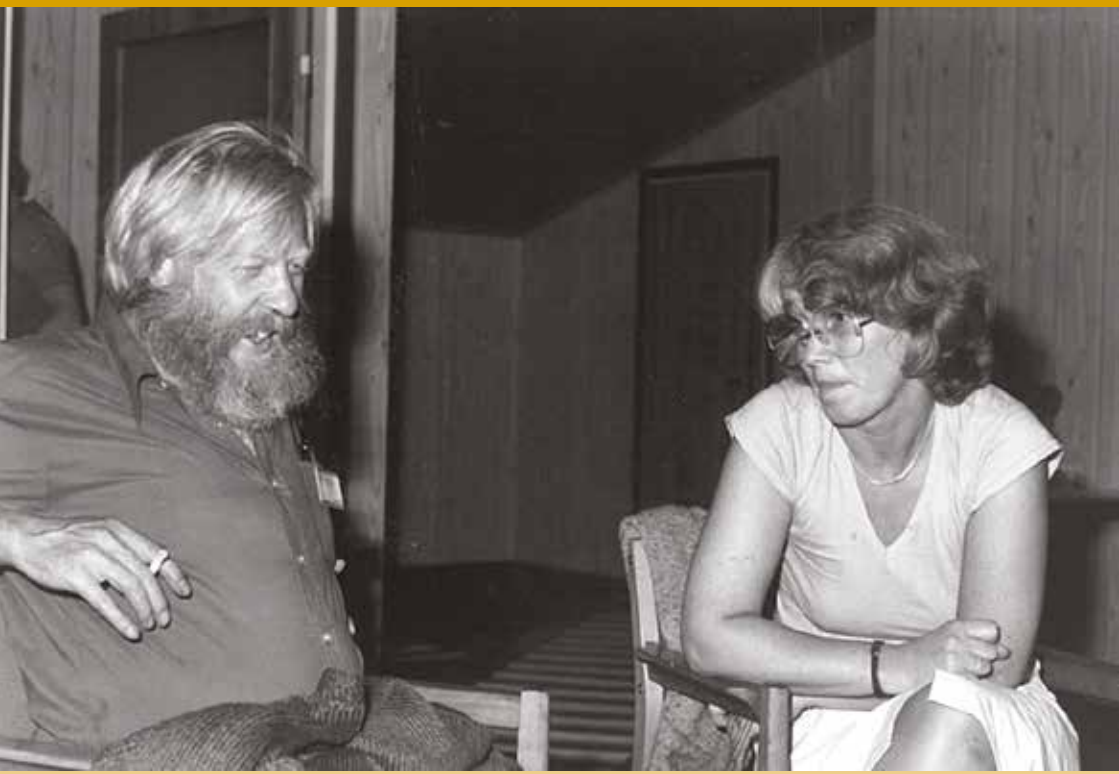
Nannfeldt also wrote about *Russula cremeoavellanea* (Svensk Botanisk Tidskrft 79, 1985). At that time *R. cremeoavellanea* was not known north of Gävle in Sweden. Birgitta Wasstorp found *R. cremeoavellanea* at Borgsjö cemetery about thirty years ago. Hjördis Lundmark also found the speciesn at the cemetary in 2016 (det. Herbert Kaufman).

We know today that *R. cremeoavellanea* not strictly demands lime, but is favoured by it and is rather common at old lawns in parks, courtyards and cemetaries in the counties of Jämtland and Medelpad. Ruben Walleyn collected it below *Betula* at limestone soil in park at Frösö strand in the city of Östersund. Stig Jacobsson and Lars Lundberg, founder of Östersund Mycological Society, have collected ”gul mandelkremla” in mountain birch forest in Kall parish in western Jämtland.

Herbert Kaufmann reported in Svensk Mykologisk Tidskrift 37 (2) 2016 on 13 arctic-alpine *Russula* species found during the Swedish Fungus Foray in Hemavan, Lappland in 2015.

The most common *Russula* was *R. violaceoincarnata.* Herbert also describes *R. heterochroa* (photo from Hamrafjället, Härjedalen), *laccata, nana, nuoljae, pubescens, renidens, rivulicola, saleciticola, sapinea, scotica, subrubens (= chamitae)* and *vinososordida.*

Russula *cyanoxantha var. peltereaui* is green from the beginning. Birgitta Wasstorp mentions this variety in her article on *Russula* in Jordstjärnan 1991 (1): ”Bestämningsschema för kremlor.2”



Rolf Lidberg and Hjördis Lundmark at Saint Olofs inn 1982. Photo: Kjell Olofsson

Sniffing party at Russulales 2018

Ove Lennström, swedish mycologist in Gävle, likes the smell of good wine and old cheese. Ove has collected various ***Russula*** species related to ***Russula foetens***, sniffed and noted their different odours (the journal "Växt" 2016/3). The conclusion of Ove is that sniffing can be one of many ways of to determine a ***Russula*** species. In milkcaps also we know a great variety of smells that are often useful to recognize species, think about coconut, apple, ***Levisticum lavas*** or the strange smell of ***Cossus cossus*** in ***L. hysginus***. We will have a specification "kind of smell" paper for ***Russulales*** species put at the exhibition table. In the final report we will summarize our adventures into the fascinating world of ***Lactarius*** and ***Russula*** smells!

Lake Borgsjö. Photo: Hjördis Lundmark

4 Borgsjö old historic yard and youth hostel (hembygdsgård)

6936671;1504975

Dry treades courtyard. Many european mycologists have stayed at the idyllic youth hostel during 16 fungi work shops in Borgsjö. 1982-2016. At one of the first mushroom workshops in Borgsjö we had our banquet evening here in the old building Hedlundska garden and served delicate *Hygrocybe punice* picked at the meadow *Granbodåsen* and cooked in white sauce. Old *Pinus* on dry calcareous soil, also *Populus tremula, Betula, Picea* in the forest around the youth hostel. Many grassland fungi. During the first workshops in Borgsjö we stayed at Saint Olofs inn and collected fungi in lawns there. *Lactarius necator, pubescens, torminosus*

Russula. Ruben Walleyn found 18 *Russula species* (!) around the youth hostel in 2001 mostly on dry tramped courtyard: *aeruginea, betularum, cessans, chloroides, claroflava, cremeoavellanea* (Ruben Walleyn 2001, sporee 1V (a) b), *favrei, foetens, font-queri, globispora* (*Betula*, on dry soil, Ruben Walleyn, Gent," yellowing, slightly acrid"), *gracillima, grisescens, lutea, nauseosa, postiana, rhodopoda, roseipes, vesca.* Also found: *Russula adusta, pelargonia, vinososordida* (Herbert Kaufmann 2016)

Also *Camarophyllopsis hymenocephala, micacea, Cortinarius caesiostramineus, dolabratus, Limacella glioderma*

5 Pilgrim road with holy spring at slope of Bergåsen

6937580;1504475

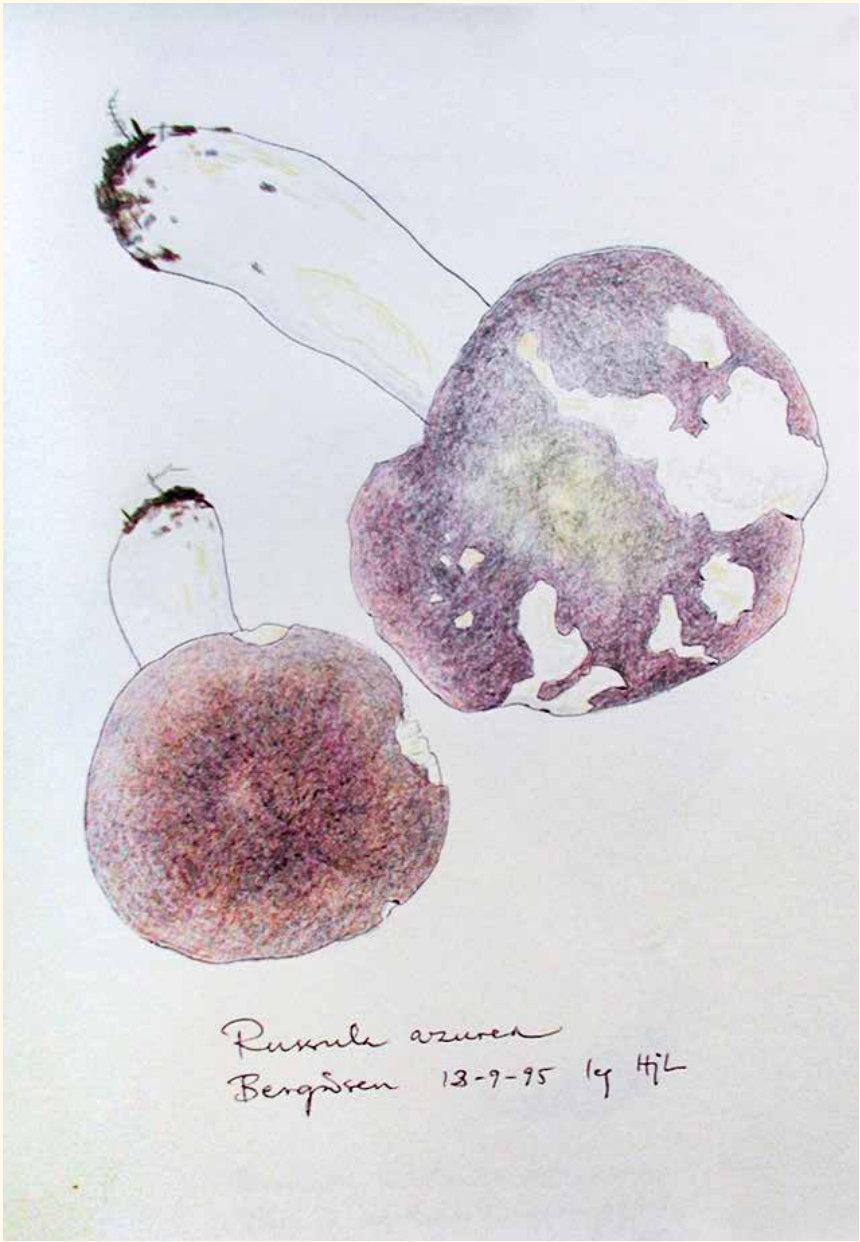
Sandy old pilgrim road, rich forest around the road with *Betula, Picea, Pinus.* Saint Olof, protector of Russulales workshop, supposed to have walked here in july 1030 among the early *Russula* species e.g *Russula roseipes* . Have a drink of holy water in Saint Olofs spring and make a toast on mushrooms and on friendship!

Lactarius *fuliginosus, glyciosmus, lilacinus, mammosus, rufus, torminosus, trivialis*

Russula *adusta, aeruginea, formula, gracillima, vinosa, roseipes, turci, vinososordida*

Also: *Cortinarius aurantiomarginatus, aureopulverulentus, leucophanes, olidoamethysteus, uraceus, Inocybe maculata, Pholiota spumosa, Psatyrella rostellata, Tremiscus helvelloides*

Comment: In 1983 Mauri Korhonen collected *L. auriolla* Kytöv. in rich *Picea* forest near Saint Olof well and took a photo, see page 113 in the book "The genus Lactarius" (1998). During the *Russula* workshop with Romagnesi in 1983 Mauri also collected *Russula aurea* at slopes of Bergåsen, a southerly *Russula* found at about 15 localities in Medelpad in old Picea forest at calcareous soil. Siw Muskos has collected full baskets of *Russula aurea* at diabase in Västergård, Attmar parish, Medelpad. *R. aurea* is more common at lime stone around Östersund. Rolf Lidberg collected *Russula azurea* at the slopes of Bergåsen and made a painting, see below. Russula azurea is a more southern species and occurs under *Picea* in some warm mountains in Medelpad like Siljeberget in Selånger parish and here at Bergåsen in Borgsjö parish. Michael Krikorev has, on an old rotten *Picea* log at slope of Bergåsen, found the rare *Artomyces cristatus*, a species in Russulales! Today there are many clear cut areas at Bergåsen. After dry summer weather the sun exposed slopes of Bergåsen are almost empty of soil fungi.



Russula azurea, Borgsjö, Bergåsen, old Picea forest, leg Hjördis Lundmark 13/9 1995. Painting by Rolf Lidberg

Mushroom lesson in the forrest. Painting by Rolf Lidberg. Photo: Hjördis Lundmark

6 Lönnån

6937595;1504179

Warm, southern, flooded slope around the brook Lönnån some hundred meters west of Saint Olavs spring in central part of the church village Borgsjöbyn. Mostly mossy calcareous *Picea* forest. *Ulmus glabra subsp. montana* and *Viburnum opulus* near the brook. *Cortinarius venetus* and *C. malicorius*, popular fungi for mushroom dyeing, along the brook. After dry summers no soil fungi at all along Lönnån!

Lactarius *aspideus, badiosanguineus, deliciosus, deterrimus, flexuosus, fuliginosus, glyciosmus, helvus, leonis, lilacinus, necator, obscuratus, olivinus, pubescens, rufus, scrobiculatus, spinosulus, torminosus, vietus*

Russula *acrifolia, aeruginea, atrorubens, claroflava, clavipes, decolorans, emetica, favrei, firmula, foetens, lutea, nitida, ochroleuca, paludosa, queletii, sanguinea, turci, versicolor, vinosa, vinososordida*

Also: *Amanita friabilis, Amphisphaerella xylostei, Clitocybe harperi, Cortinarius corrosus, detonsus, Geastrum pectinatum, Gyrodon lividus, Haploporus odorus, Helvella oblongispora* Jukka Vauras), *Leccinum cyaneobasileucum, Lyophyllum leucophaetum, Ramaria botrytis, Telephora penicillata, Tremiscus helvelloides, Tricholoma atrosquamosum.*

Comment: *Helvella oblongispora* has only two records in Sweden, the other in the County of Uppland. Photo and description at page 83 in finnish "Sienet ja metsien luontoarvot" (finnish flora about signal species for valuable nature)

Typical landscape along the river Indalsälven in Medelpad with high montains, deep valleys and earlier salmon fishing. Painting by Rolf Lidberg. Photo: Hjördis Lundmark

Lönnån – a hot spot for fungi and vascular plants

Tricholoma workshop in Borgsjö 11-15/9 1995 was in a top period for fungi after a warm and rainy autumn.

Rolf-Göran Carlsson, Kurt-Anders Johansson and Börje Fagerlind found a total number of 234 fungus species at an area of 4 hectare along Lönnån from the pilgrim road down to highway E 14: 50 ***Cortinarius*** species, 15 ***Lactarius*** species, 11 ***Hygrophorus*** species, 11 ***Russula*** species and 10 ***Mycena*** species!

See list of all findings of Rolf-Göran, Kurt-Anders and Börje at pages 40-42 in the report: http://www.myko.se/wp-content/uploads/2014/06/Borgsjö-rapport-1995.pdf

The forest along Lönnån has according to old maps been more open and grazed under earlier centuries. A saw mill has existed for a long time south of pilgrim road. The warm limerich mountain slope with high ground water, moist brook sides and the landscape history has formed the remarkable fungi society of today.

7 Swampy forest north of mount Bergåsen

6940098;1505526

Here in this swampy *Picea* forest Rudolf Maas Geesteranus and Thomas Læsøe were delighted in 1991 to find the beautiful *Mycena oregonensis* among *Aconitum septentrionale*, *Cystopteris montana* and flowering orchid *Epipogium aphyllum*. Further up you will reach the top of Bergåsen (498 meter above sea level) with a fine view of the Borgsjö valley.

Lactarius *badiosanguineus,* Russula *acrifolia, nauseosa var. laricina* (leg Leif Örstadius, det Henri Romagnesi)

Also: *Collybia racemosa, Cortinarius sanguineus, Inocybe rivularis*

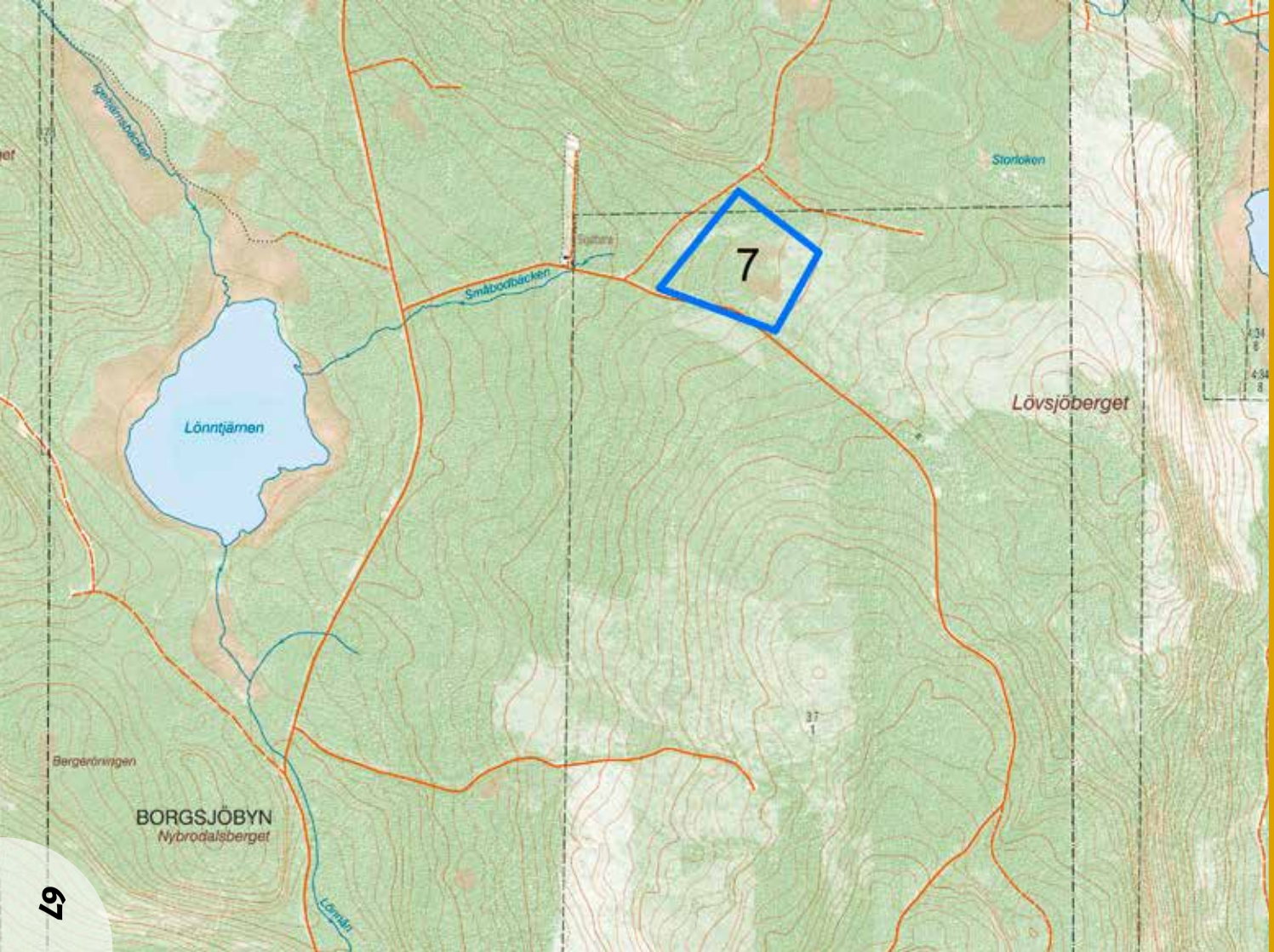
8 Gammelbodarna nature reserve

6939970;1501620

Old meadow with rich grassland funga, also rich *Picea* and *Pine* forest around the meadow. The mycoflora of several meadows in Medelpad, central Sweden, is summarized by Håkan Lindström, Johan Nitare and Jan-Olof Tedebrand in "Ängens svampar", Jordstjärnan 1992 (2), pp 3–54.

Lactarius *badiosanguineus, deterrimus, fennoscandicus, flexuosus, glyciosmus, torminosus, trivialis, vietus, zonarioides.* Russula *acrifolia, aeruginea, cessans, chloroides var. trachyspora* (Ruotsalainen), *consobrina, cremeoavellanea, delica, emetica, favrei, foetens, font-queri, nana* (meadow), *integra* (or integriformis), *olivascens, oreina* (meadow, Henning Knudsen), *persicina* (swamp forest, Jukka Vauras), *puellaris, roseipes, velenovskyi, versicolor, velenovskyi, vinosa.*

Also: *Agaricus comtulus, Albatrellus syringae, Camarophyllopsis micacea, schulzeri, Cortinarius rusticus, Dermoloma josserandii, Echinoderma aspera, Fayodia leucophylla, Hygrophorus gliocyclus, Hygrocybe aurantiosplendens, Hygophorus persicolor, Inocybe malenconii, Lepista densifolia, Limacella illinita, Marasmius siccus, Melanoleuca subbrevipes, Multiclavula vernalis, Stropharia inuncta, Tomentella fibrosa, Trichoderma nybergianum*


7
Lönntjärnen
Lövsjöberget
Storloken
Smådodbacken
Bergerönningen
BORGSJÖBYN
Nybrodalsberget

Pine forrest.
Photo: Hjördis Lundmark

Bengt Larsson (at camera) guides to Gammelbodarna 2010. Photo: Anita Stridvall

Comment: The alpine species *Russula nana* and at times also *R. oreina* occur at fine old meadows near the bothnian coast. Meadows have some similarities with alpine heath. In 2010, Herbert Kaufmann explored the grassy border zone between the meadow and the Forest and discovered *Russula cessans* under *Pinus* and *Russula versicolor* under *Betula*. Herbert also visited Gammelbodarna in 2016 and found *Russula velenovskyi* at the edge of the forest with spruce and birch. All findings of *Russula* species by Herbert in the Borgsjö area in 2016 are reported with detailed microscopical facts for every species at pages 183-186 in the report from the workshop: http://www.myko.se/wp-content/uploads/2014/05/Svamprapport_Borgsjo_2016.pdf

Ilkka Kytövuori, father to several northern yellow-milked Lactarius species and excellent field mycologist showing *Tricholoma colossus* at Värsjöåsen in Jämtgaveln nature reserve in 1997.
Photo: Hans Andersson

9 Jämtgaveln nature reserve, a landscape of fires

Jämtgaveln nature reserve with 3000 hectares of coniferous forests has burnt 64 times since 1364! A fascinating wilderness just 20 km north of our camp in Borgsjö with old blueberry *Picea* and *Pinus* forests. Fascinating are dead, large, burnt, standing silvery pines with the lichen Letharia vulpina. Bengt Larsson and Håkan Sundin, our skillful guides to Jämtgaveln, will stop at area along the forest road newly burnt by John Granbo and his tough fire group at the County Council of Västernorrland.

European Union (EU) is supporting a Life Taiga project in mid and northern Sweden aiming to burn forests in order to favour fire demanding species. In 2016


Räggsjön
359
Stångmyr-
berget
Stor-
blanken
Korssjön
Övre
Bodsjöberget
Mellan-
flon
Långflohöjden
Stormyran
Nybyggebodarna
Svarttjärnen
10
Ovan
Nybyggesjön
Svarttjärnen
Räggbodarna
Oxsjöåsen
Storavan
Jämtgavelns naturreservat
Torringen
394
Värsjön
9
Bastu-
näset
Munkfjorden
Värsjöberget
Finnmyrbrännan
Hanaåsen
Storberget
Fettjetjärnen
Stentjärnsberget
Starrmyrbodarna
7

the swiss mycologist Mohan Rolf here made an interesting finding of the rare *Sowerbyella cf rhenana* (praktskål in Swedish) and the material will soon be checked and sequenced by two specialists at cup fungi: Åsa Kruys and Karen Hansen. Bengt-Gunnar Jonsson and others at Mid Sweden University are carrying out research in Jämtgaveln about forest fires and dead wood. The group visit a real fungus hot spot at Svartjärn and also rich slopes of Värsjöberget against Munkfjorden with among others the rare *Hygrophoropsis olida.*

10 Svarttjärn, Jämtgaveln nature reserve

6953333;1503582

A north slope of moist *Picea* forest with the flowers *Goodyera repens* and *Moneses uniflora* and big ant hills. Also *Betula* and *Salix* and plenty of dead wood. Ilkka Kytövuori collected the rare *Tricholoma colossus* under *Pinus* at Värsjöåsen. The rare *Ramaria primulina* has also been found here.

Lactarius *aquizonatus, auriolla, badiosanguineus, deterrimus, fuliginosus, glyciosmus, hysginus, mammosus, representaneus, rufus, scoticus, subcircellatus, torminosus, trivialis, uvidus, vietus, zonarioides*

Russula *adusta, aquosa, atrorubens, claroflava, decolorans, fuliginosus, gracillima, grisescens, helodes, nitida* (1997, Kurt-Anders Johansson, UPS), *paludosa, queletii, rhodopoda, tuomikoskii, vinosa*

Also: *Boletopsis leucomelanea, Clavaria fumosa, Cortinarius caesiocinctus, C. rusticus, Entoloma majaloides, Hebeloma syrjense, Hydnellum suaveolens, Hygrophorus inocybiformis* (Håkan Lindström 2001), *Lentinellus vulpinus, Mycena pseudocorticola, Ramaria primulina, Sarcodon fennicus, Sowerbyella cf rhenana* (now under DNA-test), *Spathularia rufa, Trichoderma nybergianum, Tricholoma dulciolens*

Comment*: Russula helodes* is a rare and little known species in moist *Picea* forest and swamp areas. The Swedish name is "myrkremla" (myr=bog). Also found at Julåsen in Borgsjö during *Russula* workshop with Henning Knudsen in 1984. Håkan Lindström found *R. helodes* in Jämtland, Håsjö parish, Annamyran 1/9 2012 (UME). About ten findings in swedish Dyntaxa: http://artfakta.artdatabanken.se/taxon/5875

Mycologists at the top of Mount Hamrafjället in 2006: Hjalmar Croneborg (today president of Swedish Mycological Society), Stig Jacobsson, Ellen Larsson, Håkan Lindström, Anita Stridvall, Pierre-Arthur Moreau, Leif Stridvall. Håkan Lindström was very proud to find three *Russula* species with smell of herring at the alpine heaths of Hamrafjället: *Russula amoenicolor, chamitreae, oreina.*

11 Rankleven nature reserve

6933532;1507593

Famous botanical mountain since centuries with high dives of dolorite in the northeast. According to folklore thhe giant Ran lives at the mountain since thousands of years. Old mossy forest. *Alnus* and *Betula* near the open fields.

Southern plants like ***Galium triflorum, Latyrus vernus*** and ***Viola selkirkii*** and also alpine plants like ***Saxifraga adscendens, S. caespitosa*** and ***S. nivalis***. Rich oceanic lichen flora. Plenty of dead wood. The only known place until in Medelpad for the southern ***Russula densifolia***: herbrich ***Picea*** forest, 26/8 1983, Stig Jacobsson (S). Birgitta Wasstorp collected in 1993 the rare ***Sowerbyella densireticulata***, determined by Nils Lundqvist (S).

Lactarius *aspideus, aurantiacus, badiosanguineus, deterrimus, fuliginosus, glyciosmus, lilacinus, necator, obscuratus, pilatii, pubescens, representaneus, rufus, scrobiculatus, sphagneti, spinosulus, theiogalus, torminosus, trivialis, zonarioides, uvidus, vietus, zonarioides*

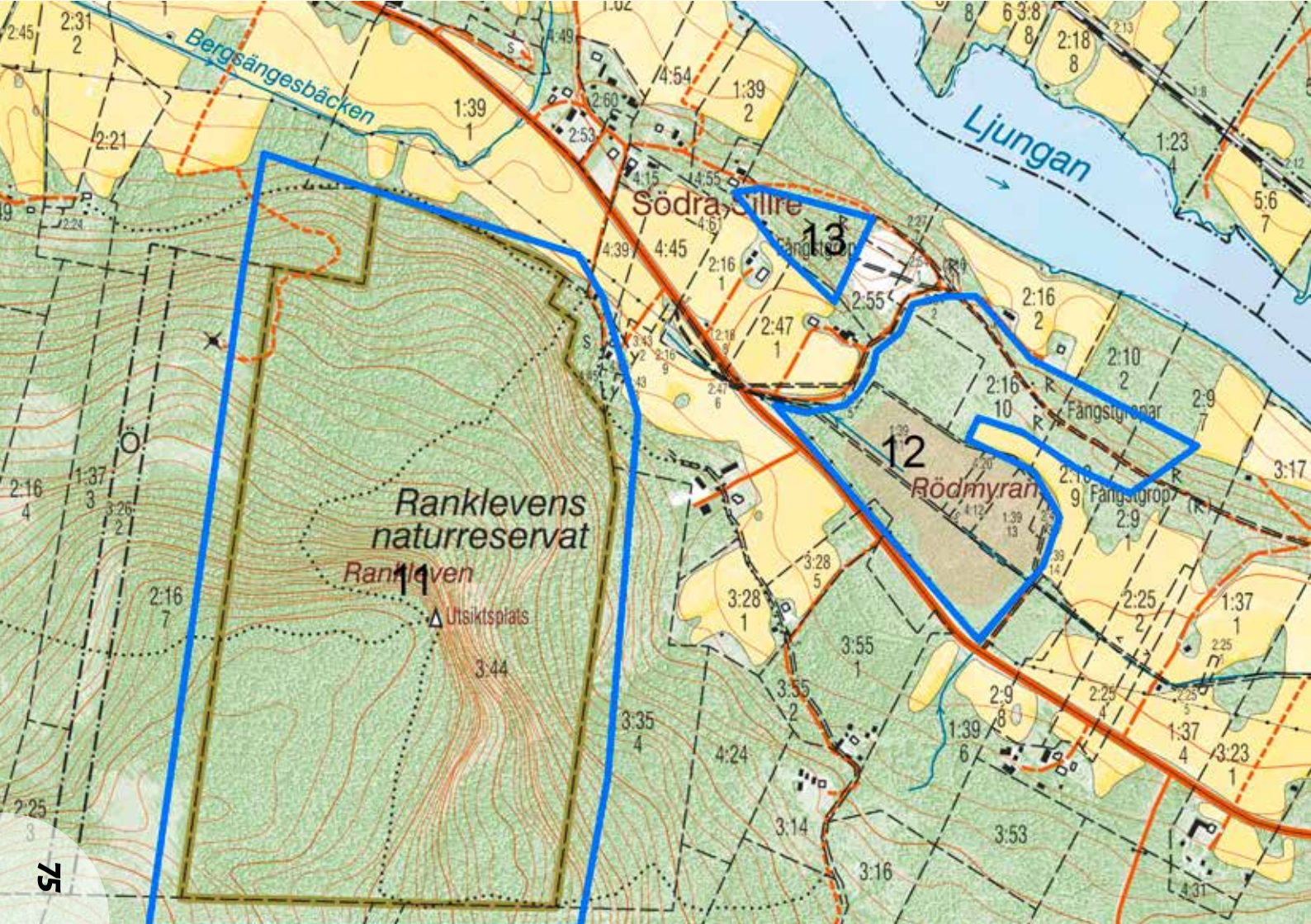
Russula *adusta, aeruginea, aquosa, atroglauca, atrorubens, aurea, chloroides, citrinochlora, clavipes, consobrina, decolorans, emetica, favrei, delica, densifolia, firmula, foetens, gracillima, integra, intermedia, pallescens, paludosa, puellaris, pulchella, queletii, renidens, rhodopoda, sphagnophila group, rhodopoda, turci, vesca, vinosa, xerampelina ss lat.*

Also: *Amanita battarrae, Bryoglossum rhemii, Camarops microspora, Cortinarius alborufescens, aureofulvus, dolabratus, malicorius, sanguineus, uliginosus, uraceus, Cystodermella adnatifolia, Heyderia abietis, Lentinellus castoreus, Leucogyrophana sororia, Leucopaxillus giganteus, Limacella guttata, Phlebia centrifuga, Pholiota subochracea, Russula* aurea, *Sowerbyella densireticulata* (leg Birgitta Wasstorp, det Nils Lundqvist), *Trichoderma nybergianum, Tricholoma fucatum, Verpa conica* (Christer Anderson).

Comment: *Russula citrinochlora* with olive green hat was found by Gunnel Holden at Rankleven in 2001, by then new for Sweden and was also found at Granbodåsen and Julåsen in Borgsjö, at all three localities in moist *Picea* forest with *Alnus incana* and *Betula.* Håkan Lindström has collected *R. citrinochlora* in the alpine region: Jämtland, Frostviken, Leipikvattnet, 8.8.2003 (UME). During a mycological week in western Härjedalen 2006

R. citrinochlora was found at Mount Hamrafjället (Herbert Kaufmann) and at Mount Torkilsstöten (Pierre-Arthur Moreau). Funga Nordica (2012) comment on *R. citrinochlora*: "Mycorrhizal in arc/alp areas with dwarf *Salix* e.g. *S. herbacea, S. glauca* and *Polygonum viviparum*, in hemibor.-bor. with *Betula* and *Picea* in moist forest".

Ruotsalainen and Vauras mean that northern findings of *Russula integra* can instead be *Russula integriformis* Sarnari. *R. integra* is a more southern species. Perhaps we have both species in Medelpad and Jämtland?


Bergsängesbäcken
Ljungan
Södra Sillre
13
12
11
Rödmyran
Fångstgropar
Ranklevens naturreservat
Ranklleven
Utsiktsplats

12 Södra Sillre, stop 1

6934530;1507530

Wet Betula forest in thick *Polytrichum* bed, also *Populus* and *Salix*. *Russula renidens* common in swamp area with *Betula*. Also dry pine forest at Ljungan ridge and near the river.

Lactarius *badiosanguineus, deliciosus, deterimus, flexuosus, glyciosmus, helvus, necator, rufus, spinosulus, theiogalus, torminosus, uvidus, vietus.*

Russula *aeruginea, aquosa, atrubens, badia, claroflava, clavipes, consobrina, decolorans, delica, favrei, firmula foetens, gracillima, nitida, paludosa, renidens, rhodopoda, roseipes, versicolor, vinosa, vinososordida, xerampelina*

Also: *Acanthophyllum lividocaeruleum, Blasiphalia pseudogrisella, Cordyceps longisegmentis, Cortinarius bolaris* (single locality in western Medelpad), *Hygrophorus persicolor, Inocybe ambigua, Lappomyces muricatus, Ramaria apiculata.*

Comment: In 2001 Jukka Vauras said that *Russula renidens* is common and typical in the Borgsjö area in swampy *Betula* forests. *Acanthophyllum lividocoeruleum* is a beautiful blue resupinate fungus collected in 2010 by Ellen Larsson and determined by Karl-Henrik Larsson.

Ellen also collected the rare *Inocybe ambigua* in deep ditch in the *Betula* forest. In 2010 Anita Stridvall tasted a dark red *Russula* under Pinus in the swamp area and said: mild, but ten seconds later she said: ”slowly severely hot: *Russula badia*”. During some falls like in 2003 there has been enormous amounts of *Boletus edulis* in the moist *Betula* forest. Our president Lisbeth Kagardt and others stood in the kitchen at Erikslunds Folkets Hus in 2003 and prepared Boletus edulis for the banquet evening.

Nils Lundqvist (1930–2017) graduated with an excellent thesis about dung fungi. Nils was a very kind, pleasant person. He was a dear guest at many workshops in Borgsjö often together with Olle Persson, another amusing and wellknown swedish mycologist. Nils found a new species for science at horse dung in Borgsjö: *Cercophora aggregata*. He has deposited hundreds of rust, smut and other small fungi at Stockholm herbarium (S) from the Borgsjö area. Here in the moist

Russula subrubens, a species in *Russula*, subsection *Xerampelinae*, Nacksta, Sundsvall, september 2017, under *Salix caprea*, leg Jan-Olof Tedebrand, det Herbert Kaufmann, conf. Slavomir Adamcik. Photo: Håkan Sundin

deciduous forest along the river Ljungan Nils collected in 1993 among others *Plasmopora pusilla* at *Geranium sylvaticum* and *Valsa salicina* at dead *Salix* branches.

In 2016 Olga Morozova collected here *Entoloma* species in moist *Betula* and *Salix* areas: E.nidorosum, rhodopolium coll., sericatum, politum. Francesco Bellu found in 2016 *Entoloma lividoalbum* and also *Hebeloma geminatum*, treated in "European Species of Hebeloma" (2015) with authors: Beker, Eberhardt, Vesterholt and not yet mentioned in swedish Dyntaxa. Tatyana Svetasheva found here in 2016 *Cortinarius gossypinus*, a species described by Håkan Lindström. Håkan writes in Funga Nordica (2012) about *C. gossypinus*: "rare in temp.-boreal zone, in Salix scrubs, at shores and along streams". Also description in *Cortinarius Flora Photographica* E 18. In 2016 Gunilla Kärrfelt collected here beautiful fruitbodies of *Cortinarius bolaris*, excellent for wool dyeing accordning to Hjördis Lundmarks and Hans Marklunds book on mushroom dyeing: "Färgsvampar och Svampfärgning" (new edition in 2018, Hjördis Lundmark has for sale).

Time for exkursions. Photo: Hjördis Lundmark

13 Södra Sillre stop 2

6933789;1508390

Moist forest in a slope on the north slope of Ljungan ridge, created by the inland ice. Both coniferous and deciduous forest. Also dry pine forest eastwards along the old path at Ljungan ridge. Here Siw Muskos have collected full baskets of edible Russula elaeodes.

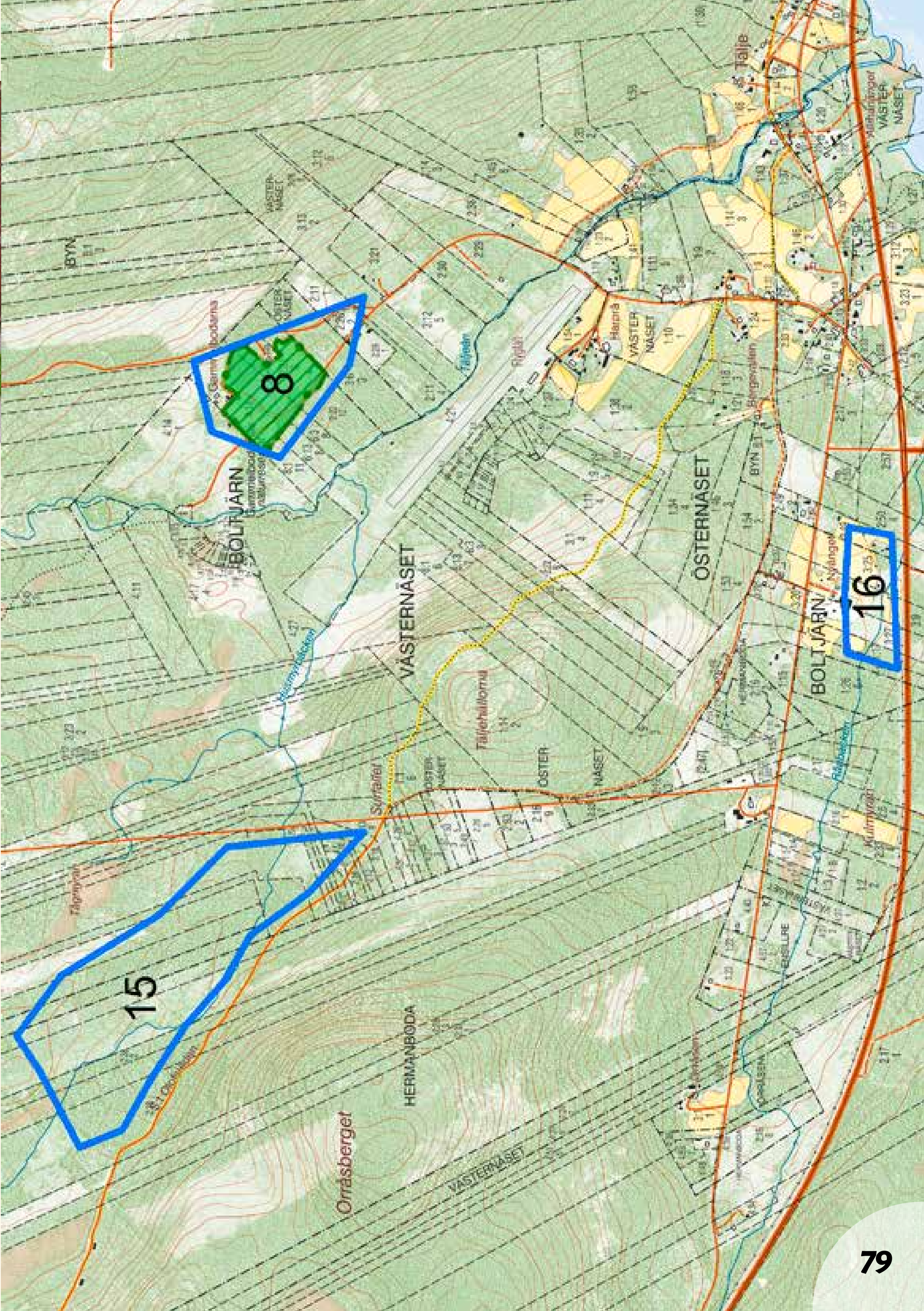
Lactarius *fuliginosus, musteus, rufus, theiogalus, torminosus, trivialis, vietus,*

Russula *aeruginea, claroflava, clavipes, consobrina, decolorans, depallens, foetens, fragilis, lutea, olivina, paludosa, rhodopoda, roseipes, turci, vinosa, xerampelina coll.*

Also: *Cortinarius rusticus, uraceus, Hygrophorus karstenii, Inocybe griseoscabrosa, ochroalba, Marasimus siccus, Ramaria botrytis*

Comment: *Russula roseipes* is a rather common Russula in Medelpad and Jämtland under *Pinus* at rich soil at sandy heaths and boulder ridges, also in old courtyards and in parks like in Östersund at limestone plate. Per Marstad collected *R. roseipes* during *Russula* workshop 2001 in a park at Ångebadet in the center of Ånge (UPS)

Siw Muskos has picked full baskets with *Russula clavipes* (good for eating) under *Pinus* at Ljungan ridge during rainy years. *Russula clavipes* is bound to more rich Pinus forests in Jämtland and Medelpad. The most popular mushroom for eating in R. subsection *Xerampelinae* in the area is *Russula favrei,* common in herbrich Picea forests.


8
15
16
BOLTJÄRN
VÄSTERNÄSET
ÖSTERNÄSET
HERMANBODA
Orrasberget
VÄSTERNÄSET

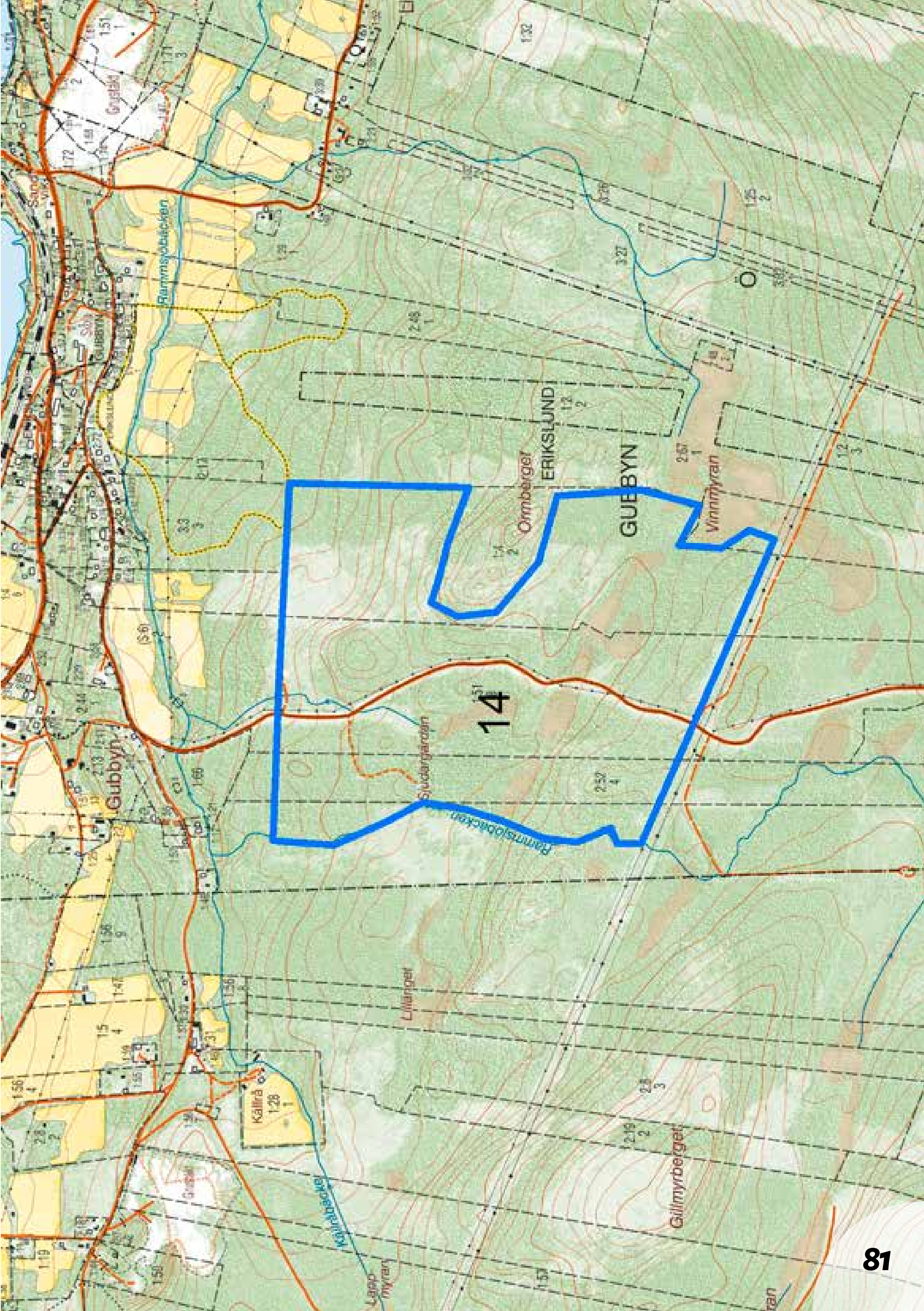
Russula exhibition. Photo: Hjördis Lundmark

14 Ormberget northwest and southwest The heterophylla forest of Henri Romagnesi

1504823; 6933742

Parking at power line. Visit the forest at both sides of the road. First blueberry forest, then more herbrich forest and further down the slope areas with *sphagnum* and *Salix*.

Lactarius *badiosanguineus, deterrimus, flavopalustris, fuliginosus, glyciosmus.* Russula *atrorubens, badiosanguineus, clavipes, decolorans, heterophylla* (leg Herbert Kaufmann and Henri Romagnesi 1983), *nauseosa var. laricina* (leg Birgitta Wasstorp 1983, det Henri Romagnesi), *postiana, vinosa.*


14
GUBBYN
ERIKSLUND
Ormberget
Vinnmyran
Gubbyn
Rammsjöbäcken
Lillänger
Gillmyrberget

Comment: Stig Jacobsson says about *Russula heterophylla* in Jordstjärnan 1984/1 page 19 that the species mostly occurs in southerly deciduous forest but was also found during Nordic Mycological Congress in Jämtland 1982 in coniferous forest at Andersön. Stig points out that this northern collections in calcareous coniferous forests had the typical pointed needles for Heterophylla but also differed in having a faint reaction with FeSO4.

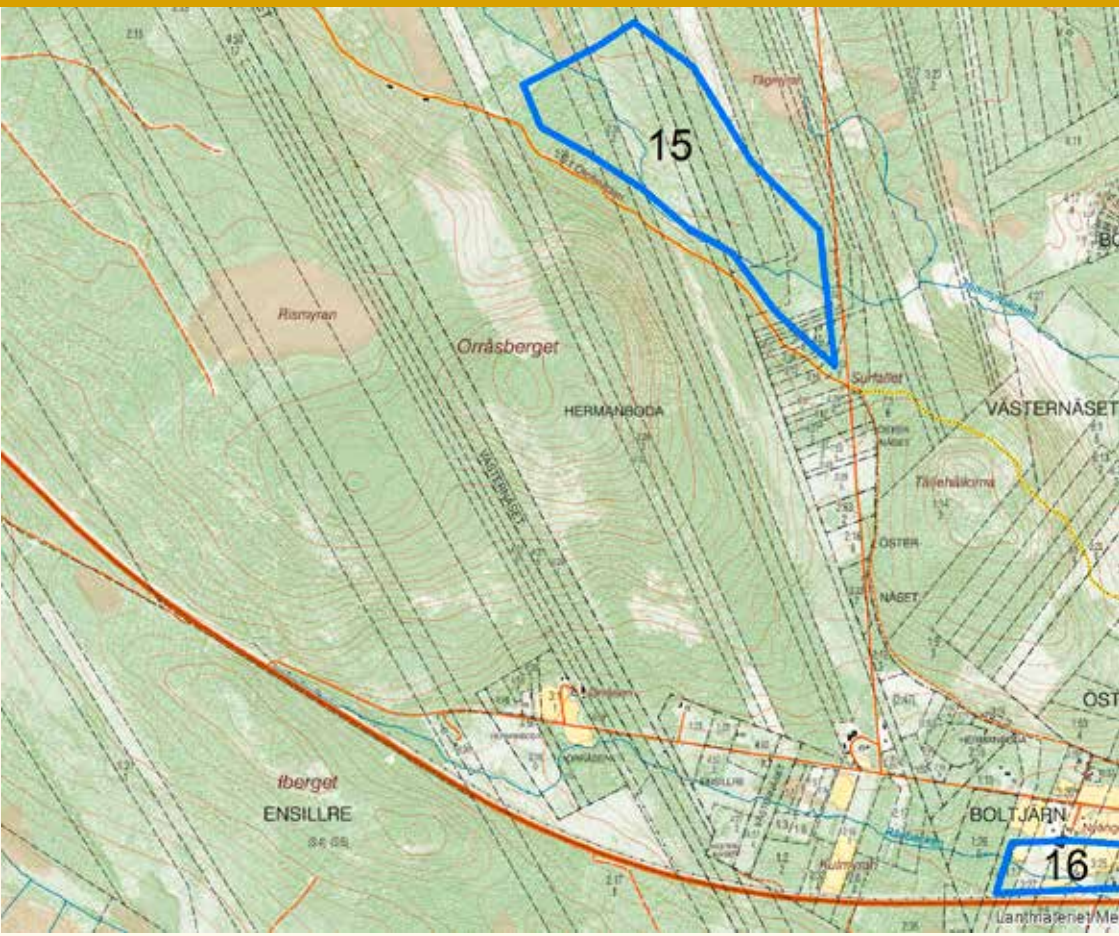
Henri Romagnesi was here 22/8 1983 together with Herbert Kaufmann, Erik Malm, Jacques Melot, Jan-Olof Tedebrand, Birgitta Wasstorp and others, see photo. Henri was very delighted to recognize *Lycopodium annotinum*. Erik Malm picked together with Henri Romagnesi a *Lactarius* species with white milk, turning lilac, that was identified as *Lactarius flavidus* Boud. Later it has been re-identified as *L. flavopalustris* Kytöv, a northern species in calcareous swampy forest under *Betula* and rather common in Borgsjö. In the same swampy forest Henri collected *Cortinarius subtortus*. Herbert Kaufmann and Lars Ljungberg visited the same forest slop 31/8 2016 and found among other things *Lactarius tuomikoskii, Russula atrorubens, clavipes* and *emetica*. Today there are many clearcut areas in the slopes of Ormberget.

15 Orråsberget North, Husmyrbäcken-Husmyra

6940150;1499550

Rich old, moist *Picea-Betula* forest of *Cypripedium* type along the old and increasingly popular pilgrimage road to Trondheim in Norway with the reminders of Saint Olof. The number of pilgrims now is doubling every year. Erik Collinder tells in "Medelpads Flora" (1909) about a 3-6 decimeter heavy layer of loose chalk sludge (bog lime) from springs in the ground near Orråsen and along the former national road to Jämtland. Husmyra is a rich fen with *Carex appropinquata* and *Salix myrsinites*. Bengt Larsson and Håkan Sundin are guides.

Lactarius *aquizonatus, badiosanguineus, deterrimus, fennoscandicus, glyciosmus, lilacinus, mammosus, obscuratus, olivinus, rufus, scoticus, scrobiculatus, torminosus, trivialis, uvidus, vietus,*



Russula *aeruginea, atrorubens, claroflava, decolorans, favrei, firmula, foetens, fennoscandica, grisescens, nauseosa, paludosa, queletii, rhodopoda, vinosa, vinososordida, xerampelina*

Also: *Albatrellus ovinus, Clitocybe albofragrans, Cortinarius sanguineus, septentrionalis, Galerina camerina, Gloeopeniophorella convolvens, Hapaplopilus nidulans, Hygrophorus hyacinthinus* (listed in 2010 by Anita Stridvall and Birgitta Wasstorp), *karstenii, Limacella guttata, Mycena oregonensis, Hypocrea nybergiana, Peniophorella guttulifera, Trichoderma nybergianum, Tricholoma olivaceotinctum.*

Kjell Olofsson, Siw Muskos, Mauri and Eine Korhonen, Jukka Vauras at Russula workshop in Borgsjö 1983. Photo: Hjördis Lundmark

Comment: Both Russula *vinosa* and *R. vinososordida* are found here north of Orråsberget. *R. vinososordida* was described by Ruotsalainen and Vauras, common in Medelpad and Jämtland, cap brownish winered to redbrown with blackish or yellow spots in centre, not pruinose at the margin like *R. vinosa*, not reddening in the flesh, a bit sharp taste, also microscopical differences against *R. vinosa*. Lars Lundberg in Östersund, 96 years of age and grand old man among mycologists in Jämtland, claims that *R. vinosa* and *R. vinososordida* are somewhat confusing during excursions to demonstrate mushrooms for eating. *R. vinososordida* resembles *R. vinosa* but is not, according to Lars, a fine *Russula* for eating because of rather sharp taste.

"Entoloma judithae", now E. araneosum f. robustum. Photo: Siw Muskos

16 Råabäcken

6938135;1501560

Drive-in-meadow along highway E14 with the only place in the County Västernorrland for *Sesleria uliginosa*. Annika Carlsson at the county administrative board has refound the rare *Primula farinosa*. Also *Entoloma, Geoglossum, Hygrocybe species. Lepista densifolia*. The rare orchid *Malaxis monophyllos* in road ditch.

17 Granboda, Skarpbäcken, Habitat protection area

1496760;6939615

Fascinating swampy coniferous forest of *Cypripedium* type. Alpine plant *Thalictrum alpinum*. Our Italian friends Bellu-Turrini found in 2010 *Cortinarius alborufescens* sensu Brandrud, Kytövuori, Niskanen et al. The current name is *C. pearsonii* P.D. Orton according to Funga Nordica (2012). Hjalmar Croneborg and Johan Nitare found *Sarcodon fennicus* in ant hill in 2003.

Lactarius *aquizonatus, pilatii, pubescens, scoticus (Olle Persson 30/8 1985), trivialis, tuomikoskii, zonarioides,*

Russula *adusta, atrorubens, cessans, clavipes, decolorans, emetica, favrei, fennoscandica, font-queri, globispora group, grisescens* (Jan-Ola Wimo 20/8 1983, det Henri Romagnesi), *mustelina* (Carina Eriksson 20/8 1983, det Henri Romagnesi), *gracillima, nitida, paludosa, roseipes, vinososordia.*

Also: *Bankera violascens, Calocybe cerina, Cantharellopsis prescotii, Cortinarius alboglobosus, venustus, Geastrum pecitinatum, Gyrodon lividus, Hydnellum suaveolens, Hygrophorus inocybiformis, Inocybe terrigena, Limacella guttata, Sarcodon fennicus, Tremiscus helvelloides.*

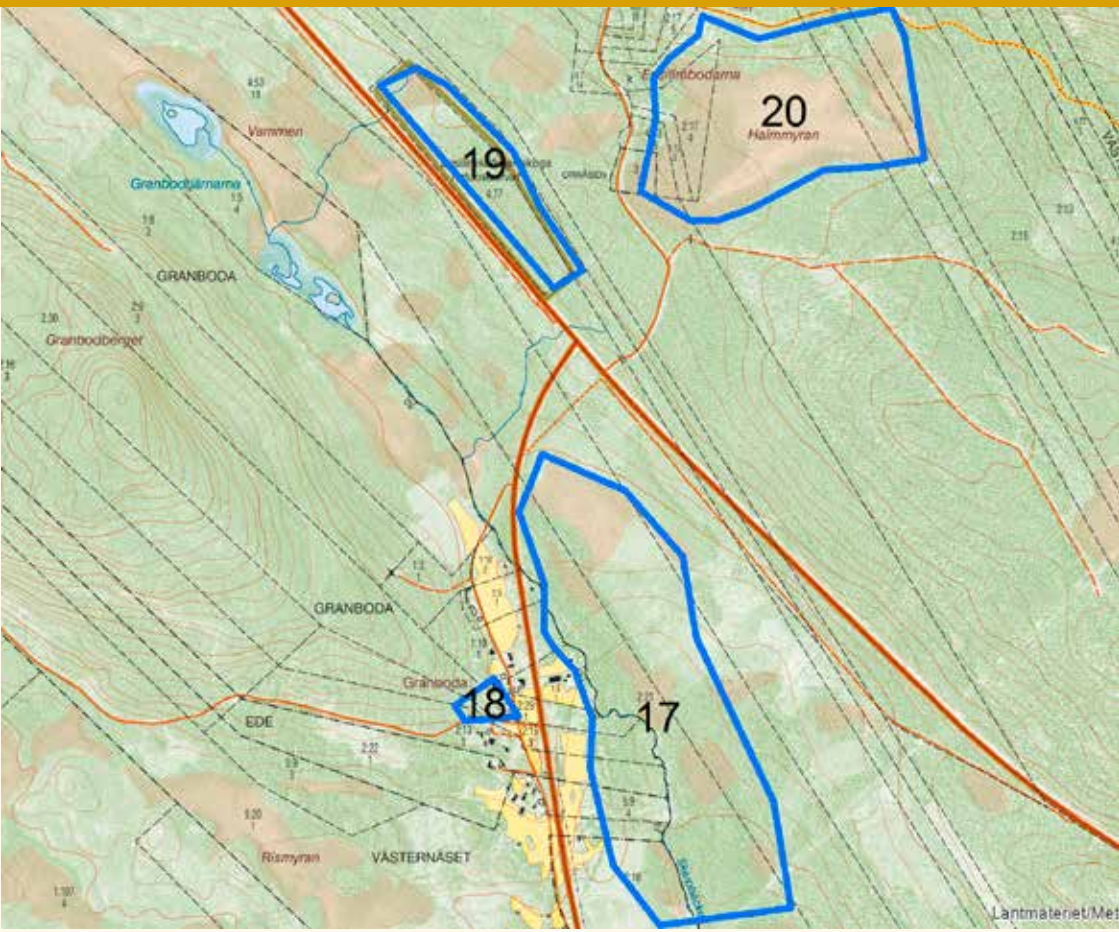
Comment: *Lactarius scoticus* is typical and common in exclusive, limerich fens in the provinces of Jämtland and Medelpad together with *Bovista paludosa. Russula fennoscandica* remind of *R. queletii* but not is not as red and sharp in taste. Mikael Krikorev has a photo of *R. fennoscandica*: http://svampguiden.com/art/visa/russula_fennoscandica.

18 Granboda, courtyard

6942364;1489255

Old grassland, Betula

Entoloma araenosum f. robustum f. nov, holotypus, found by Machiel Noordeloos 31 aug 1993. Machiel first named the collection "*Entoloma judithae*", a name proposed by the old farmer woman Judith Jonsson. Judith became a TV-star when she proposed the name *judithae* before TV-cameras!



Lactarius *glyciosmus, necator, spinosulus, torminosus*

Russula *aeruginea, atroglauca, depallens, firmula, globispora group, gracillima, intermedia, lutea, medullata, nana, stenotricha, versicolor*

Also: *Botrichonema polygoni* at *Bistorta vivipara* (Nils Lundqvist 1985, S), *Cortinarius alboglobosus, Bolbitius reticulatus, Clitocybe amarescens, Cortinarius alboglobosus, Hygrocybe fornicata, lacmus, pratensis, Stropharia albonitens*

Comment: Siw Muskos collected in 2001 *Russula medullata* at the courtyard, the name confirmed by Juhani Ruotsalainen and Ruben Walleyn. This is a difficult group of grey-greygreen *Russulas.*

19 Ensillre kalkbarrskog, nature reserve

6940825;1496599

A botanical paradise, most exclusive forest for vascular plants in Medelpad. Moist *Picea* forest with *Botrychium virginianum, Calypso bulbosa, Cystopteris montana, Epipogium aphyllum, Cypripedium calceolus.*

We have guided botanists from countries southwards who come here in the beginning of june to see *Calypso bulbosa* in flower once in their lifetime. The forest was partly destroyed by severe storms in 2011 and 2013 as were other entirely *Picea*-dominated forests in Medelpad and Jämtland. Today forest owners in Sweden now try to mix broadleaved trees among *Picea* to manage storms better. Ensillre kalkbarrskog place on a list of the fifty best "fungus hot spots" in Medelpad and Jämtland!

Lactarius *aquizonatus, bertillonii, deterrimus, glyciosmus, mammosus, musteus, necator, olivinus, pilatii, rufus, scrobiculatus, torminosus, trivialis, vietus, Lactifluus bertollonii,*

Russula *aeruginea, amethystina, aquosa, atrorubens, consobrina, decolorans, emetica, favrei, griseascens, olivascens, olivobrunnea, paludosa, puellaris, quletii, rhodopoda, vinosa, vinosordia, xerampelina ss lato*

Also: *Cantharellopsis prescotii, Cortinarius bovinus, harcynicus, oulankensis, suboenochelis, Cystoderma adnatifolium, Gyromitra longipes, Inocybe terrigena, Ossicaulis lignatilis, Pholiota lubrica, Tremiscus helvelloides, Tricholoma scalpturatum, viridilutescens*

Comment: *Lactifluusbertillonii* is a rare southern species that appears north to southern boreal zone in Finland and Sweden. Mauri Korhonen and Ilkka Kytövuori wrote in the journal Jordstjärnan 1987 (2): 45–48 about "Två arter av luden vitriska i Norden-*Lactarius vellereus* (Fr.)Fr. och *L. bertillonii* (Neuh. Ex Z. Schaeffer) M. Bon". *Russula olivobrunnea* always is found in the finest, calcareous, moist, old *Picea* forests sometimes together with the orchids *Cypripedium calceolus* and *Calypso bulbosa. Cortinarius oulankensis* in section Bovini is described in Mycologia 105 (4): pp 977–993 by Tuula Niskanen, Ilkka Kytövuori, Kare Liimatainen and Håkan Lindström.

Calypso bulbosa. Painting by Rolf Lidberg.

20 West of Halmmyra (Ensillrebodarna)

6940953;1497061

Moist coniferous forest. At the fen Halmmyra we have studied exciting orchids like *Dactylorrhiza majalis, subsp. lapponica* together with Rolf Lidberg.

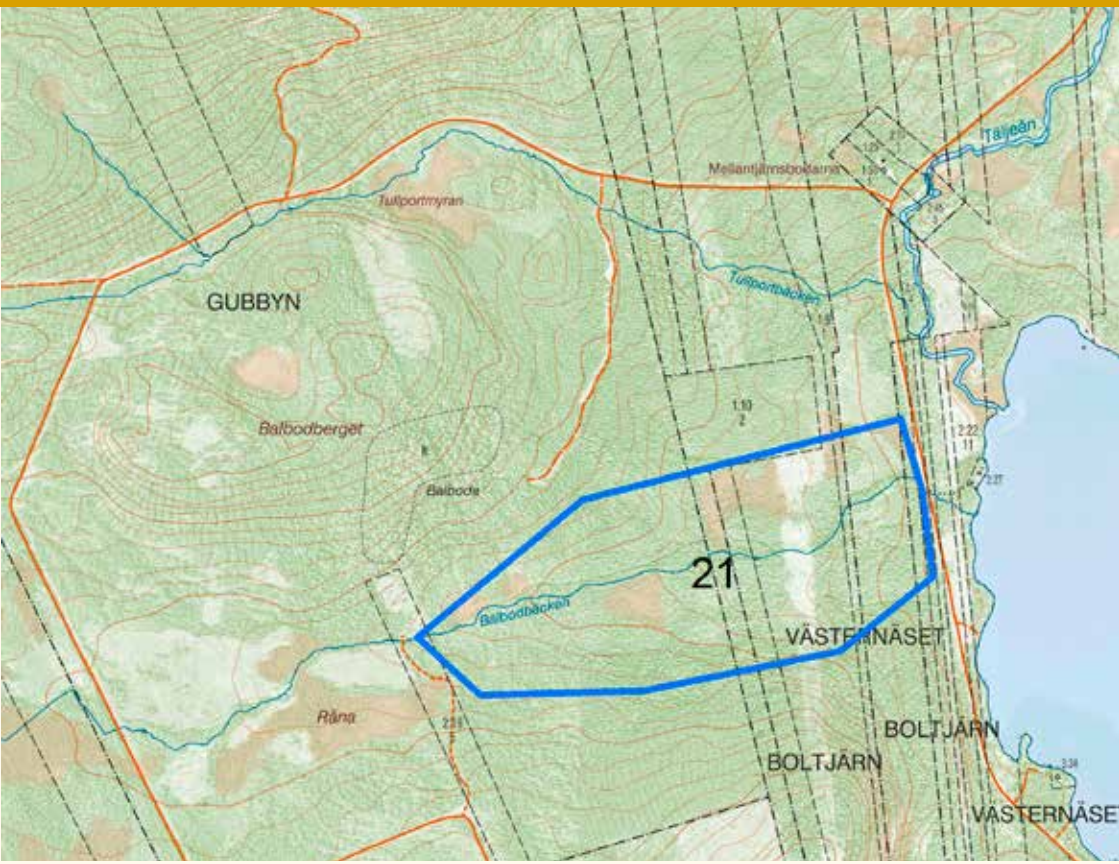
Lactarius *aquizonatus, aurantiacus, auriolla, badiosanguineus, deterrimus, flexuosus var. glyciosmus, roseozonatus, rufus, scrobiculatus, torminosus, trivialis, vietus. necator, scrobiculatus, spinosulus, torminosus*

Russula *aeruginea, aquosa, consobrina, decolorans, emetic, favrei, grisescens, intermedia, olivobrunnea, paludosa, queletii, vinosa, xerampelina*

Trolls as harvesters along the river Indalsälven in Medelpad. Painting by Rolf Lidberg

Also: *Cantharellopsis prescotii, Cortinarius caesiocinctus, rusticus, Geoglossum glabrum, Gerronema brevibasidiatum, Hypocrea nybergiana, Inocybe nematoloma, terrigena, Tricholoma olivaceotinctum, viridilutescens*

Comment: *Anthracoidea heterospora* at *Carex nigra* and *A. kari* at *Carex dioica* (Nils Lundqvist 1985, S), *Geoglossum glabrum, Hygrocybe substrangulata.* At the fen Ensillremyran Leif Andersson found 4.9.1991 *Geoglossum sphagnophilum* (det Irene Andersson) and also *Gyroflexus brevibasidiatus*, a rare species in rich fens.



21 Nedertjärnen, Balbodbäcken

6943080;1499541

Protected moist areas in slopes along Balbodbäcken west of Nedertjärnen, also interesting moist areas west of Övertjärnen. Bengt Larsson and Håkan Sundin are guides.

22 Lombäcken, key biotope

6944409;1493648

Moist *Picea* wood along the creek Lombäcken with *Cypripedium calceolus, Gymnadenia conopsea, Listera ovata* north of the popular pilgrim road and north of highway E14. Dutch *Cortinarius* lovers found in 2016: *Cortinarius multiformis, percomis, piceae, pseudoglaucopus, sulfurinus, varius.* Parking at the forest road a few hundred meters east of the creek.

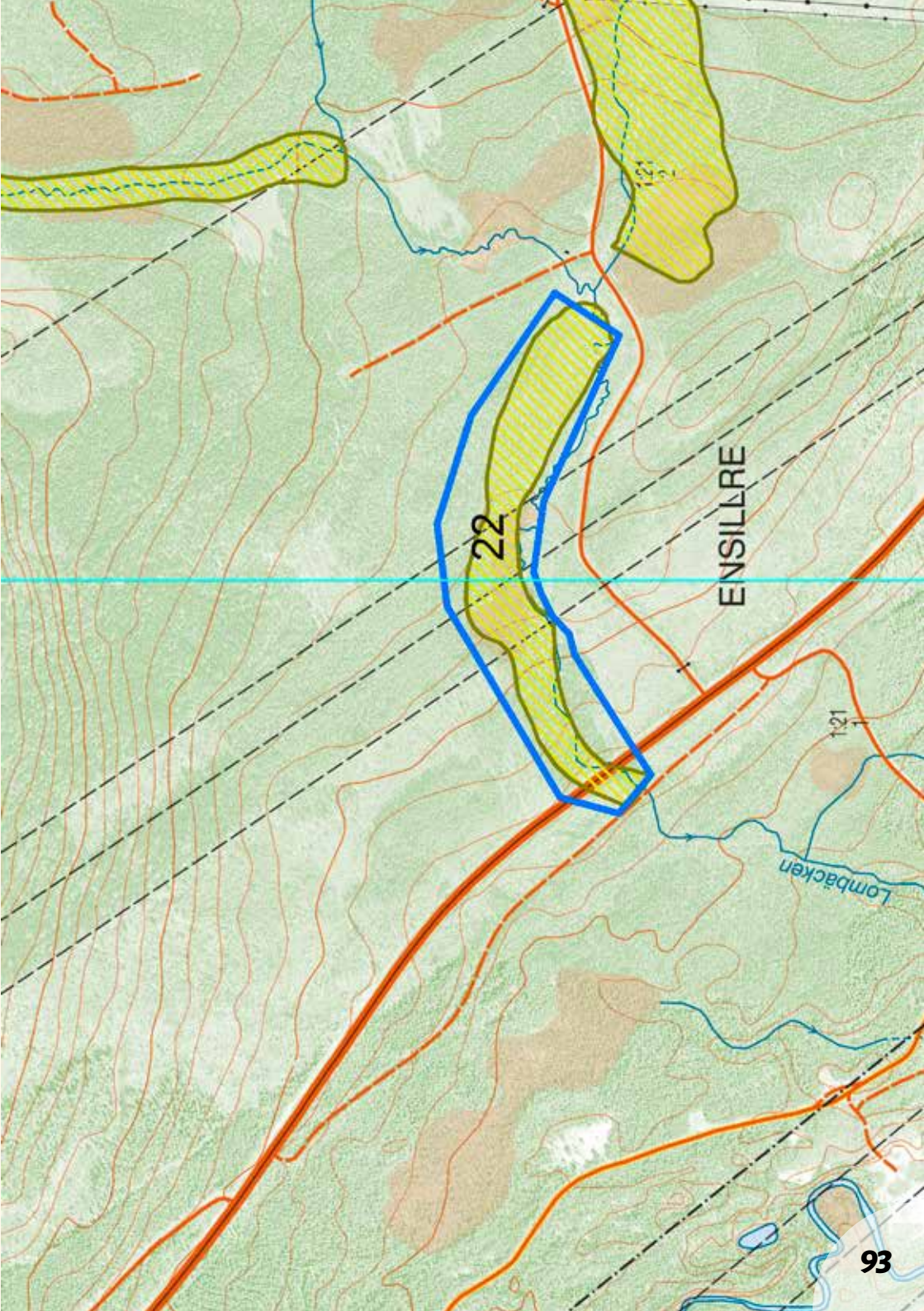
23 Lombäcksheden and Harrån partly habitat protection area

6993071;1493024

Rolf Lidberg, founder of Sundsvall Mycological Society, said: "Fungi at the nitrogen poor, calcareous, sandy pine heath at Lombäcken is the most exclusive we can show our friends from southern countries in Europe". Johan Nitare at the Swedish Forestry Board wrote about ectomycorrhizal fungi in sandy forests with Scots Pine in Svensk Mykologisk Tidskrift 37 (2) 2016.

The forest company SCA and the County council have plans to later on burn some part of Lombäcken heath. Mushroom researchers like Mauri Korhonen, Machiel Noordeloos and Roy Watling like the poor, sandy, calcareous heath, see photo. Also ***Picea*** at parts of the heath with more thick litter bed. Brook ravine along the creek Harrån with grey alder, birch, willow and plants like ***Cardamine flexuosa*** and ***Lactuca sibirica***. In 1991 Birgitta Wasstorp found the rare ***Mythicomyces corneipes*** along Harrån. Rich forests further west along Harrån. Bengt Larsson and Håkan Lindström has found the rare fern Gymnocarpium dryopteris x robertianum in the area. According to Bengt also rare and interesting butterflies near Harrån and near the old inn at Jämtkrogen. The old building Jämtkrogen is today moved to Borgsjö historic yard and youth hostel (hembygdsgården).

Well invented area (76 species of *Cortinarius*) during many workshops in Borgsjö, see mushroom findings at Harrån and Lombäcksheden in report: http://www.myko.se/wp-content/uploads/2014/09/Harrån-JOT-April-2010–Rapport-svamp-Harrann-11.pdf

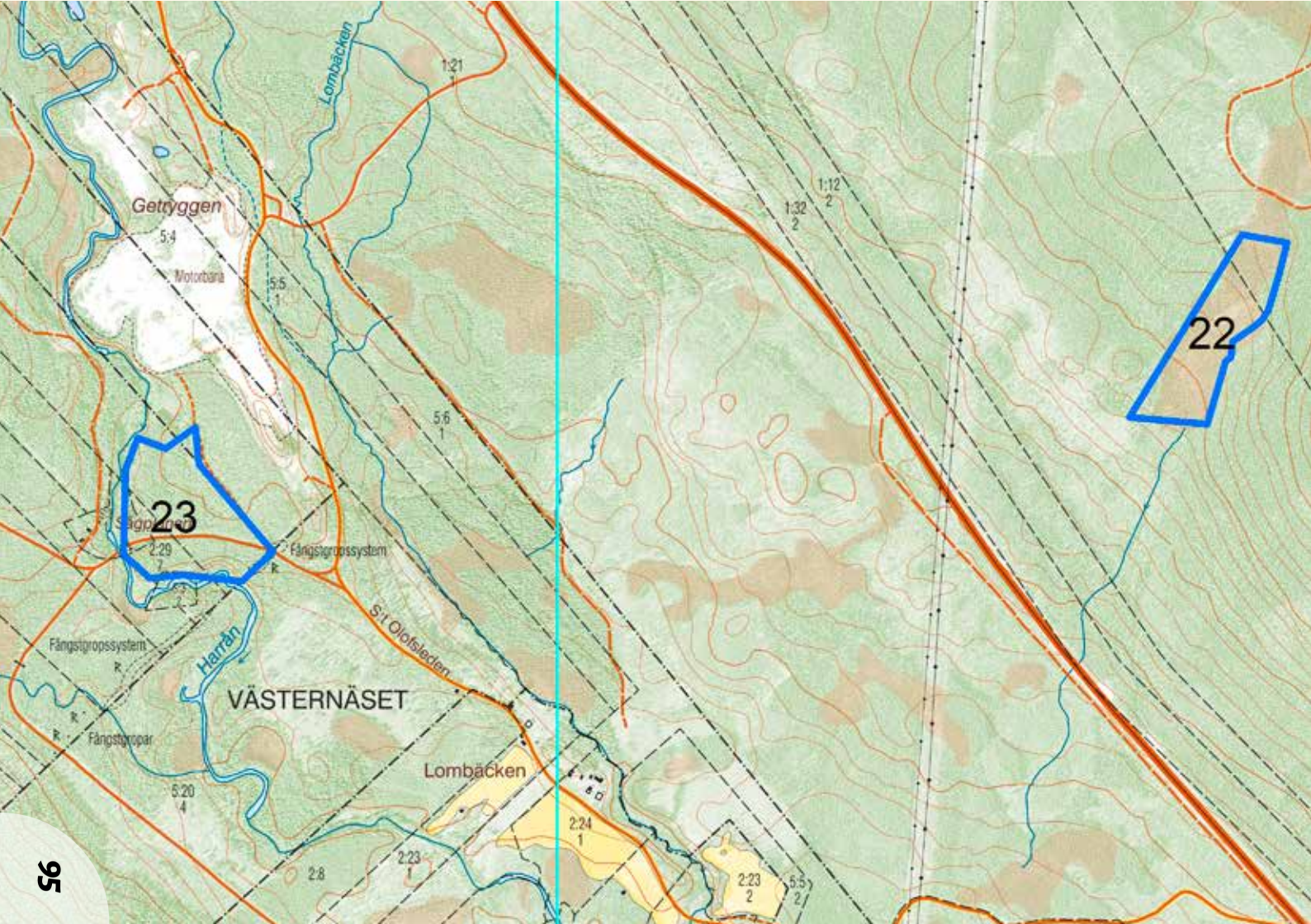

22
ENSILLRE
Lombacken

Lactarius *aquizonatus, deliciosus, deterrimus, fennoscandicus, glyciosmus, leonis, lilacinus, musteus, obscuratus, pilatii, pubescens, resimus, rufus, scrobiculatus, subcircellatus, torminosus, torminosulus, vietus, zonarioides.* Photo of *L. lilacinus* in the book "The genus *Lactarius*" (1998) is from Harrån.

Russula *acrifolia, aeruginea, aquosa, atroglauca, atrorubens, aurantioflammans, betularum, crassipes (roadside), decolorans, depallens, elaeodes, emetica, gracillima, grisescens, intermedia, integriformis, paludosa, puellaris, queletii, renidens, rhodopoda, roseipes, versicolor, vinosa, xerampelina.*

Also: *Amantia friabilis, Cortinarius arenatus, Entoloma sericatum, venosum, Galerina subclavata (1995, Eef Arnolds, Gro Gulden), Gymnopilus odini, Gyrodon lividus, Haploporus odorus, Hebeloma circinans, Hohenbuhelia unguicularis, Hydnellum auratile, Hygrophorus calophyllus (roadside), chrysodon, subviscifer, Hypocrea nybergiana, Inocybe melanopus, Mythicomyces corneipes, Ramaria flavescens, safraniolens* (leg Siw Muskos, det Lennart Söderberg 2009), *Rugosomyces onychinus, Tricholoma focale, matsutake, sudum.*

Comment: Type locality for *Cortinarius crassipe*s and *Tricholoma dulciolens* described by Ilkka Kytövuori. Mauro Sarnari found *Russula intermedia* and *R. renidens* 3.9.1997. Both species described in 1994 by Routsalainen and Vauras: Karstenia 34: 21–34. *Clitocybe houghtonii*, leg and det Bellù-Turrini in 2010. *Lactarius musteus* is common in stony Pinus areas near the bothnian coast ("hällmarkstallskog" in Swedish) and also rather common in Pine heaths at inland parts of Mid Sweden. Here at Lombäcksheden *L. musteus* also grows in young Pinus forest. Tricholoma matsutake is popular for eating in northern Sweden. Neotype for *Tricholoma aestuans* from Lombäcken-Harrån, see danish book about Tricholoma (Christensen-Heilmann Clausen 2013, page 120 and 209).

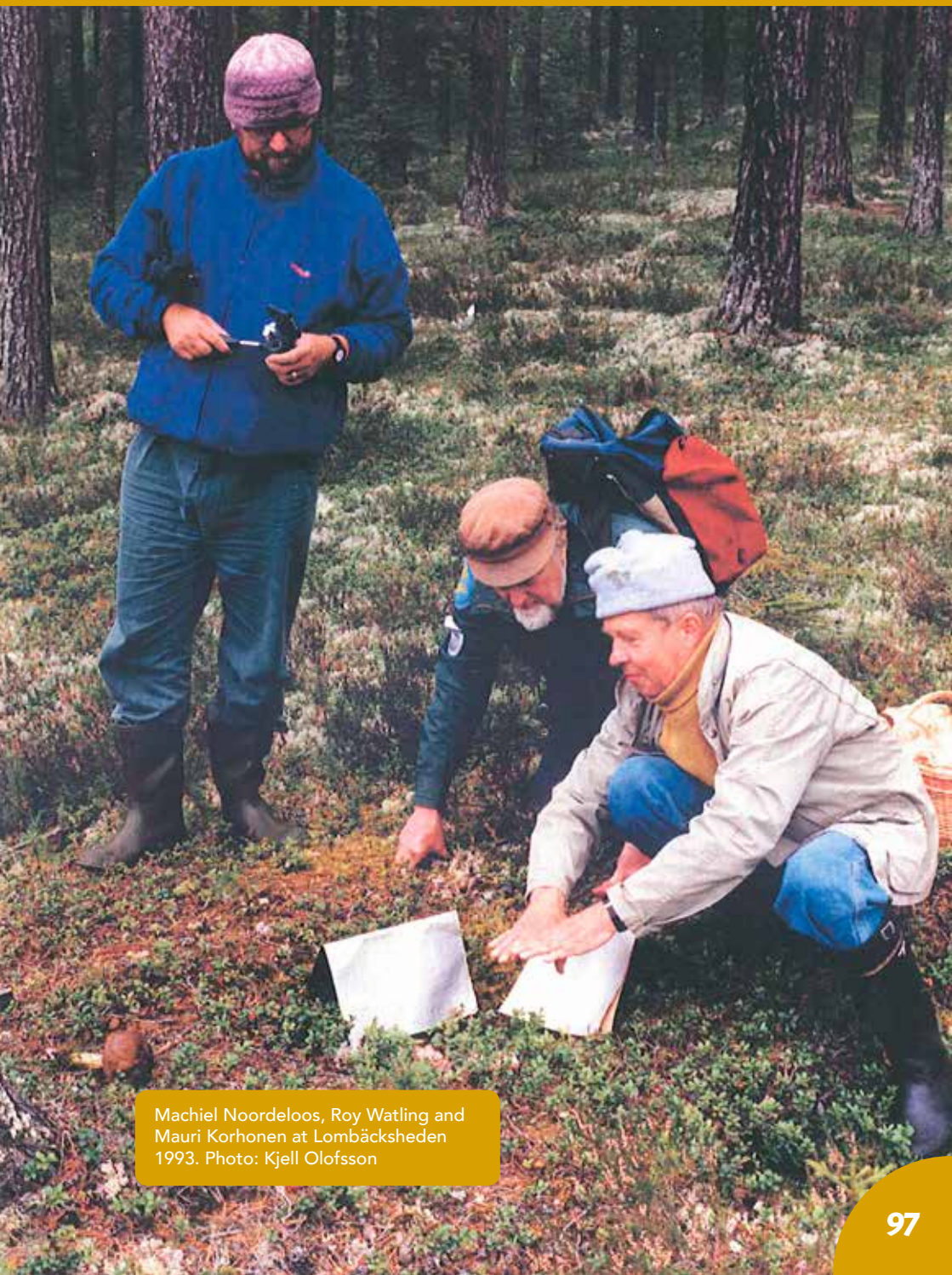

Lombäcken
Getryggen
Motorbana
23
22
Fångstgropssystem
St:t Olofsleden
Harrån
VÄSTERNÄSET
Fångstgropar
Lombäcken

Different Russula. Photo: Hjördis Lundmark

Bengt Larsson and Håkan Sundin

Bengt and Håkan guide together at ***Russulales*** workshop in Borgsjö. They can identify almost all creatures in the nature: birds, butterflies, lichenized fungi, mosses, vascular plants.

Bengt lives with his family in the orchid paradise in Borgsjö. He has good contact with local and national biologists and researchers. During the warm and sunny summer 2018, Bengt has made an inventory of butterflies (like ***Lycaena helle***) at the request of Annika Carlsson at the County Board in Västernorrland. He reports many of his findings to The Swedish Species Gateway (Artportalen). Håkan Sundin lives at the coast in Medelpad together with Eva Sundin who is president of The Botanical Society in Medelpad. Håkan is member of the board and cashier in Swedish Botanical Society. He is also somewhat interested in soot fungi at ***Carex*** hybrids and has conctact with Lars Ericson, professor emeritus ar Umeå university, expert at smut fungi.



Machiel Noordeloos, Roy Watling and Mauri Korhonen at Lombäcksheden 1993. Photo: Kjell Olofsson

24 Granbodåsen nature reserve

69445;14902

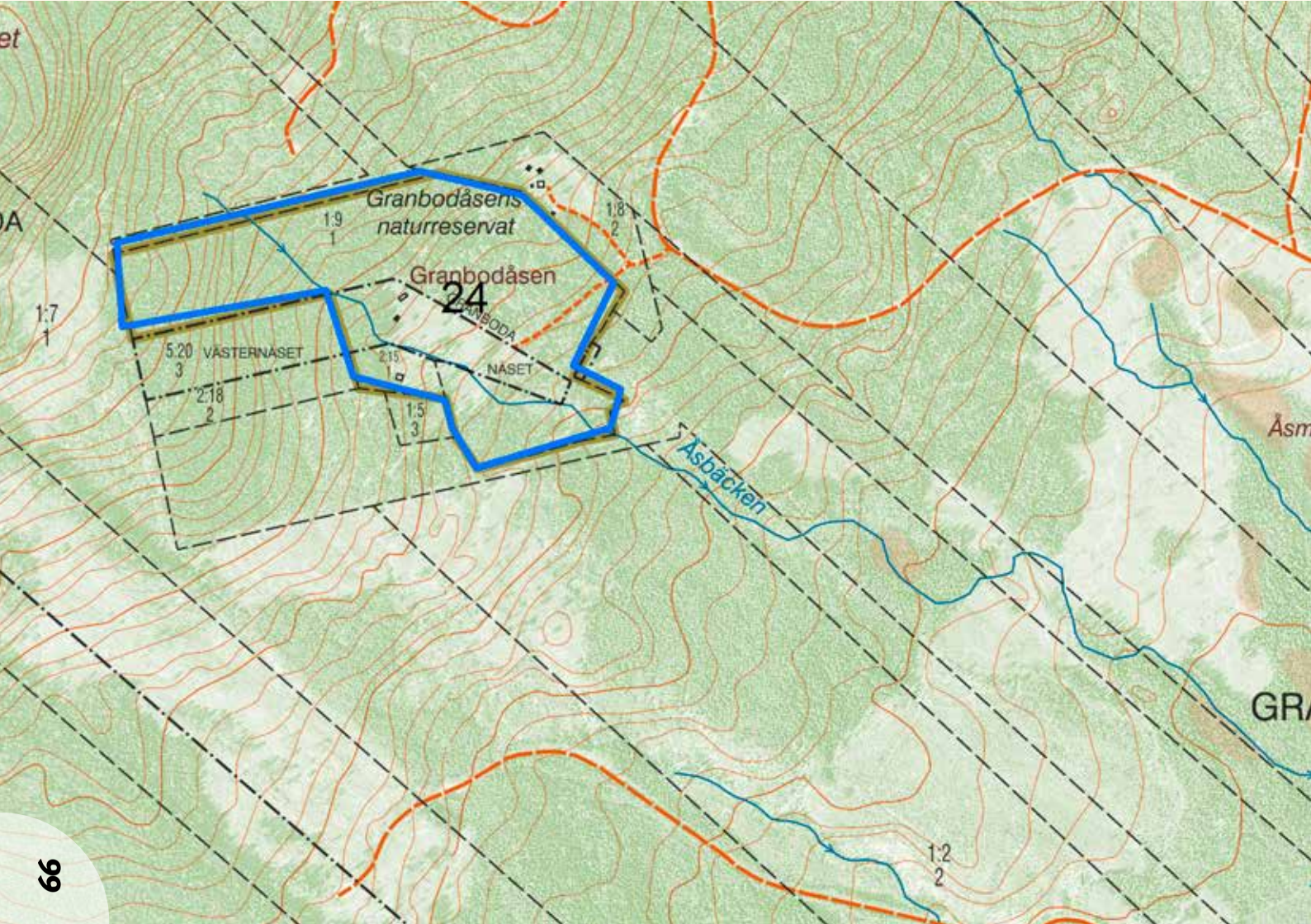
Grazed mountain pasture with about 30 species of *Entoloma* and about 20 species of *Hygrocybe*, also *Clavaria zollingeri* and *Pseudotricholoma metapodium*.

The old farmers Axel and Judith Jonsson participated during *Entoloma* workshop 1985 and *Hygrocybe* workshop 1987. Also herbrich grazed *Picea* forest. Much of big aspen trees below the meadow. *Alnus* fen along brook. Type locality of *Marasmiellus perforans* (Machiel Noordeloos 31/8 1993, Leiden). Many mycologists from countries southwards in Europe like the silence, stillness and view from the beautiful old meadow.

Lactarius *aquizonatus, aurantiacus, badiosanguineus, deterrimus, flavopalustris, fuliginosus, glyciosmus, lilacinus, mammosus, necator, obscuratus, pilatii, pubescens, rufus, resimus, scrobiculatus, scoticus* (Ruotsalainen 1989), *spinosulus, theiogalus, torminosus, trivialis, vietus, zonarioides*

Russula *acrifolia, adulterina* (Herbert Kaufmann, mikrosk., 14300d), *adusta, aeruginea, aquosa, atroglauca, atrorubens, betularum, chlaroflava, citrinochlora, chloroides var. trachyspora* (leg Birgitta Wasstorp 1983, det Henri Romagnesi), *chloroides* also collected in 2001 by Per Marstad, *clavipes, decolorans, delica, depallens, emetica, emetica var. longipes* (leg Birgitta Wasstorp 25/8 1983, det Henri Romagnesi), *favrei, firmula, foetens, fragilis, gracillima, cf grisea, grisescens, heterophylla, integriformis, intermedia* (under Betula at meadow, leg Stig Jacobson 1983, conf Henri Romagnesi, as lundellii), *lutea, nauseosa, nitida, olivascens, olivobrunnea, paludosa, pseudoaeruginea* (Herbert Kaufmann 24/8 1984, HK 840824), *puellaris, queletii, sanguinea, sapinea* (det Juhani Ruotsalainen 2001), *taigarum, versicolor, vinosa, vinososordida, vitellina*

Also: *Cathatelasma imperiale, Chamonixia caespitosa (collected by Kers near the brook), Cortinarius alboglobosus, borgsjoensis, fuscovelatus, ionosmus, pinigaudis, rusticus, talimultiformis, uliginosus, Dermoloma josserandii var. phaopodium, Entoloma madidum, pallens, Fayoida gracilipes, Geastrum pectinatum, Helvella rivularis, nigricans, Hygrocybe aurantiosplendens, punicea, Hygrophorus korhonenii, secretanii, Inocybe proximella, tjallingiorum, whitei, Microglossum viride, Naucoria striatula, Psatyrella fagetophila, lutensis, rostellata, umbrina, Pseudobaeospora cf pillodii* (Leif Andersson, Thomas Læsøe 1991), *Pseuodotricha metapodium, Gyroflexus brevibasidiatus, Suillus flavidus, Tolypocladium longisegmentum*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Pirjo Kytövuori and Jeanette Södermark outside our working hall at Erikslunds Folkets Hus 2016. Jeanette is president of Sundsvall Mycological Society. Photo: Hjördis Lundmark.

Comment: Mauro Sarnari found Russula olivobrunnea 3.9.1997. Photo of *Lactarius spinosulus* at page 167 in the book "The genus *Lactarius*" dating from Granbodåsen during Lactarius workshop 1997. Håkan Lindström: "Trattkremlor (swedish for chloroides/delica)) in Medelpad mostly seems to have a greenish reflex in their lamellas = chloroides."

Russula *taigarum* was described by Ruotsalainen and Vauras in Karstenia 30, 1990, found from the bothnian coast in Medelpad and Ångermanland to the alpine slopes in Härjedalen and Jämtland, most typical among sphagnum in old, *Picea*, blueberry forest. Leif and Anita Stridvall wrote about *R. taigarum* in the journal Jordstjärnan 1991 (1): 23–26.

25 East of Bodåsen, habitat protection area

6939937;1492650

The flower *Vicia sylvatica* adorns the road sides. *Betula, Picea, Pinus* in peat bogs. Big ant hills with *Cortinarius rosargutus.* Rich fens with the orchids *Cypripedium calceolus, Epipogium aphyllum, Gymnadenia conopsea, Listera ovata. Epipogium* often blossoms by the end of august in mushroom time.

We have, together with Ilkka Kytövuori and Mauri Korhonen, collected *Lactarius flavopalustris* at several places in moist *Betula* forests along the road. In good fungi years we found species in *Entoloma, Clavaria* and *Hygrocybe* in the rich fens. *Lactarius scrobiculatus* is typical fungus among *Hepatica nobilis and orchids.* Also four species of *Exobasidium*: *karstenii, pachysporum, rostrupii, vaccinia.*

Lactarius *aquizonatus, auriolla, deliciosus, flavopalustris, fuliginosus, glyciosmus, lilacinus, mammosus, obscuratus, rufus, scoticus, scrobiculatus, sphagneti, spinosulus, torminosus, trivialis, uvidus, vietus*

Russula *acrifolia, adusta, aeruginea, aquizonatus, aquosa, atrorubens, clavipes, decolorans, emetic, gracillima, griseascens, nauseosa, olivina, paludosa, puellaris, queletii, rhodpoda, sphagnophila, versicolor, vinosa, vinososordida, xerampelina ss.str.*

Also: *Cantharellus lutescens* (popular for eating), *Cortinarius huronensis, jonimichelliae, sanguineus, venustus, Entoloma aff ermineus, Hygrophorus percicolor, Steccherinum collabens, Tremiscus helvelloides, Tricholoma atrosquamosum*

Comment: *Cortinarius jonimichelliae* is named after the Canadian folk singer Joni Mitchell, one of Håkan Lindströms favorite artists.

26 Kullbäcken-Markbäcken nature reserve

6941467;149165

Herbrich and in spring flooded forests along forest creeks with *Aconitum septentrionale* and *Hepatica nobilis*, rich fens and marshes with willow trees, calcareous *Pine* forest, different kinds of dead wood. The composition of the rich and special soil fungi today is a result of earlier centuries with more open and grazed forests. Forest grazing was common in every rural village in Jämtland and Medelpad until about 1950.

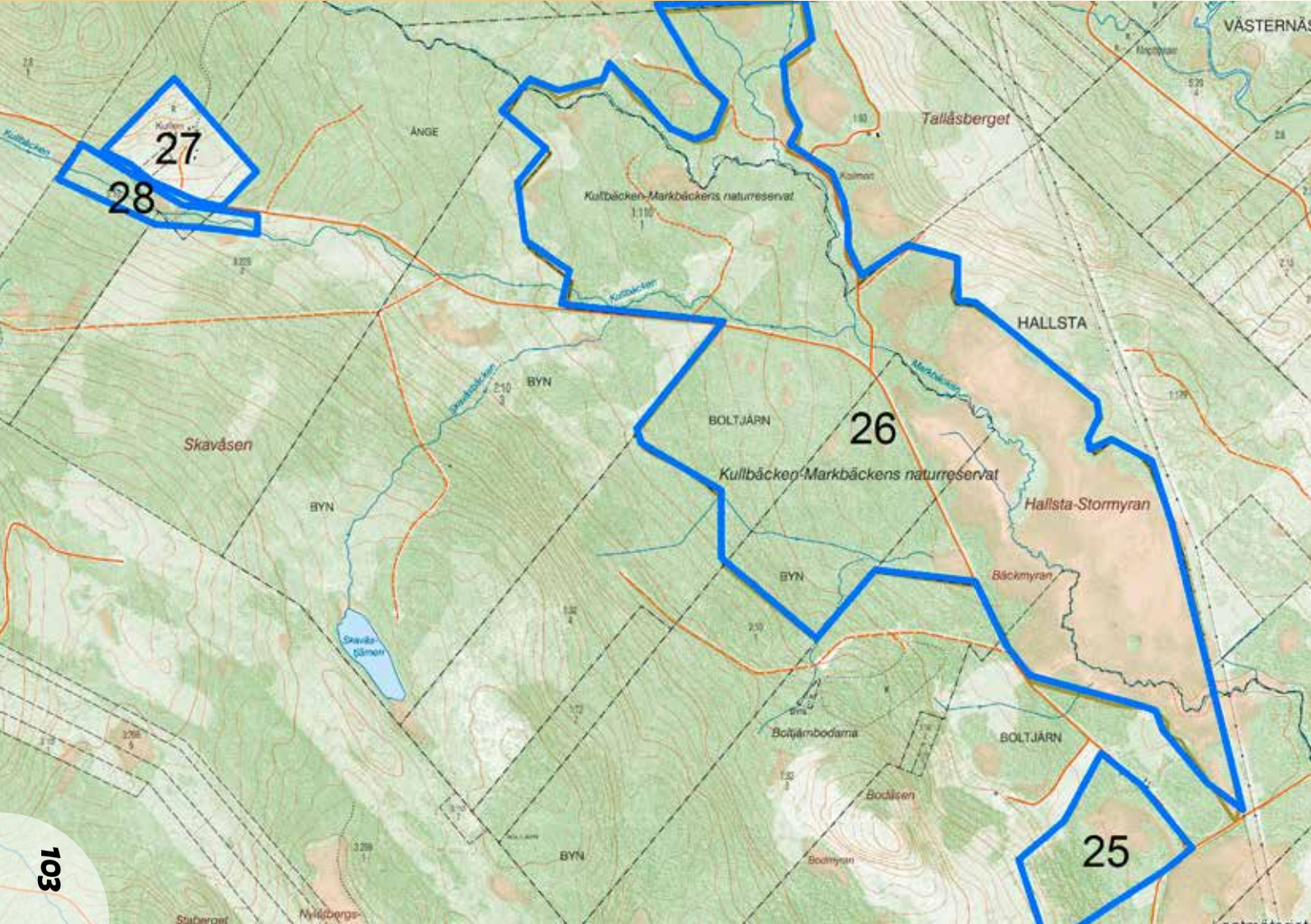
Kristin Lindström at the County council has been with us, showed old maps and told about land use in the area the last 250 years that has affected todays fens, forests

Interesting "Russula grisea" below old aspen trees at Granbodåsen

During ***Russula*** workshop with Henri Romagnesi in 1983 Birgitta Wasstorp found a group of "***Russula grisea***" 25/8 below big aspen trees at Granbodåsen.

The collection was much discussed. Romagnesi proposed three different names in the evening talks: ***R. grisea, anatina, medullata.*** Someone said ***parazurea***. Romagnesi finally said that species in the group around ***aeruginea-grisea*** needed to be more checked in the future. Stig Jacobsson described the collection in his report in Jordstjärnan 1984/1 with micro and macro details, colour of the spore print and so on. Stigs conclusion was that either of proposed names fully matched the collection from Granbodåsen. Stig wrote "***R. aeruginea*** suits best of species in the group according to FeSO4 reaction and micro characters but differences between species in the group are small and overlapping more or less" (Herbert Kaufmann later determined this collection as R. medullata ss Kühner).

Herbert Kaufmann has described and keyed 19 species belonging to section ***Heterophyllae*** known from Sweden in Svensk Mykologisk Tidskrift 28 (3): 21-69, 2007


27
28
ÅNGE
Kullbäcken
Kullbäcken-Markbäckens naturreservat
Tallåsberget
VÄSTERNÄS
HALLSTA
BOLTJÄRN
26
Kullbäcken-Markbäckens naturreservat
Hallsta-Stormyran
Markbäcken
BYN
Skavåsen
Skavåstjärnen
Boltjärnbodarna
Bodåsen
Bodmyran
Bäckmyran
25

Hygrocybe punicea is common at Granbodåsen. Photo: Annika Carlsson. Annika is meadow expert at the County Board of Västernorrland and often visit fine, old meadows in summertime together with local botanists.

and todays fungi composition. About 80 *Cortinarius* species found in the reserve, every *Cortinarius* species has its own special ecological nish here. Thanks to the nature reserve all mycorrhiza fungi can continue to have their fascinating ”underground internet” even in the future. But the effects of disturbance by forest grazing and forest fires will slowly disappear. That is a common problem in the future for nature conservation in northern forests that result in less Pinus and more Picea.

Lactarius *aquizonatus, auriolla, badiosanguineus, citriolens, deterrimus, fennoscandicus, leonis, lilacinus (Bellu), mammosus, olivinus, pubescens, rufus, scrobiculatus, subcircellatus, torminosulus, torminosus, trivialus, uvidus, vietus, zonarioides*

Russula *adulterina, chlaroflava, decolorans, gracillima, inetegriformis, queletii, paludosa, puellaris, queletii, rhodopoda, vinosa*

Russula citrinochlora, Granbodåsen 2001, photo at exhibition: Hjördis Lundmark4

Also: *Amylocystis lapponica, Clitocybe alnetorum (Bellu), Cortinarius aureofulvus, caesiocinctus, caesiostramineus, fuscovelatus, harcynicus, oulankensis, sanguineus, venustus, violaceocinereus, Craterellus cf sinuosus* (Lindström, Tedebrand), *Gomphus clavatus* (common in enormous rings along the forest creeks), *Hebeloma geminatum* (Bellu), *syrjense, Hygrophorus hedrychii, karstenii, Hygrophoropsis olida, Naucoria geraniolens* (Bellu), *Ossicaulis lignatilis, Sarcodon fennicus, Tricholoma atrosquamosum,olivaceotinctum*

Comment: The name *Russula adulterina* has been much discussed in Sweden. Funga Nordica (2012) says: "in coniferous forests, especially with Picea, distribution and frequency poorly known due to confusion with related species, but occurring in hemiboreal-boreal zone".

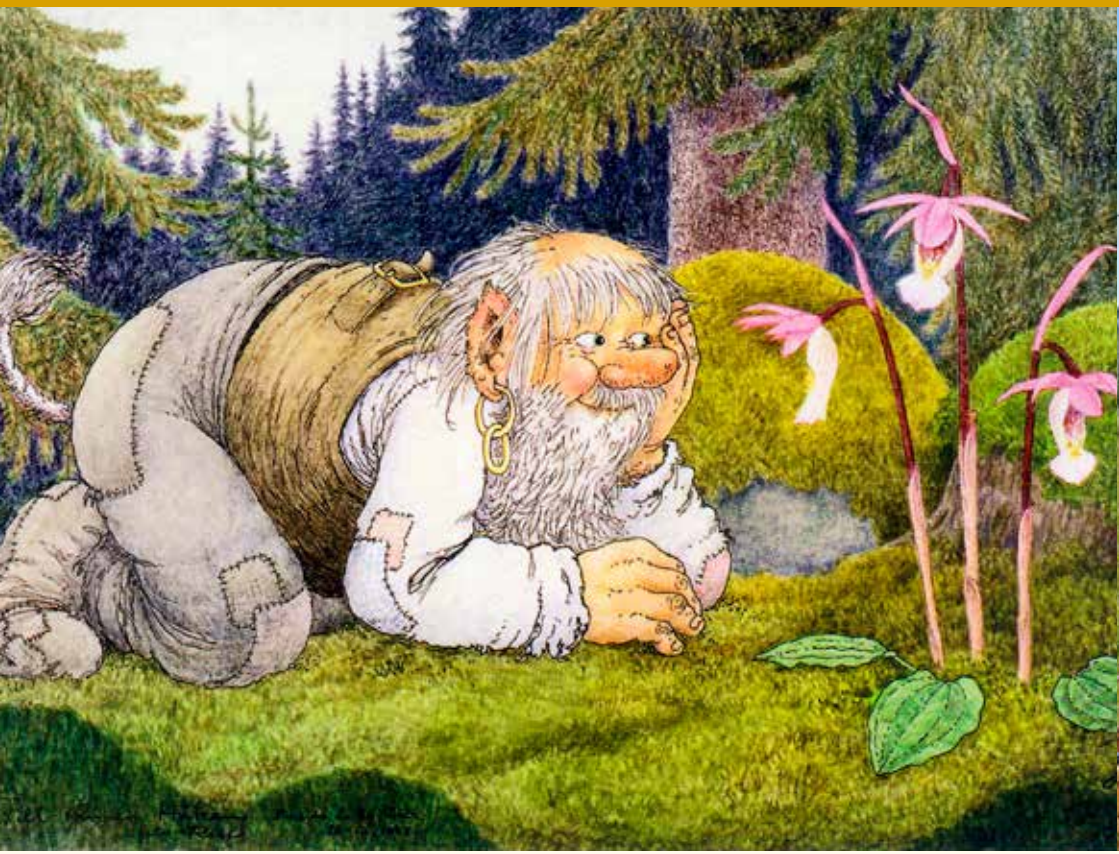
Russula adulterina belongs to a group of related species, perhaps modern DNA studies can bring more light on this and other different groups in the genus Russula. Some of our collections in different groups during *Russulales* workshop 2018 shall be investigated molecularly and the DNA results will be compared with early type collections in herbariums.

A mysterious forrest troll.
Photo: HJördis Lundmark

Entoloma atrocaeruleum. Photo Olga Morozova. Olga is curator at the Mycological Herbarium at Komarov Botanical Institute in St Petersburg, Russia. Together with Machiel Noordeloos, Tor Erik Brandrud and his norwegian team, Olga is now digging deeper and deeper into the exciting secrets of Entoloma our most species rich fungi genus at old meadows and pastures. Entoloma species have often fantastic colours! Kai Reschke from Frankfurt university will collect Entoloma at meadows during Russulales workshop, please give your Entoloma findings to Kai.

Rolf Lidberg, Håkan Lindström and others in Medelpad have been specially interested in vascular plants and fungi at old meadows.

Entoloma workshop with Machiel Noordeloos in 1985 resulted in 49 species of ***Entoloma*** at old meadows and pastures in Jämtland and Medelpad. Ten species were new for Sweden. We have also been interested in nature conservation concerning old meadows and have a good collaboration with Annika Carlsson at the county council. Together with Machiel Noordeloos in the Netherlands, Tor Erik Brandrud and other norwegian mycologists, Olga Morozova is now digging, with DNA-methods, deeper and deeper in the beautiful and fascinating world of Entoloma, the most speciesrich genus at old grasslands and also of great importance for nature conservation in the culture landscape. Olga is also a dear friend for us in Sundsvall Mycological Society, we keep contact at facebook and in other ways.



A troll admires the orchid *Calypsa bulbosa* Painting (and self portrait) by Rolf Lidberg.

27 Kullen mountain pasture

6942325;1489604

Beautiful and vast forest meadow with enormous outlook, grazed by horses and sheeps with species of *Clavaria, Entoloma, Geoglossum, Hygrocybe* in colours of blue, yellow, red during the autumn. Olga Morozova, Machiel Noordeloos and Lennart Vessberg found interesting *Entoloma* species here in 2016: *E. anatinum, clandestinum, mutabilipes, scabrosum, weholtii.*

In 2016 Gunilla Kärrfelt found the rare *Pholiota lundbergii* (det. Machiel Noordeloos) at roadside here at Kullbodarna, named in honour of Lars Lundberg, founder of Östersund Mycological Society.

Machiel Noordeloos and Gunilla Kärrfelt at Kullbodarna in 2016

Lactarius *deterrimus, glyciosmus, torminosus, trivialis*

Russula *queletii*

Comment: Kullbodarna is well grazed and lacks litter bed of old grass and ferns that is common on some hay harvested meadows and bad for meadow funga. Annika Carlsson and her fellow workers at the County Board in Västernorrland have started burning some fine meadows in order to favour fungi, vascular plants, butterflies and other biological diversity.

28 Kullbäcken south of Kullen mountain pasture

6942190;1489112

Swampy *Picea* forest and fens along the creek Kullbäcken south of the forest meadow with *Aconitum septentrionale, Daphne mezereum, Hepatica nobilis, Moneses uniflora, Rhamnus frangula.*

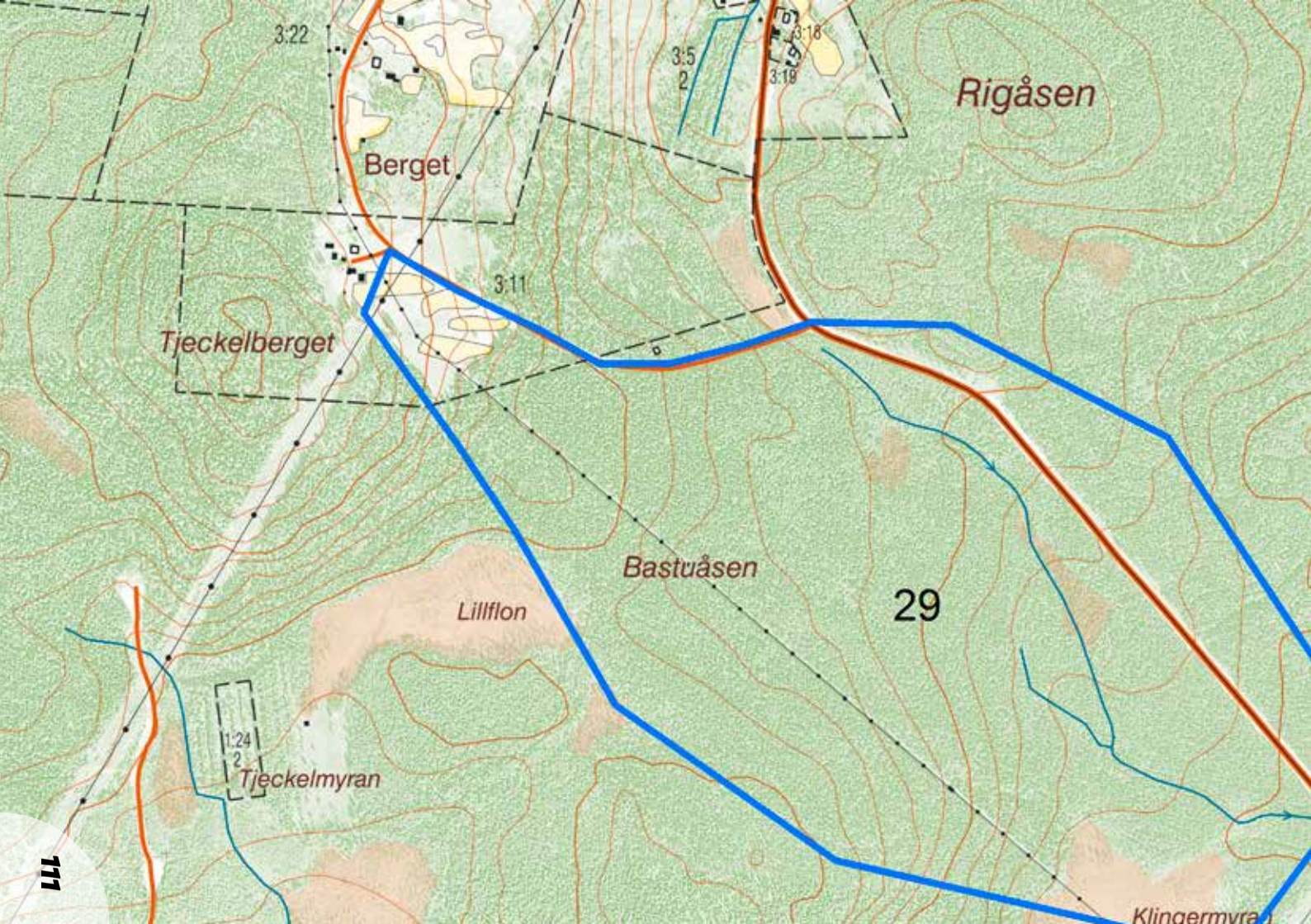
Lactarius *aquizonatus* (leg Morten Christensen 4/9 1997, det Maria Teresa Basson), *auriolla, badiosanguineus, deterrimus, flavopalustris, glyciosmus, leonis, lilacinus, mammosus, olivinus, pubescens, rufus, scoticus, scrobiculatus, torminosulus, torminosus, trivialis, tuomikoski, utilis, uvidus, vietus, zonarioides*

Russula *acrifolia, aeruginea, aquosa, atrorubens, fennoscandica, gracillima, grisescens* (Siw Muskos and Ruben Walleyn 2001), *nana, olivobrunnea, postiana, puellaris, queletii, rhodopoda, versicolor, vinosa.*

Also: *Cantharellus lutescens, Cortinarius malicorius, sanguineus, Gomphus clavatus, Hebeloma atrobrunneum,Leccinum palustre, Lentaria dendroidea, Leptoporus mollis, Multiclavula mucida* (aspen log over the creek), *Spathularia flavida, Tremiscus helvelloides.*

Comment: *Lactarius torminosulus* is common in Jämtland and Medelpad under *Betula nana*. Maria Teresa Basso tells in "*Lactarius* Pers." (1998) about collections 4.9.1997 from Kullbäcken and also from Sidsjö, Jämtland below *Betula nana* and *B. pubescens*. Photo in the Danish book "The genus *Lactarius*" (1998) is from Skärkdalen south of Ljungdalen, Härjedalen. *Lactarius leonis, scrobiculatus* and *Russula acrifolia* are typical in a fascinating nature type in Medelpad and Jämtland: old calcareous, moist Picea forest, often along brooks. *Gomphus clavatus* is rather common in the area along forest brooks like Kullbäcken, Markbäcken and Harrån in enormous fairy rings. *Russula nana* grows with *Polygonum viviparum* at Kullbäcken meadow but also in moist *Betula* forest along the brook.

Russula *olivobrunnea* is typical for the finest calcareous moist Picea forests in Jämtland and western parts of Medelpad and Ångermanland. We call this beautiful *Russula* for "guckuskokremla" because it often appear with *Cypripedium calceolus* (guckusko in Swedish).


3:22
3:5
2
3:18
3:19
Rigåsen
Berget
3:11
Tjeckelberget
Bastuåsen
29
Lillflon
1:24
2
Tjeckelmyran
111
Klingermyra

29 Julåsen

692502;1501371


FUNGI SUECICI 186
Artnamn Lactarius aspideus
Svenskt namn
Landskap MPD Koordinat
Församling
Lokal/vägbeskrivning F Julåsen
Substrat/biotop damp Picea forest under Salix caprea
Leg M.E Noordeloos M Vasbelcan Datum 5.9.97
Det Conf ME

Old finnish settlement from 1620 high up in the mountains about 20 kilometers south of the Borgsjö valley. Burn-beating formed the forests in the finnish marks during earlier centuries. Burn-beating was also common in older times around farmer villages down in Borgsjö valley. Aspen, birch and willow trees were common after fires in older times.

Meadow at Julåsen with among others *Clavaria straminea, zollingeri* (found 2003 by Anita Stridvall), *Crinipellis scabella, Entoloma porphyrophaeum, E. prunuloides, E. scabrosum, Hygrocybe aurantiosplendens, punicea, Russula nana, oreina*. Because of very late flowering redlisted *Gentinanella campestris* hay harvesting will be performed in september by Annika Carlsson at the county administrative board and her fellow worker Patrik. But of course some fungi can appear among long grass and herbs especially in more dry areas near the road. Well invented, earlier grazed and burnt woodland, now old *Picea* dominated (some *Betula, Pinus, Salix*) forest with findings of 74 species of *Cortinarius* 1982–2016.

Lactarius *aspideus, badiosanguineus, deterrimus, flexuosus, fuliginosus, glyciosmus, hysginus* (Bellu 2010), *hysginoides* (Ilkka Kytövuori 5/9 1997), *lilacinus, mammosus, necator, picinus (Birgitta Wasstorp), pubescens, representaneus, resimus, rufus, scrobiculatus, sphagneti, subcircellatus, theiogalus, torminosus, trivialis, tuomikoskii, uvidus, vietus.*

Russula *adusta, aeruginea, aquosa, atroglauca, atrorubens, betularum, citrinochlora, claroflava, clavipes, consobrina, cremeoavellanea, decolorans, delica, emetica, favrei, firmula, gracillima, helodes* (Henning Knudsen 1984), *heterophylla* (Henning Knudsen-Håkan Lindström 1984, S), *integra* (Bellu 2010), *intermedia, medullata, nitida, olivaceoviolascens, olivobrunnea, paludosa, puellaris, queletii, renidens, rhodopoda, turci, vinosa.*

Also: *Agaricus semotus, Amanita olivaceogrisea, Cathatelasma imperiale (leg Leif Anderson), Collybia fodiens, Cortinarius privignipallens, Entoloma caesiocinctum* (in sphagnum, Machiel Noordeloos), *Haploporus odorus, Hebeloma aanenii* (Bellu

Rolf Lidberg and Nils Suber. Photo: Hjördis Lundmark

2010), *Hydnellum mirabile, suaveolens, Hygrophorus persicolor, purpurascens, Inocybe casimiri, castanea, Leccinum variicolor, Lepista densifolia, Marasmius scorodonius, Mycena capillaripes, urania, Neobarya parasitica, Psatyrella jacobsonii, pertinax, Ramaria botrytis, Tricholoma olivaceotinctum, Typhula* lutescens.

Comment: Machiel Noordeloos and Annemieke Verbeken found in 1997 plenty of *Lactarius aspideus* in the swamp area under a big, old *Salix caprea* with smelling *Haploporus odorus* on the trunk. Machiel also found *Entoloma caesiocinctum* in sphagnum. Jan Vesterholt was glad to find *Hebeloma syrjense*, Hjördis Lundmark has found *Cortinarius anthracinus* at Julåsen, a good fungus for wool dyeing, see page 151 in the book "Färgsvampar och Svampfärgning" (Lundmark, Marklund 2018). Anita and Leif Stridvall visited forests at Julåsen 27 and 29 of august 2003 and made a list of 153 fungi species including 50 species in *Cortinarius*! Birgitta Gahne, Stig Jacobson and Håkan Lindström helped with determination of some *Cortinarius* species.

Lactarius *hysgionoides* is a rare boreal species with about 15 observations in Sweden growing under *Betula* , *Picea* and *Salix*. Maria Teresa Basson also collected *L. hysginoides* 1997 east of Storklacken in Haverö parish, Medelpad. *Lactarius subcircellatus* is common below *Betula nana* in alpine areas but is also rather common under *Betula ssp.* in Borgsjö and Haverö parishes, Medelpad. Maria Teresa mentions in her book "*Lactarius* Pers" (1998) three collections in 1997 from Haverö parish: east of Storklacken, north of Linåsen, Torrflonäs.

A habitat protecton area (biotopskydd)at Julåsen with *Tricholoma borgsjoeense* has fallen down by severe storms. It is described by Stig Jacobsson and Siw Muskos.

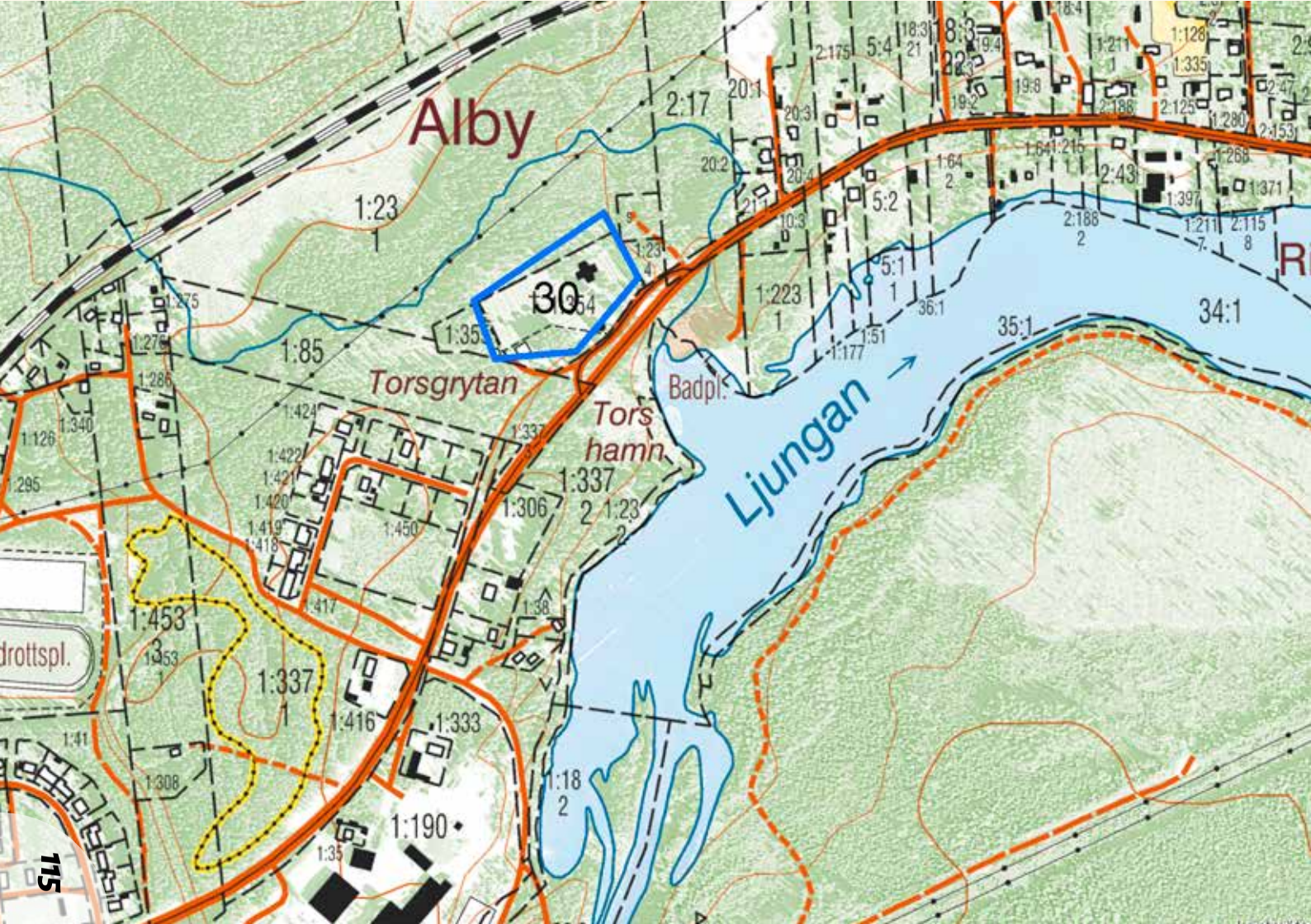
Russula aurantioflammans, Alby cemetary 2001, photo at exhibition: Hjördis Lundmark

30 Alby cemetary

6932320;1483670

Pinus* park on rich, sandy soil. Moist *Picea* forest north of the cemetery with *Alnus, Betula.

Lactarius *aquizonatus, deliciosus, deterrimus, glyciosmus, lilacinus, musteus, obscuratus, pubescens, rufus, scrobiculatus, sphagneti, torminosus, uvidus, vietus*

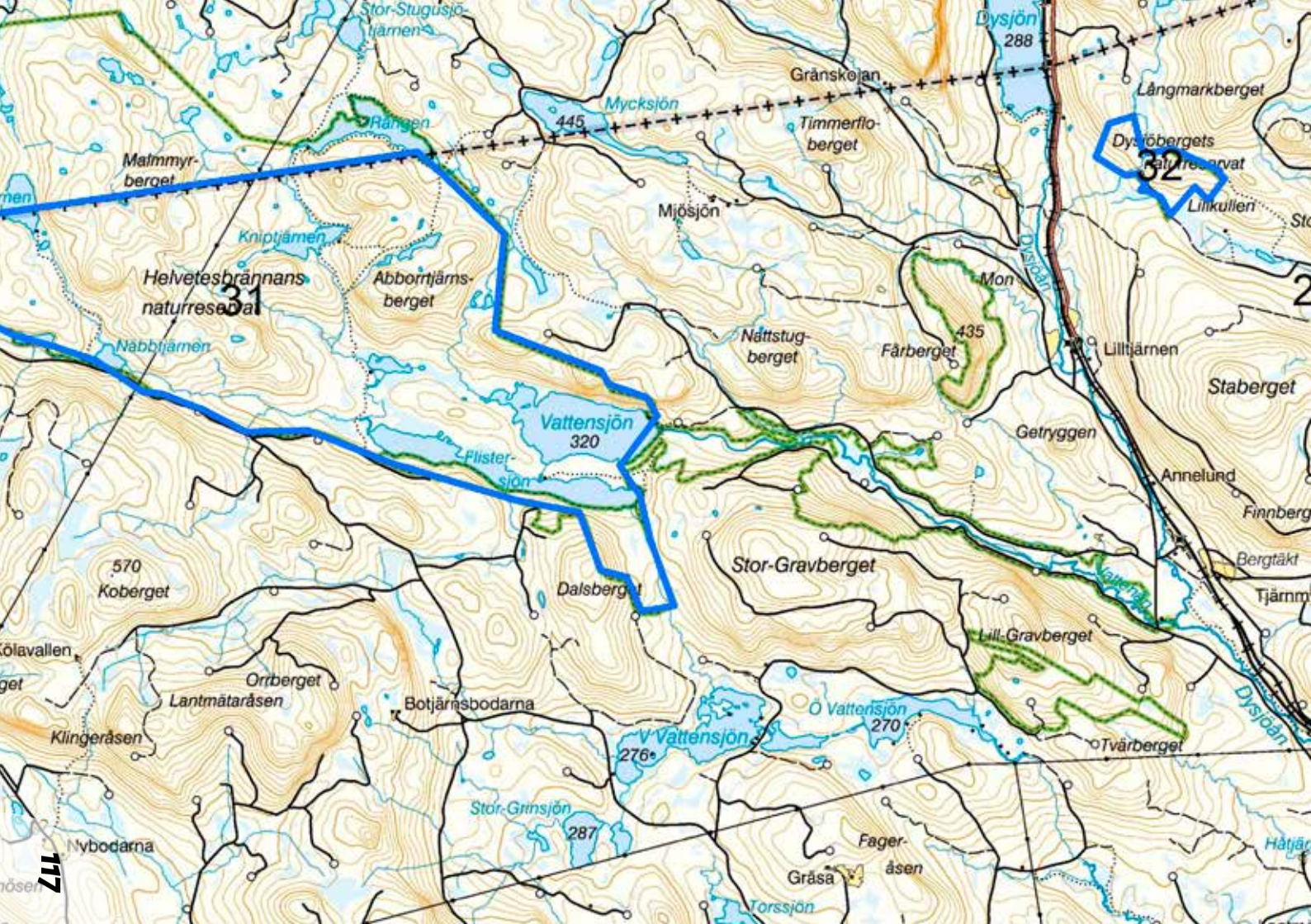

Alby
30
Torsgrytan
Tors
hamn
Badpl.
Ljungan
drottspl.
34:1
35:1
36:1

Håkan Lindström at forest meadow, Rigåsen, Liden parish 1976. Photo: Lennart Vessberg

Russula *adusta, aeruginea, aurantioflammans, cessans, clavipes, decolorans, favrei, gracillima, lutea, paludosa, puellaris, roseipes, versicolor, vinosa*

Also: *Cortinarius ionophyllus, leucophanes, semisanguineus, subbalaustinus, Hebeloma radicosum, Hydnellum caeruleum, Hygrophorus persicolor, Pholiota lubrica, Ramaria eosanguinea, Sarcodon scabrosus*

Comment: During the *Russula* workshop 2001 big, beautiful fruitbodies of *Russula aurantioflammans* were collected below *Betula* in the church park. Tuula Niskanen collected in 2003 the rare *Cortinarius alboamarescens* at the cemetery, a small white Myxacium. Anita Stridvall and Stig Jakobson found in 2010 *Cortinarius ionophyllus* and *Gomphus clavatus* in the *Picea* forest north of the cemetary.


Stor-Stugusjö-
tjärnen
Dysjön
288
Gränskojan
Långmarkberget
Mycksjön
445
Timmerflo-
berget
Dysjöbergets
32
Malmmyr-
berget
Mjösjön
Lillkullen
Kniptjärnen
Helvetesbrännans
naturreservat
31
Abborrtjärns-
berget
Mon
435
Nattstug-
berget
Fårberget
Lilltjärnen
Staberget
Nabbtjärnen
Vattensjön
320
Getryggen
Flister-
sjön
Annelund
Finnberg
Bergtäkt
570
Koberget
Stor-Gravberget
Dalsberget
Tjärnm
Lill-Gravberget
Orrberget
Lantmätaråsen
Botjärnsbodarna
Ö Vattensjön
270
V Vattensjön
276
Tvärberget
Klingeråsen
Stor-Grinsjön
287
Fager-
åsen
Gräsa
Torssjön
77

31 Helvetesbrännan nature reserve

The dry, stony reserve is 3400 hectare and burned in the big fire year 1888 when cities like Sundsvall and Umeå burned. *Pinus* dominate but aspen, birch and willow cover southern slopes of Aborrtjärnberget and Vattensjöberget. A silver pine (dead grey standing pine tree) started growing in the year 1080! Johan Uebel from the county council led a memorable mushroom foray in 2001 when 92 fungi species were found. Necessary to have skillful guide in the rocky wilderness.

Lactarius *deterrimus, flexuosus, rufus, torminosus, trivialis, vietus*

Russula *aeruginea, atrorubens, claroflava, clavipes, paludosa, vinosa*

Also: *Cortinarius heterocyclus, septentionalis, Haploporus odorus, Hohenbuhelia mastrucata, Lyophyllum decastes, Phellinus pini, Phellodon niger*

32 Dysjöberget nature reserve

6943734;1486455

The County Board in Västernorrland created this nature reserve in 2014. Just visited once by mycologists at Cortinarius workshop 2016. Dysjöberget is situated a few kilometers from the old forest meadows Granbodåsen and Kullbodarna.

In older days farmers from the village Boltjärn grazed their cows, goats and sheep at Dyberget in summertime. The forest of the rocky area burnt in 1888 and is today dominated by old *Betula, Pinus, Populus* and *Salix*, a so called ”lövbränna” in Swedish, a common nature type in older times when northern forests were formed by forest fires. Todays dominating *Picea* forests in the excursion area are a result of cutting away deciduous trees for firewood the last 100 years, especially during both world wars. During a period deciduous trees were also eliminated with herbicids.

Lactarius *deterrimus, glyciosmus, lilacinus, mammosus, pubescens, rufus, uvidus*

Russula *atrorubens, decolorans, grisescens, paludosa*

Dysjöberget, rocky old aspen and birch forest that burnt in 1888. Photo: Bengt Larsson

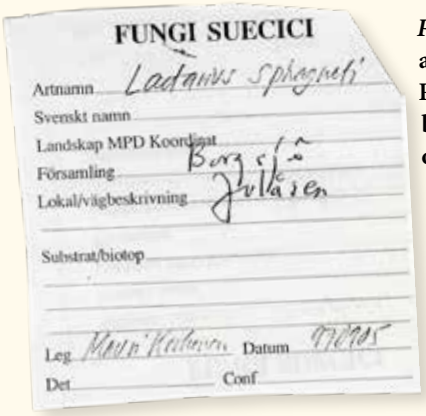
Also: *Cortinarius jotunae ined., psedofallax coll., Leccinum cyanobsileucum, vulpinum,*

Phellinus populicola

Comment: Today too many elks eat young pine trees and also young aspen and salix bushes, an problem both for forest production and biological diversity. But strong resistance among hunters to reduce the amount of elks. Elk hunting is very popular as social event in rural parts of Sweden.

33 Floberget nature reserve

529123;692347


FUNGI SUECICI

Artnamn Lactarius sphagneti

Svenskt namn

Landskap MPD Koordinat

Församling Borgsjö

Lokal/vägbeskrivning Julåsen

Substrat/biotop

Leg Mats Halvarsson Datum 070805

Det Conf

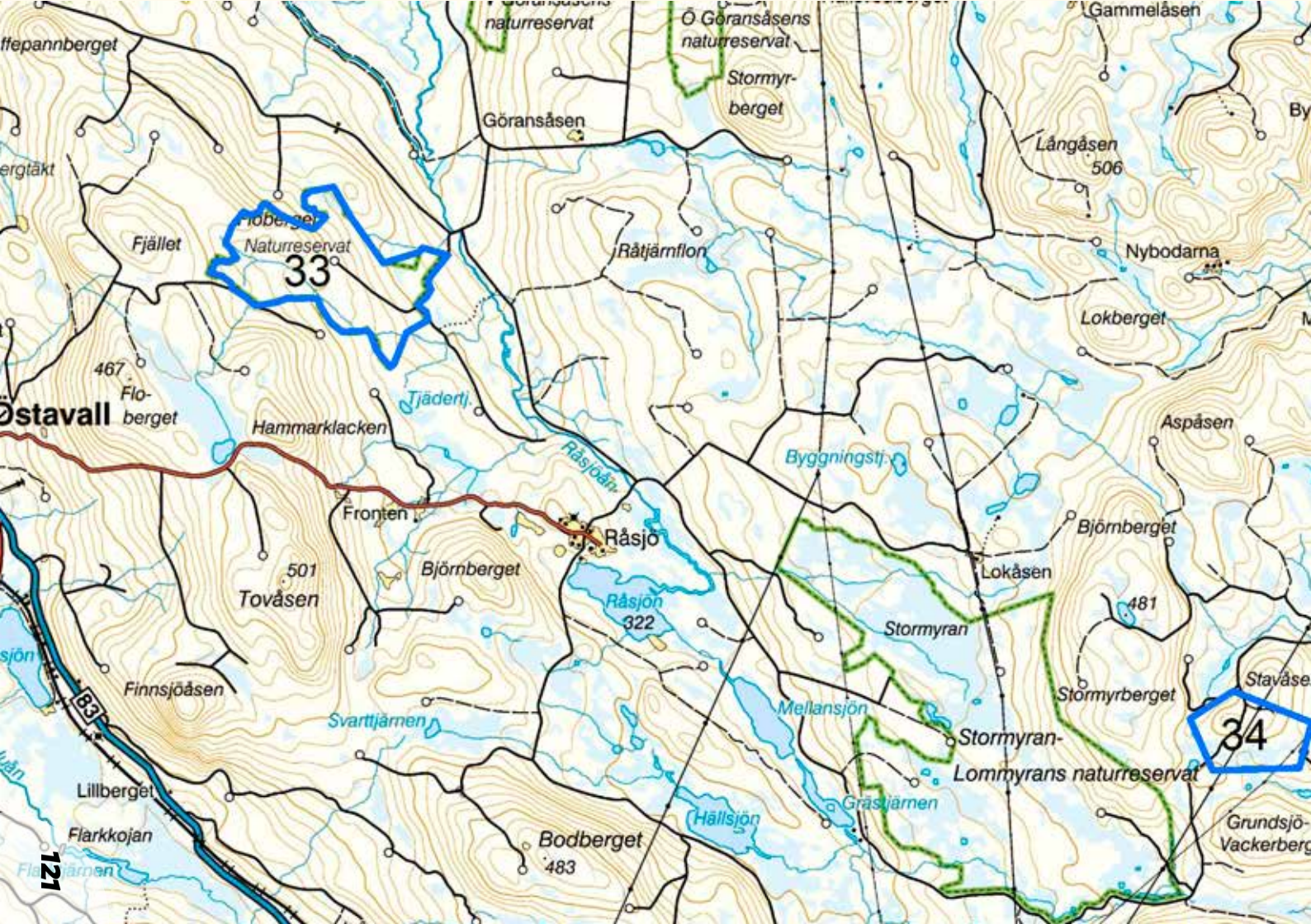
***Picea*, many big old *Aspen* trees, also *Betula* and *Salix*, moist areas along forest brooks. Rather difficult to walk in the reserve because of many fallen trees. Just visited once at workshop 2016.**

Lactarius *deterrimus, glyciosmus* (roadside), *leonis, lilacinus, pubescens, representaneus, theiogalus, torminosus* (roadside), *trivialis, tuomikoskii* (det Ilka Kytövuori), *uvidus, vietus*

Russula *atrorubens, clavipes, claroflava, decolorans*

Also: *Xanthoporus syringae* (roadside), *Clitocybe hydrogramma, Cortinarius caesioarmeniacus* (Balint Dina seqv.), *uliginosus, umbrinolens, Hygrophorus korhonenii, Hypocrea nybergiana, Leccinum albostipitatum, variicolor, versipelle, vulpinum, Pholiota lundbergii*

Comment: *Pholiota lundbergii* is described by Stig Jacobsson in honour of *Lars Lundberg*, founder of Östersund Mycological Society. It seems to live from wood remnants of decayed wood and to be a rare species with just ten dots in northern Sweden at Swedish Dyntaxa. Found in Borgsjö parish at Kullbodarna and here at Floberget.


Ö Göransåsens naturreservat
Stormyr-berget
Göransåsen
Gammelåsen
Långåsen
506
Fjället
Naturreservat
33
Råtjärnflon
Nybodarna
Lokberget
467
Flo-berget
Östavall
Tjädertj.
Hammarklacken
Byggningstj.
Aspåsen
Fronten
Råsjön
Björnberget
Lokåsen
501
Tovåsen
Råsjön
322
481
Stormyran
Finnsjöåsen
Svarttjärnen
Mellansjön
Stormyrberget
34
Stormyran-
Lommyrans naturreservat
Lillberget
Flarkkojan
Grästjärnen
Hällsjön
Bodberget
483
Grundsjö-
Vackerberg
83
121

The forest east of Boflon is also a paradise for Telamonia species. Håkan Lindström has named *Cortinarius andreae* (CFP E 17) after his son Andreas, here at fungi exhibition at Meyzieu, France in 2000. Photo: Hjördis Lundmark.

Haverö parish

34 Forest east of Boflon

6934768;1476808

Boflon is a fen with *Pedicularis sceptrum-carolinum*. East of Boflon there is a rich moist *Picea* forest in a north slope about 420 above sea level, today protected by the forest company Sveaskog with the beautiful orchid *Epipogium aphyllum*, *Cystopteris montana* and many interesting fungi. People lived here at a small crofters holding at state land until hundred years ago. Perhaps the forest road is too bad for regular cars but OK for minibuses.

Hapalopilus rutilans gives a beautiful purple color. Dyed and photographed by Hjördis Lundmark.

Right: Siv Norberg, contact person for Mushroom Dyeing Society with Hapalopilus rutilans. Photo: Jan-Olof Tedebrand

Lactarius *aquizonatus, auriolla, badiosanguineus, citriolens, deterrimus, fennoscandicus, foetens, fragilis, glyciosmus, gracillima, griseascens, hysginus, olivobrunnea, necator, pubescens, queletii, resimus, rufus, scoticus, scrobiculatus, sphagneti, spinosulus, theiogalus, torminosus, trivialis, tuomikoskii, uvidus, vesca, vietus*

Russula *adusta, aeruginea, aquosa, atrorubens, consobrina, decolorans, delica, emetica, favrei, fennoscandica, fragilis, gracillima, grisescens, olivobrunnea, paludosa, puellaris, rhodopoda, vinosa, vinosordida*

Also: *Agaricus semotus, Arrhenia lobata, Cortinarius andreae, malicorius, rosargutus (ant hill), rusticus, sanguineus, venustus, Entoloma juncinum, lividocyanulum, Fayodia bisphaerigera, Hebeloma syrjense, Hemimycena pseudolactea, Hygrophorus karstenii, H. persicolor, Inocybe terrigena, Leocarpus fragilis, Limacella guttata, Lyophyllum fumosum, Melanoleuca grammopodia, Multicluvula vernalis, Mycena amicta, Naucoria zonata, Onygena equine, Otidea propinquata, Pholiota heteroclita, Pseudographis pinicola, Ramaria botrytis, Skeletocutis amorpha, Thelephora palmata*

Comment: Erhard Ludwig found *Naucoria zonata* below Alnus and Salix in a ditch at the forest road in 1996 and made a painting. Anita and Leif Stridvall found *N. zonata* again in 2003. At visit in 2003 some people filled their baskets with *Cortinarius sanguineus* for dyeing wool! *Lactarius scoticus, vietus, Inocybe terrigena* and *Melanoleuca grammopodia, Russula grisescens* are frequent in the slopes with rich fens. *Lactarius citriolens* is southerly with few findings in the northern taiga region.

35 Björntjärn nature reserve

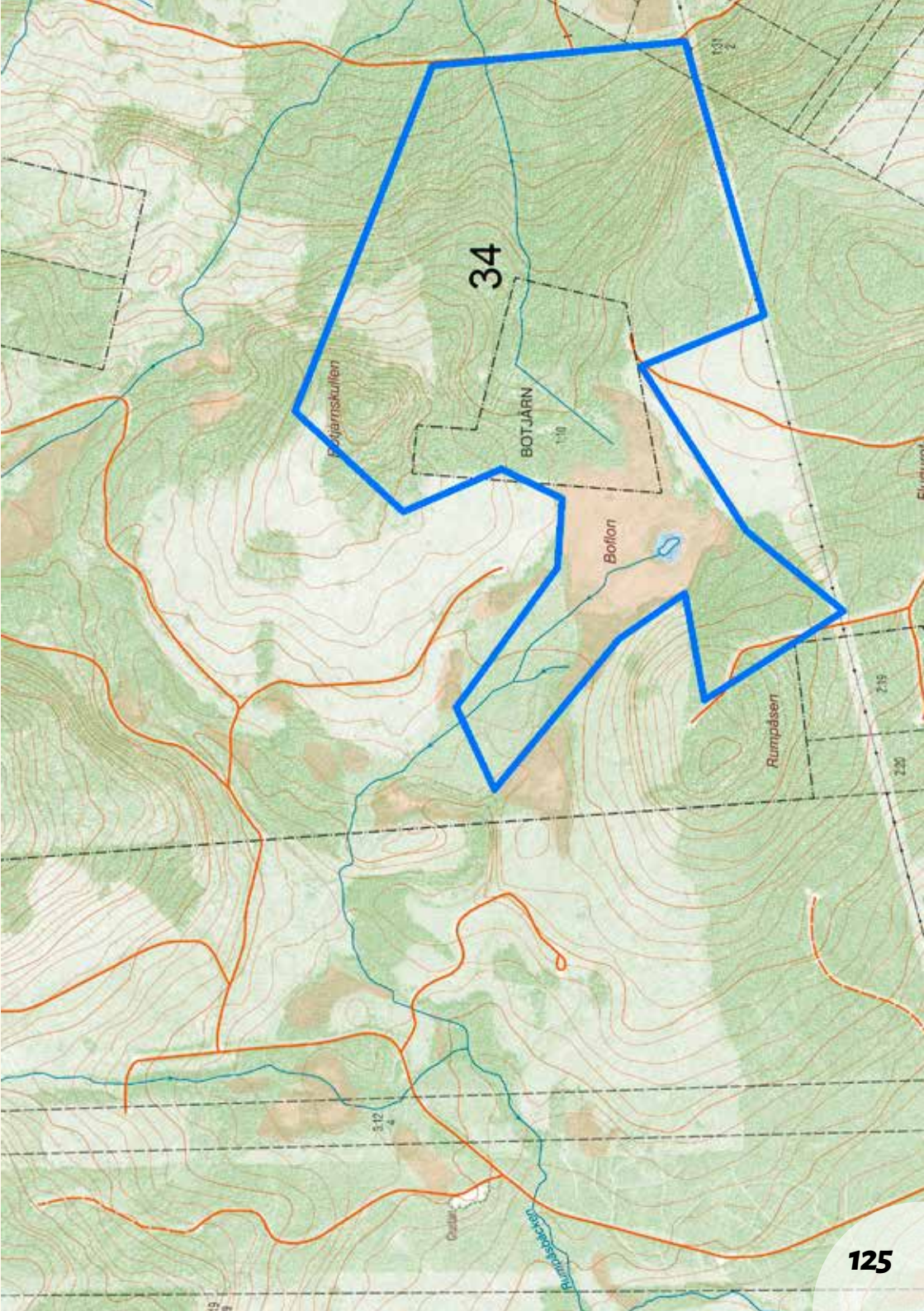
504474;6932386

Virgin forest, 300 years old Picea, also 4–500 years old Pinus. Type locality for the rare corticioid fungi *Phlebia ryvardenii*

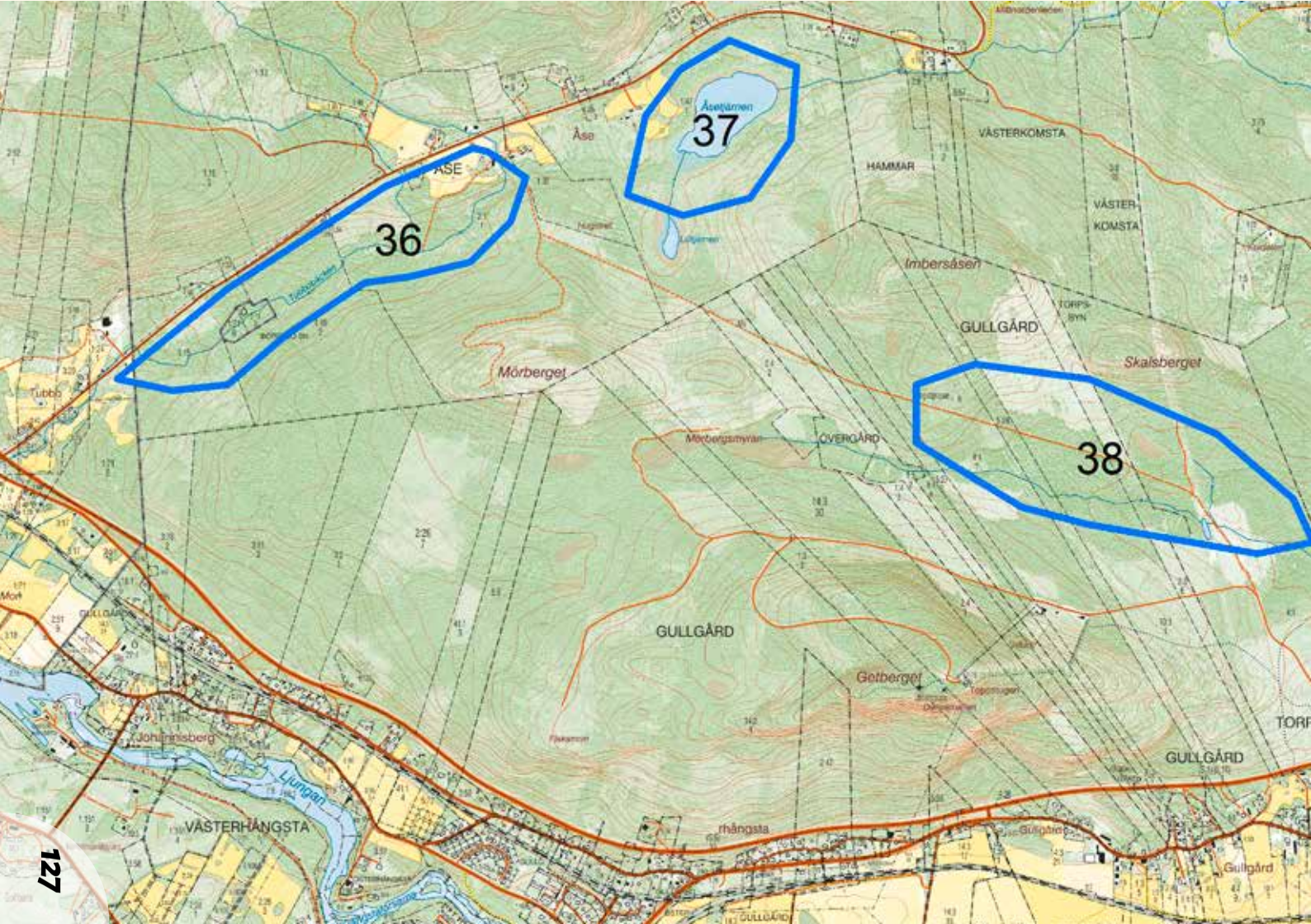
Lactarius *deterrimus, mammosus, rufus, torminosus, trivialis, tuomikoski,*

Russula *aquosa, atrorubens, decolorans, griseascens, nitida, paludosa, rhodopoda, taigarum, vinosa*

Also: *Cortinarius bataaillei, fervidus, leucophanes, sanguineus, venustus, Cystoderma ambrosii, Onnia leporina, Ossicaulis lignatilis, Skeletocutis odora*


34
BOTJÄRN
Botjärnskullen
Bofjon
Rumpåsen

The colourful mycologists Stig Jacobsson and Jacques Melot, Borgsjö 2003.
Photo: Hjördis Lundmark


36
37
38
ÅSE
Åse
Åsetjärnen
HAMMAR
VÄSTERKOMSTA
VÄSTER
KOMSTA
Imbersåsen
GULLGÅRD
Skalsberget
Mörberget
Mörbergstjärnen
ÖVERGÅRD
Tubbo
GULLGÅRD
Getberget
Johannisberg
Ljungan
VÄSTERHÄNGSTA
GULLGÅRD
Gullgård

Torp parish

36 Tubbobäcken + forest west of Mörberget (habitat protecion area)

6933916;1512039

Moist brook area with *Alnus, Picea, Salix* and many small soil fungi demanding lime and nitrogen (*Lepiota* society). Also rich *Picea* forest along Tubbobäcken and swamp areas west of Mörberget with *Circaea alpina, Cypripedium calceolus, Viburnum opulus.* Plenty of dead wood, 40 species of *Polyporales* found in 1986 together with Leif Ryvarden. The rich moss flora has been checked by Tomas Hallingbäck, Bengt Larsson and Sofia Lundell.

Lactarius *badiosanguineus, deterrimus, fuliginosus, glyciosmus, lilacinus, obscuratus, olivinus, parazurea* (Doris Laber), *queletii, rufus, sanguinea, scoticus, scrobiculatus, theiogalus, torminosus, trivialis, vietus*

Russula *aeruginea,atrorubens, badia, claroflava, consobrina, decolorans, delica, favrei, firmula, gracillima, lutea, olivobrunnea, paludosa, parazurea, queletii, taigarum, versicolor, vinosa*

Also: *Amanita friabilis, Chrysomphalina chrysophylla, Clavaria fumosa, Clitocybe harperi, phaeophthalma, Cordyceps gracilis, Cortinarius aureopulverulentus, fervidus, harcynicus, ionosmus, venustus, Crepidotus kubickae, stenocystis, Echinoderma dysthales, pseudoasperula, Geastrum fimbriatum, Hygrophorus chrysodon, korhonenii, persicolor, subviscifer, Leccinum piceinum, Marasmius siccus, Melanophyllum echinatum, Mycena oregonensis, Onnia leporina, Ramaria gracilis, Rhodocybe nitellina, Rhodonia placenta, Sowerbyella radicata, Steccherinum collabens, Thelephora palmata, Tremiscus helvelloides, Trichoderma nybergianum, Tricholoma atrosquamosum.*

Comment: Doris Laber found *Russula parazurea* at Tubbobäcken. Key to bluegreen-green species in section Heterophyllae in Funga Nordica (2012). Anita and Leif

Stridvall collected during mycological week in Härjedalen 2006 a beautifull collection of *Russula ionochlora* in alpine *Betula* forest at Djupdalsvallen. Herbert Kaufmann has several times written about species in section *Heterophyllae,* see for example Svensk Mykologisk Tidskrift 2007 (3) pages 21–69. Very exciting to hear latest news about section *Heterophyllae* in Borgsjö 2018, perhaps after DNA-studies of type collections!

Neotype for *Tricholoma inamoenum* from Tubbobäcken, see danish book about *Tricholoma* (Christensen-Heilmann-Clausen 2013, pages 188 and 210)

37 Åsetjärnen

15134;69346

Picea, Alnus-Salix* marshes with *Amanita friabilis* and the orchid *Microstylis monophyllos.

Lactarius *badiosanguineus, deterrimus, rufus, scoticus, scrobiculatus, theiogalus, torminosus, trivialis, uvidus*

Russula *acrifolia, adusta, aeruginea, betularum, claroflava, decolorans, emetica, firmula, grisescens, nitida, paludosa, queletii, xerampelina ss.lat.*

Also: *Amanita friabilis, Cantharellus lutescens, Cortinarius eburneus, Dialonectria episphaeria, Durella atrocyanea, Entoloma sarcitulum, Geoglossum glabrum* (in *sphagnum* with the orchid *Hammarbya paludosa* and *Hygrocybe strangulata*), *Hypoxylon salicicolum, Inocybe paludinella, Ostropa cinerea, Lentinellus vulpinus, Psathyrella chardroderma, Spooneromyces velenovskyi*

38 Forest north of Getberget

15143;69329

Picea, Pinus,* also moist areas with *Alnus* and *Salix,* visited during 16 mycological workshops in Borgsjö 1982 - 2016. *Cypripedium calceolus.* At Getberget also the only place in Medelpad for another beautiful orchid: *Epipactis atrorubens.* Hitherto 89 different *Cortinarius* species collected and identified. Henri Romagnesi was happy in 1983 to find *Bankera violascens.* Ilkka Kytövuori collected in 1995 the rare *Leucopaxillus subzonalis.

Lactarius *badiosanguineus, deterrimus, fennoscandicus, fuliginosus, glyciosmus, lilacinus, necator, pubescens, rufus, scoticus, scrobiculatus, sphagneti, spinosulus, subcircellatus, torminosus, trivialis, tuomikoskii, turci, uvidus, vietus, zonarioides*

Russula *adusta, aeruginea, aquosa, atrorubens, claroflava, consobrina, crassipes, decolorans, depallens, emetica, favrei, fennoscandica, firmula, foetens, fragilis var. knautii* (det Henri Romagnesi), *gracillima, cf grisea, grisescens, integra, nauseosa var. laricina* (Leif Örstadius 22/8 1983, det Henri Romagnesi), *nitida, olivaceoviolascens, olivascens, paludosa, puellaris, queletii, renidens, rhodopoda, roseipes, sapinea* Sarnari (in moist spruce forest, leg och det Jukka Vauras, Gent), *sphagnophila, turci* (22/8 1983 Stig Jacobsson, det Henri Romagnesi), *versicolor, vinosa, vinosordida, xermapelina ss lat.*

Also: *Amanita friabilis, Cordyceps gracilis, Ceriporiopsis balanae, Cortinarius caesiocinctus, venetus, venustus, violaceocinereus, Clitocybe phaeophthalma, Cordyceps gracilis, Geastrum pectinatum, Hebeloma syrjense, Heyderia abietis, Hygrophorus chrysodon coll., korhonenii, subviscifer, Inocybe terrigena, Leucopaxillus subzonalis* (1995, Ilkka Kytövuori), *Mycena oregonensis, pelianthina, Psatyrella pertinax, Pseudobaeospora celluloderma* (Laessöe 1991), *Trichoderma nybergianum, Tricholoma olivaceotinctum, scalpturatum*

Comment: Henri Romagnesi determined several collections as *Russula fragilis var. knautii* Sing. during *Russula* workshop in 1983. Stig Jacobsons writes about the collection from Getberget in Jordstjärnan 1984/1 page 18: "The fruitbodies were red violet with almost black center and remind the macroscopy of R.*atrorubens. The spores had low warts in similarity to fragilis, but Singer, who described Knautii as an own species, says that* Knautii *have powerful outgrowth from the spores (as emetica) and mostly appear in Fagus forest".*

During *Russula* workshop with Henning Knudsen in 1984 the same *Russula* got the name *Russula olivaceoviolascens* and was the most common *Russula*. At last we just called it "Ove"!

Russula *sapinea* was described by Mauro Sarnari who participated in the Borgsjö workshop in 1997. A little known *Russula*, just three finds in the swedish Dyntaxa, www.dyntaxa.se from northern Sweden. According to Funga Nordica (2012) rare in rich *Picea* forest.

At Getberget and in almost every forest around Borgsjö we also find "*Lactarius utilis*", nowadays included in *L. trivialis*, and thus not mentioned in this guide.

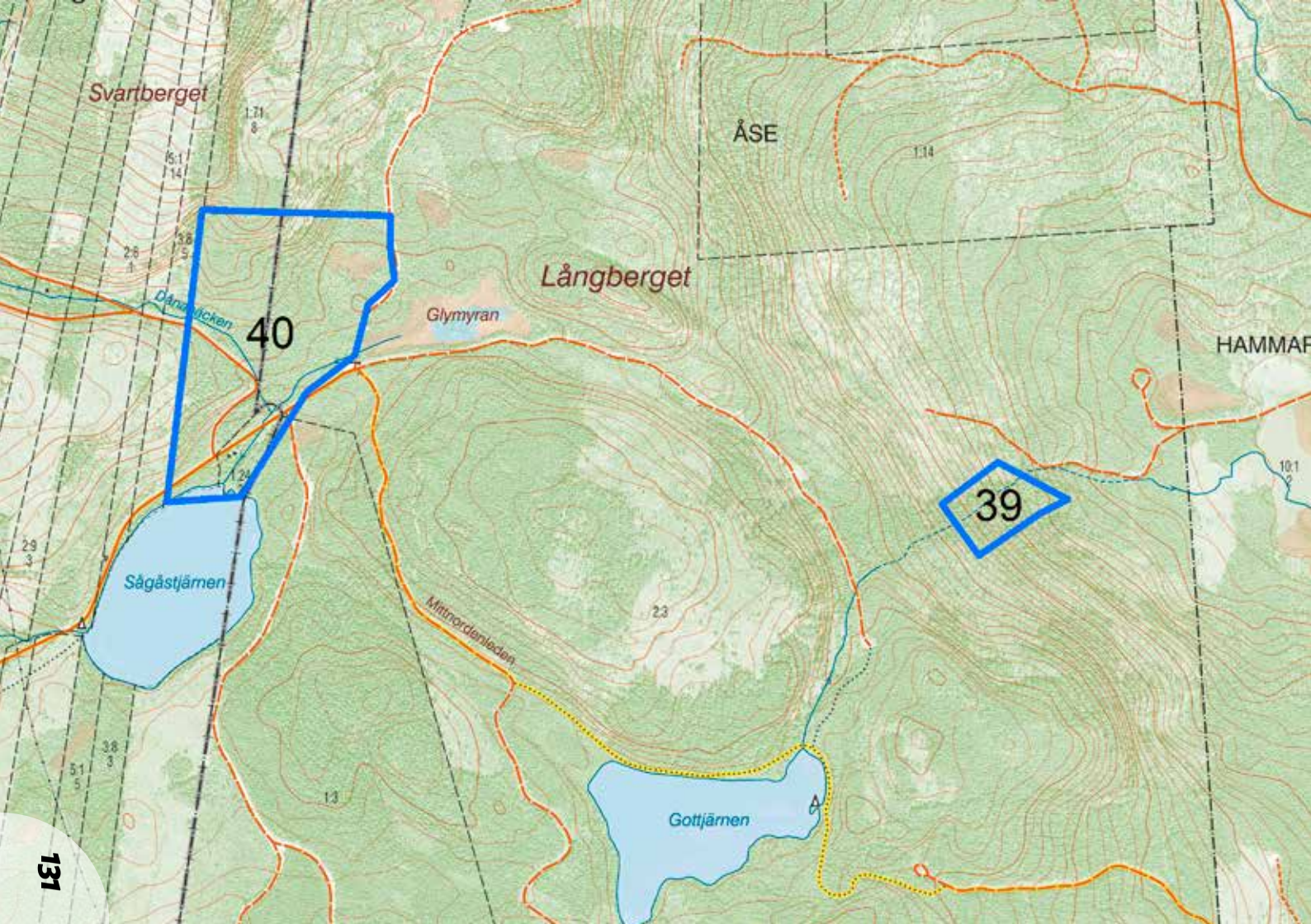

Svartberget
ÅSE
Långberget
Glymyran
40
39
Sågåstjärnen
Gottjärnen
HAMMAR

Photo of *Russula crassipes* in Per Marstads booklet about Nordic *Russula* species and also at Anita and Leif Stridvalls homepage: http://www.stridvall.se/fungi/gallery/Russula?page=4

Anita says in a mail on 3/1 2011 that "*R. crassipes* is described by Routsalainen and Vauras, resemble *R. queletii*, has colours in red-violet and fading with age. The smell is not like *queletii*, sharpe taste, with *Picea* and perhaps not so demanding of rich soil as *queletii*. We first found *crassipes* in 1988 and have 60 findings in our database".

Pseudobaeospora celluloderma at Getberget is according to Swedish Dyntaxa the only finding in Sweden. During the Swedish mycological week 2014 in Timrå, Medelpad

Thomas Læsøe found *Pseudobaespora paulochroma* at the lime rocks of Långharsholmen (C-TL14222, photo) outside Alnön. Leif Andersson and Thomas Læsøe has also found a reddish-violet species in *Pseudobaeospora* among tall herbs at Granbodåsen with the preliminary name *P. pilodii* (many species are now described by Bas in genus *Pseudobaeospora)*.

39 East of Långberget, habitat protecion area

About 300 meter long and 60 meter broad brook valley. Rolf Lidberg noted in 1991 interesting plants like Actaea spicata, Circaea alpina, Daphne mezereum, Epipogium aphyllum, Galium triflorum, Lactuca muralis, Lathyrus vernus, Platanthera bifolia, Viola mirabilis, selkirkii. Much dead wood.

Bengt Larsson has guided many mycologists to this area. During a Mycena workshop with Rudolf Maas Geesteranus Arne Aronsen, Ernest and Valery Emmet and Thomas Læsøe found 5.9.1991 following ***Mycena*** species were foundin the ravine (5.9.1991): ***acicula, amicta, epipterygia, flavoalba, galericulata, haematopus, laevigata, metata, oregonensis, pterigena, pura, rubromarginata, sanguinolenta, speirea, stipata, vulgaris.***

Lactarius *deterrimus, fennoscandicus, vietus*

Mycena oregonensis. Painting by Siw Muskos

Russula *acrifolia, aquosa, atrorubens, aurea, favrei, firmula, nitida, queletii, vinosa*

Also: *Cortinarius colus, sanguineus, septentrionalis, Entoloma depluens, Mycena oregonensis, Phellinus populicola, punctatus, Pholiota lubrica, Pluteus romellii, Tremischus helvelloides*

Comment: *Russula aurea*a more southern species, found at about 15 localities in Medelpad in old *Picea* wood at calcareous soil but also in rich hazel grove (Siljeberget, Selånger parish). More common in similar habitats at the limestone plate in Jämtland.

40 Sågåstjärn, Svartberget

69367127;1511699

Moist *Picea* forest, marshes with *Alnus-Salix*.

Lactarius *deliciosus, deterrimus, glyciosmus, lacunarum, mammosus, necator, obscuratus, representaneus, rufus, scrobiculatus, theiogalus, torminosus, trivialis, uvidus*

Russula *aquosa, atrubens, betularum, clavipes, firmula, gracillima, grisescens, nitida, paludosa, vinosa, xerampelina*

Also: *Amanita friabilis, Boletus edulis, Clavaria argillacea var. sphagnicola, Cortinarius colus, septentrionalis, Datronia stereoides, Hebeloma atrobrunneum, infundibulicybe costata, Hygrophorus korhonenii, Mycena mirata, Otidea brunneoparva, Pholiota lubrica, Tricholoma olivaceotinctum*

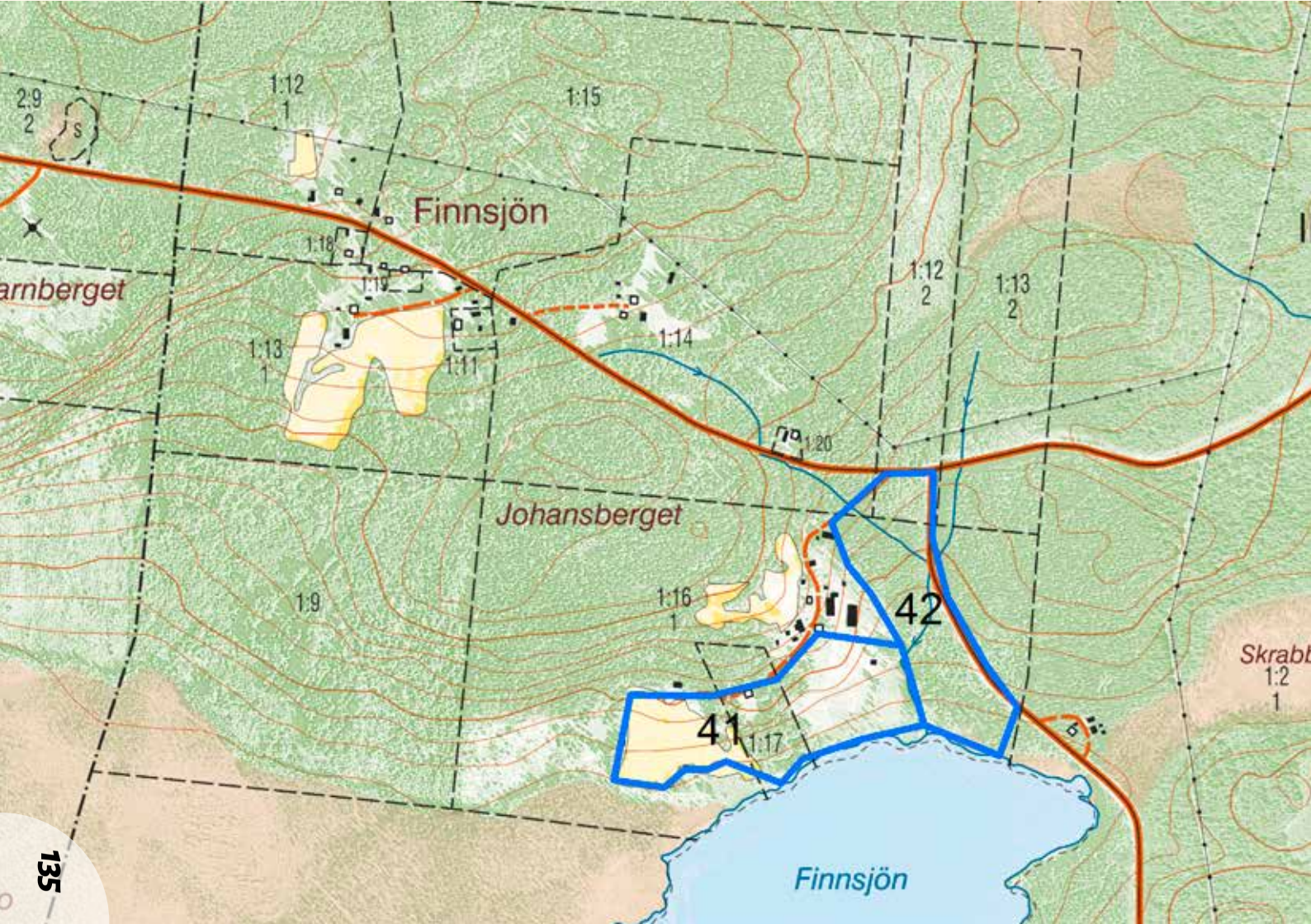
Comment: Most old and wellknown Russula species like *Russula xerampelina* are nowadays classified as a group of closely related species. They just now are waiting in the mycologist´s waiting rooms and laboratories for evaluation resulting in fresh, new names.

41 Finnsjön, hard grazed grassland

15177;69151

Today hard grazed meadows in a distant farm high up in the mountains where finnish settlers that arrived 400 years ago. But fine meadows down by the lake with Nardus stricta.

Roy Watling said in 1993 that Finnsjön reminded him of the highlands in Scotland. Machiel Noordeloos collected on august of 29, 1985 a species new for science: *Entoloma pratulense* (L, holotype). *Pratulense* means "growing at small meadows". In a bed of *Nardus stricta* down by the lake Machiel also collected *Entoloma kervernii. Lactarius pubescens* under Betula in wet places. Jan Vesterholt found *Entoloma caeruleum*, determined at place by Machiel. Roy Watling found in 1993 *Conocybe magnicapitata, pseudopilosella* and *Coprinus narcoticus*. Lennart Vessberg and Jan-Olof Tedebrand has found the beautiful *Clavaria zollingeri* in an area with *Gentianella campestris* and *Hygrocybe punicea* and *Lepista luscina. Camarophyllopsis schulzeri* was also *found*. A group visited Finnsjön during *Lactarius* workshop 1997. Kurt-Anders Johansson found *Entoloma ameides* and *Russula velenovskyi*.


Finnsjön
arnberget
Johansberget
42
41
Finnsjön
1:12
1
1:15
1:18
1:19
1:13
1
1:11
1:14
1:12
2
1:13
2
1:20
1:16
1
1:17
1:9
2:9
2
Skrabb
1:2
1

Russula roseipes. Photo: Hjördis Lundmark

42 Finnsjön, forest

15177;69153


FUNGI SUECICI

Artnamn *Russula roseipes*

Svenskt namn

Landskap MPD Koordinat *Jämtland*

Församling *Bodsjö* Lokal/vägbeskrivning *Sidsjö W*

Substrat/biotop *at a fen, mixed forest with Betula*

Leg. *Jukka Vauras* Datum *27.8.200*

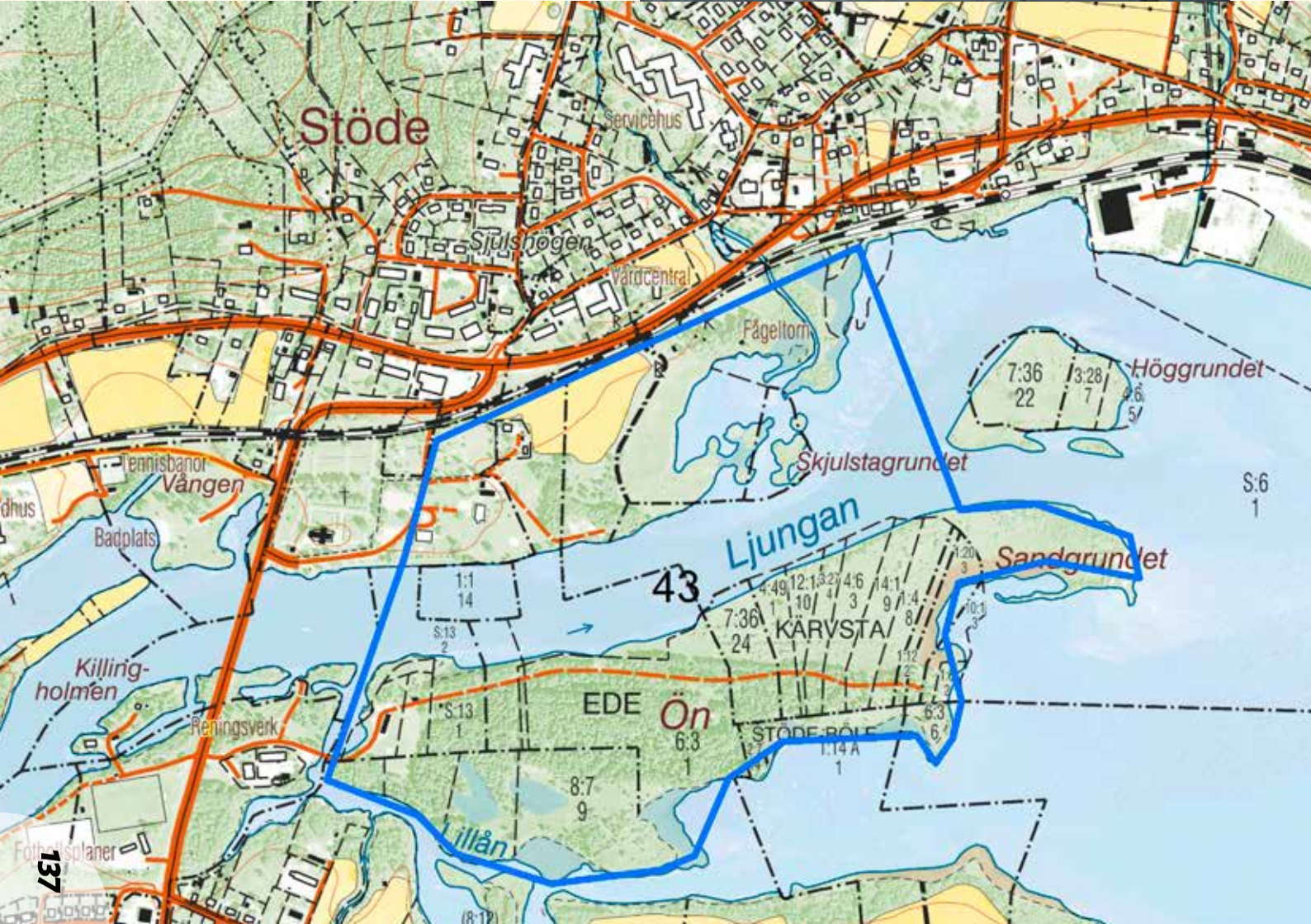
Det. *JV* Conf.

Herbrich *Picea* wood at diabase.

Lactarius *badiosanguineus, deterrimus, glyciosmus, hysginus, lilacinus, necator, pubescens, representaneus, scrobiculatus, scoticus, torminosulus, torminosus, uvidus, vietus, zonarioides*

Russula *cinnamomicolor Krombh., consobrina, decolorans, delica, emetica, favrei, firmula, globispora coll., puellaris, rhodopoda, velenovskyi, vinosa, xerampelina*

Also: *Cortinarius biformis, cupreorufus, percomis coll,tortuosus, venustus, Hygrophorus korhonenii, Sistotrema confluens*


Stöde
Servicehus
Sjulshögen
Vårdcentral
Fågeltorn
Höggrundet
7:36
22
3:28
7
Skjulstagrundet
Tennisbanor
Vången
Badplats
Ljungan
43
Sandgrundet
1:1
14
S:13
2
7:36
24
KÄRVSTA
Killing-
holmen
Reningsverk
S:13
1
EDE
Ön
6:3
1
STÖDE-BÖLE
1:14 A
1
8:7
9
Lillån
S:6
1
137

Stöde parish

43 Stödesjön, delta area in the river Ljungan

15405;69226

Alnus, Populus tremula, Aspen, Betula, Willow. **Easily accessible by path.**

44 Sönnasjöbergen nature reserve,"lövbränna" in swedish

15446;690996

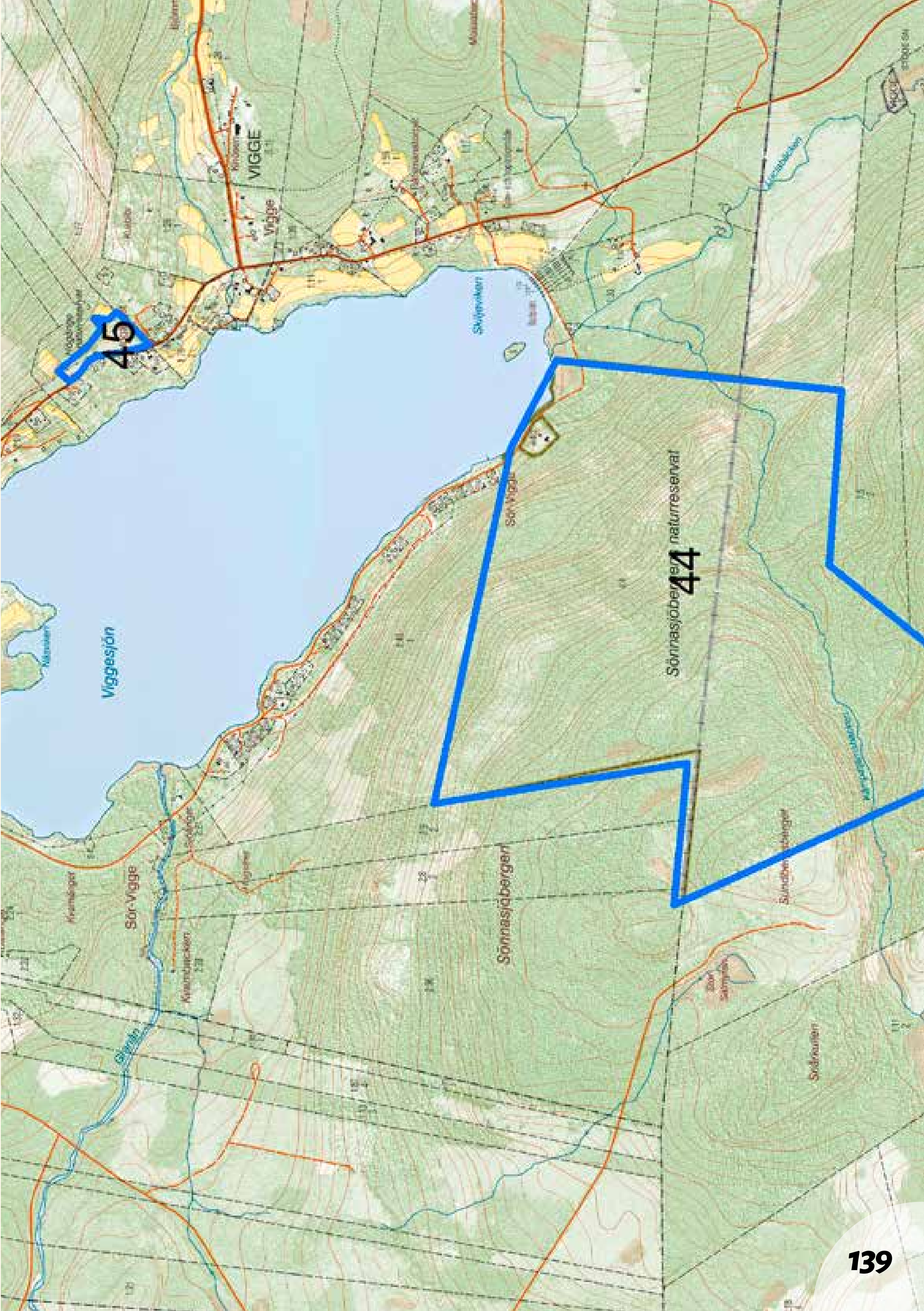
Old aspen and birch on diabase, burnt in 1888. In summertime you can sniff the fragrant *Haploporus odorus* and *Platanthera bifolia.* Also *Picea* wood. Old *Pinus* at parking place at the sandy beach.

Håkan Lindström and Jan-Olof Tedebrand made an inventory of mushrooms at request of Per Simonsson at the County Board, report of all findings presented 1990 in the journal "Natur I Norr". *Latarius resimus* was common under birch. *Russula aurea* was found and also the rare *Sarcodon leucopus.* Rolf Lidberg filled several "Konsumkassar" (plastic bags from the food shop Konsum) in the "lövbränna" with chantarelles.

45 Högänge nature reserve

15456;69119

Meadow at diabase. Grassland fungi such as *Hygrocybe punicea, spadicea,Pseudotricholoma metapodium, Russula nana.* Birgitta Gahne found 1989 *Inocybe calida* at the meadow, a rather common species together with Polygonum viviparum at old meadows.


VIGGE
Vigge
45
Viggesjön
44
naturreservat
Sönnasjöbergen
Sör-Vigge

Alnö parish

Alnö is an island in the Baltic sea outside Sundsvall with meadows and forests at vulcanic limestone.

Many findings of southern and rare fungi like *Cystolepiota moelleri, Disciseda candida, Hymenogaster griseus, Lepiota pseudolilacea, Limacella vinosorubescens (Bergeforsen 2014, Jeanette Södermark), Melanophyllum eyrei, Russula olivobrunnea, violeipes, virescens.* Siw Muskos has found *Mycena sudorella (det R.A: Maas Geesteranus)* at Slädabäcken, the only finding in Europe. During a national mycological workshop in Timrå 2014 we studied the special mycoflora in forests and grazed grasslands at limestone together with many experts and found rare and interesting fungi, see report: http://www.myko.se/wp-content/uploads/2014/05/Svamprapport_web.pdf

46 Alnö cemetery

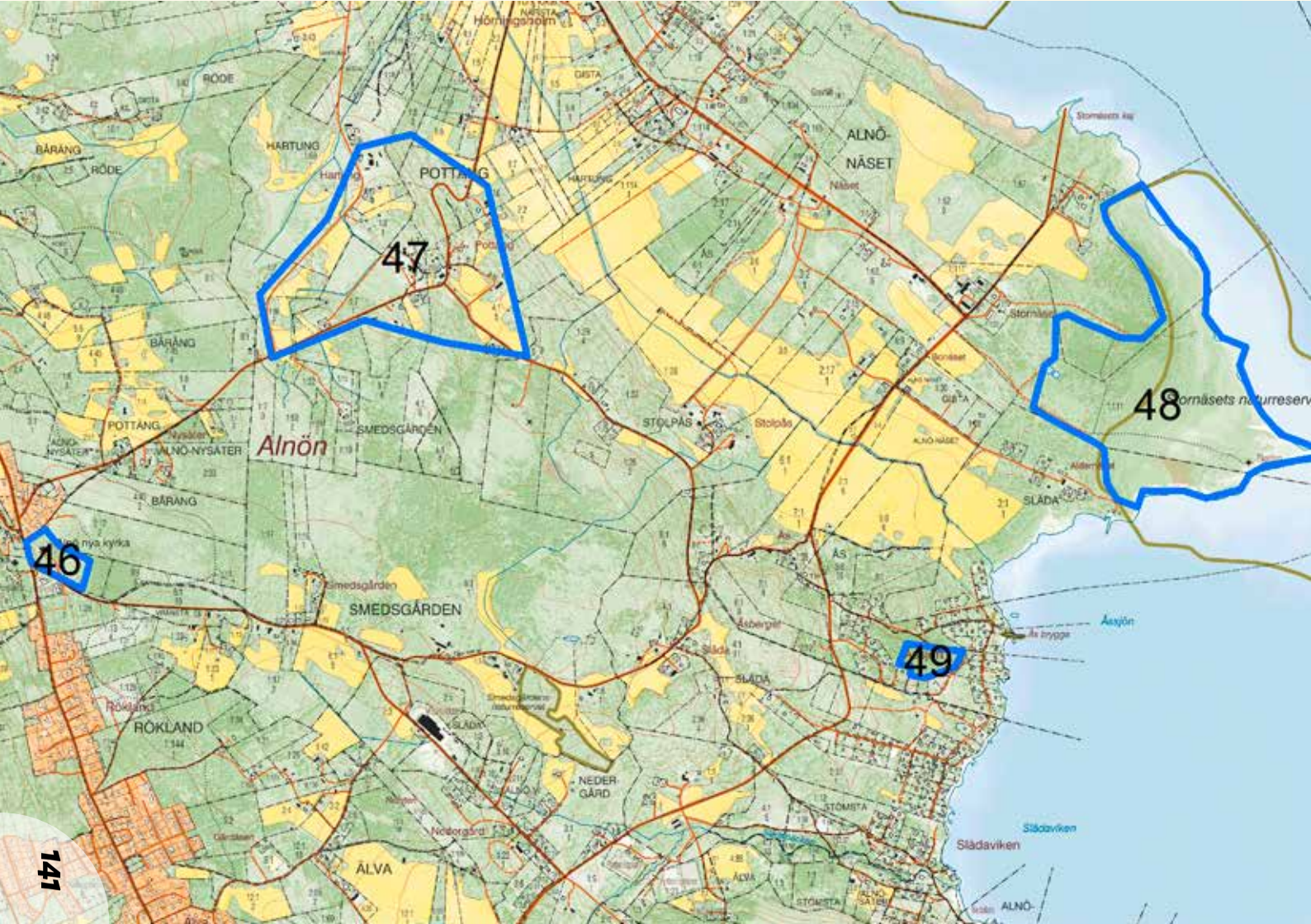
6926873;623811

Park around the church, limestone, with *Betula, Pinus, Tilia.* Lactarius deterrimus, mammosus, pubescens

Russula *anthracina, nauseosa, queletii, roseipes, sanguinea, subterfurcata, virescens*

Also: *Inocybe lanatodisca* (det. Ellen Larsson), *Mycena pseudopicta* Lange

Comment: Hjördis Lundmark has collected the southern food mushroom *Macrolepiota procera* at Alnö cemetary. Henning Knudsen and Danish mycologists found in 1986 the *southern Russula virescens under Tilia.* Siw Muskos also found some exciting Russulas under *Tilia* at Alnö cemetary which were sent to Juhani Ruotsalainen for examination, among others a form *of Russula anthracina* that Juhani determined as *var. carneifolia.* Under Tilia Siw also found a *Russula* reminding of *R. parazurea* and Juhani had a suggestion: *R. subterfurcata* Romagnesi, see photo at page 323 in Mauari Sarnaris book about Russula. Herbert Kaufmann deals with *R. subterfurcata* in his study of *Russula* species in section *Heterophyllae* (Svensk Mykologisk Tidskrift 28 (3): 21–69, 2007). Herbert point out at page 22 that coming DNA-analysis is needed to reveal all the exciting secrets in *Heterophyllae.*


47
48
49
46
Alnön
POTTÅNG
SMEDSGÅRDEN
ALNÖ-NÄSET
STOLPÅS
SLÄDA
RÖKLAND
ÄLVA
NEDER-GÅRD
BÅRÅNG
HARTUNG
RÖDE
Slädaviken

Siw Muskos and Juhani Ruotsalainen at Russula workshop in Borgsjö 2001.
Photo: Kjell Olofsson

Such a study has been made by Ursula Eberhardt. Several southern *Russula* species are found near the sea and in the limestone area around Alnö. Herbert Kaufmann collected in 2014 *Russula odorata* in park under *Quercus* at Åvike bruk, Tynderö parish. Mats Karlsson and Nils Otto Nilsson found *Russula violeipes* at Stornäset nature reserve in 2014 in swamp areas at limestone. Siw Muskos found *Russula sardonia* under Pinus in sandy heath at Bergafjärden in Njurunda parish, Medelpad (det Stig Jacobsson).

Russula *subterfurcata*. Medelpad, Alnö church, under Tilia at lawn on limestone

Russula subterfurcata. Alnö cemetary 9/8 2000, leg Siw Muskos, det Juhani Ruotsalainen
Photo: Siw Muskos

47 Pottäng

6927438;625804

Sheep grazed pastures and *Alnus-Picea* forests at limestone. A real hot spot for rare and southerly fungi. The county council have taken away trees and bushes and the land owners are doing a fine job with sheep grazing. Just a few mycological visits and many more exciting fungi remains to be found. Stefan Grundström has done an inventory of species rich meadows in the northern part of Alnö island. Sundsvall municipality have together with the County Board plans to start an exciting project in order to strengthen the varioues nature values in forests and meadows in the limestone area at Alnön and adjacent areas. Somewhat of Gotland and Öland with many rare and southern species.

Lactarius *glyciosmus, lilacinus, obscuratus, scrobiculatus*

Russula *firmula*

Also: *Amphisphaerella xylostei* (Nils Lundqvist), *Calocybe constricta, Cystolepiota seminuda, Entoloma tjallingiorum, Hygrocybe colemanniana, Hygrophoropsis rufa, Hygrophorus hyacinthinus, Lepiota griseovirens, poliochloodes* (OULU), *subalba, Lyophyllum leucophaetum, Melanophyllum eyrei, haematospermum, Mycena polygramma, Pholiotina teneroides (=percincta*, Gro Gulden 1995*), Psatyrella fatua, Trichodermella constricta*

48 Stornäset nature reserve

6927019;628810

Moist and grazed deciduous forests and grassland at limestone along the sea with *Alnus, Betula, Salix*. Vaste wet marshes with the rare orchid *Microstylis monophyllos* and plenty of dead wood.

Leif Örstadius has collected many species of ***Psatyrella*** here for example *P. effibulata* and *P. rigidipes*. Also a paradise for Pluteus species. In 1995 Maarit Kaukonen and Ilkka Kytövuori found Pluteus chrysophaeus (VU, vulnerable, at Swedish red list). *Sarcoscypha austriaca* common in springtime and the popular mushroom fungi *Calocybe gambosa* in early summer.

Lactarius *deterrimus, glyciosmus, lilacinus, necator, obscuratus, pubescens, scrobiculatus, scoticus, sphagneti, theiogalus, torminosus, vietus*

Russula *aeruginea, alnetorum, atrorubens, betularum, cessans* (Henning Knudsen, Hjördis Lundmark 1986), *chloroides, claroflava, delica, depallens, fennoscandica, font-queri, fragilis, gracillima, intermedia, nitida, parazurea, queletii, subrubens, velenovskyi, violeipes* (Mats Karlsson, Nils-Otto Nilsson 2014), *xerampelina*

Also: *Ascotremella faginea, Clavicorona taxophila, Cortinarius americanus, Amanita friabilis, Calyptella capula, Clavaria falcata, Clavicorona taxophila* (*Alnus* litter, belong to *Russulales*), *Clitopilus hobsonii, Conocybe apala, Cortinarius americanus* (Håkan Lindström), *Daedaleopsis confragosa, Echinoderma jacobi* (Ellen Larsson, Mikael Jeppson), *E. pseudoasperulum, Entoloma tjallingiorum, Gyrodon lividus, Hemipholiota heteroclita, Hygrocybe colemanniana, Inocybe oblectabilis,* (Ellen Larsson, Stig Jacobsson), *salicis, Leccinum duriusculum, schistophilum, Lepiota*

griseovirens, Marasmius limosus, Melanotus phillippsii, Peziza limnaea, Pholiota limonella (Kill Persson det Stig Jacobsson), *Pluteus thomsonii, Typhula corallina, Verpa conica.*

49 Åssjöskogen, habitat protection area

627558;6926024

Old *Picea* at volcanic limestone. A hot spot for fungi, the best locality in Medelpad for species in *Cortinarius* subgenus *Phlegmacium*. The forest partly fallen down in severe storms.

Lactarius *badiosanguineus,deterrimus, fennoscandicus, rufus, scrobiculatus, torminosus, tuomikoskii, trivialis, vietus*

Russula *acrifolia, adulterina, aeruginea, albonigra, atrorubens, decolorans, delica, favrei, firmula, integra, leonis, nitida, nauseosa, olivascens, olivobrunnea, postiana, queletii, sanguinea, taigarum, turci, velenovskyi, vinosa, xerampelina ss. lat.*

Also: *Boletopsis leucomelanea, Cortinarius dalecarlicus, diosmus, caesiocinctus, corrosus, fuscoperonatus, napus, Echinoderma echinacea, jacobi, Hygrophorus persicolor, H. subviscifer, Hysterangium coriaceum, Lepista irina, Psatyrella hirta.*

Comment: According to Juhani Ruosalainen and Jukka Vauras *Russula integra* is a southern species in Finland and Sweden and is replaced in the north of *Russula integriformis*. At Swedish Dyntaxa R. integra is very common south of Dalälven but also dots in northern Sweden. *R. integriformis* haa only 3 finds in Medelpad and 3 dots in Jämtland, one dot in Uppland and one find in western Sweden. The spores of *R. integriformis* are smaller than of *R. integra*. *R. integra* also has isolated, high, pointed warts. *Russula integriformis* is described by Mauro Sarnari who collected the species in moist *Betula* forest at Jämtland, Oviken parish, Borgen, 2/9 1997 (Sarnari). Also found by Mauro Sarnari at Medelpad, Lombäcken, 1997 (Sarnari). Jukka Vauras collected *R. integriformis* 30/8 2001 at Jämtland, Brunflo parish, Österböle in herbrich spruce dominated forest (Vauras 17519). Hans Marklund found *R. integriformis* 1997 together with Sarnari at Ångermanland, Hemsön, Kallsjöbäcken (HN 317–97).

Tuna parish

50 Torkarlsberget

69171;15637

The home forest of Siw Muskos. *Betula* park, also forest with *Larix, Picea, Pinus*. Type locality of *Hebeloma monticola* Vesterholt collected by Siw Muskos.

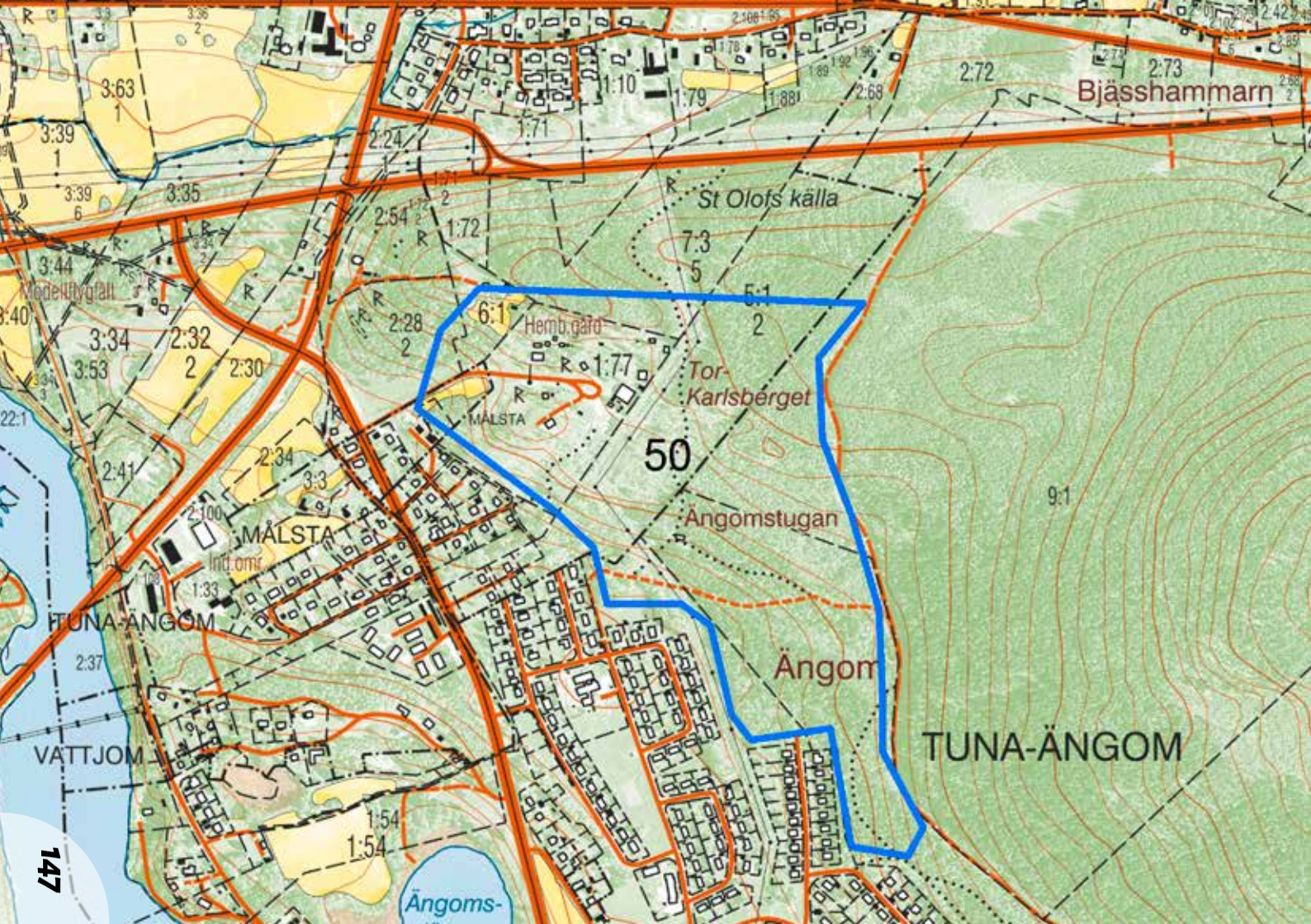
Lactarius *deterrimus, flexuosus, fuliginosus, lacunarum, glyciosmus, hysginus, lacunarum, necator, porninsis, rufus, scrobiculatus, spinosulus, theiogalus, torminosus torminosus, trivialis, vietus*

Russula *adusta, aeruginea, aquosa, antillaris in ed., aquosa, atroglauca, atrorubens, aurantioflammans, chloroides var, trachyspora, clavipes, cremeoavellanea, decolorans, favrei, firmula, foetens, gracillima, intermedia, lutea, olivascens, olivina, pelargonia, velenovskyi, versicolor, vesca, vinosa, violaceoincarnata, xerampelina coll.*

Also: *Clitocybe squamulosa, Cortinarius malicorius, septentrionalis, Inocybe obscurobadia. Suillus clintonianus, Thelephora palmata, Tricholoma psammopus*

Comment: In 2001 Margareta Byström and Siw Muskos led an excursion to Torkarlsberget near the city of Sundsvall. The area around Sundsvall had in mid august 2001 received 146 mm rain under a single day! Normally the area get about 70 mm under all august. *Russula violaceoincarnata* from Torkarlsberget was determined by Juhani Ruotsalainen and is described from Greenland by Knudsen and Borgen. Our first finding of *R. violaceoincarnata* by Ilkka Kytövuori and Hjördis Lundmark at Borgsjö cemetery. According to Juhani *violaceoincarnata* is a common species below *Betula* in Finland and Sweden. Ruben Walleyn deposited part of the collection from Torkarlsberget in Gent.

A Danish group of 8 mycologists looked for fungi at Torkarlsberget 24.8.1986 together with Siw Muskos. In forest with old *Larix* trees they found *Lactarius porninsis* (herb and photo Erik Rald). Another rare *Larix* species, *Suillus cavipes*, was collected in 1995 by Elisabeth Wedin at Stora Laxsjön, Ljustorp parish, Medelpad.


Bjässhammarn
St Olofs källa
Hemb.gård
Tor-
Karlsberget
50
Ängomstugan
MÅLSTA
TUNA-ÄNGOM
VATTJOM
Ängoms-

Jan-Olof Tedebrand with a xxxx. Photo: Hjördis Lundmark

Selånger parish

51 Siljeberget

613150;6923564

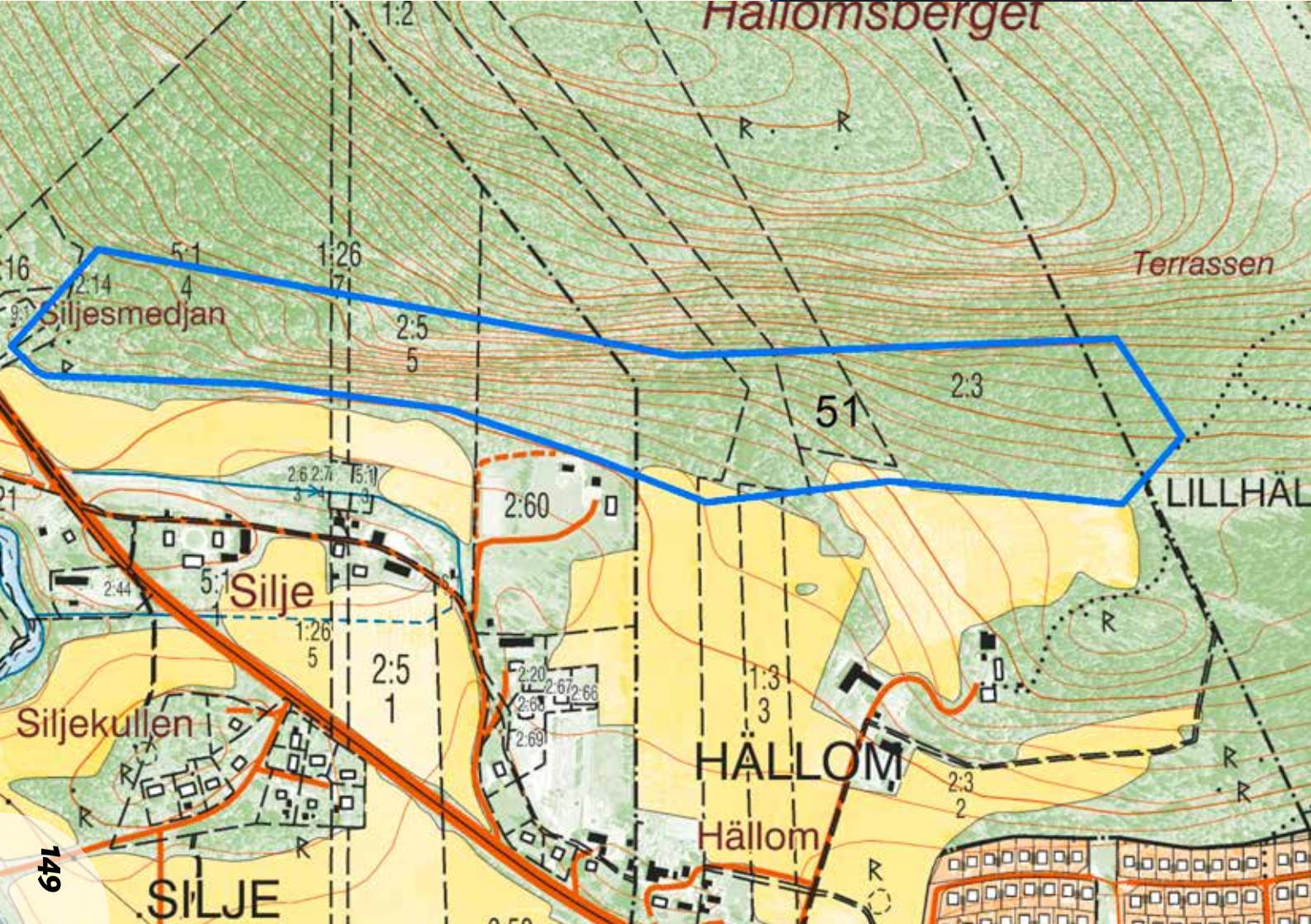
Corylus, Picea, Pinus, Tilia.

Lactarius *badiosanguineus, chloroides, deliciosus, deterrimus, fuliginosus, glyciosmus, mammosus, musteus, necator, pyrogalus, scrobiculatus, torminosus, uvidus*

Russula *adusta, aeruginea, atrorubens, aurea, azurea, clavipes, decolorans, favrei, firmula, globispora/maculata, intermedia, nauseosa, olivascens, paludosa, postiana, pumila, pyrogalus, queletii, sanguinea, turci, vesca, vitellina*

Also: *Clavulina incarnata, Cortinarius aureofulvus, C. caesiolammellatus, C. metarius, Clavaria fumosa, Clavulina incarnata, Cordyceps militaris, Elaphomyces muricatus, E. papillatus, Geastrum minimum, Hydnobolites cerebriformis, Lycoperdon rupicola, Marasmius wynneae, Mycena mirata, M. picta, Otidea bufonia, Resupinatus striatulus, Sarcoscypha austriaca*

Comment: *Russula pumila* is a more southern species but common under *Alnus* in the limestone area around Alnön and also in some warm slopes like Siljeberget


Hällomsberget
Terrassen
Siljesmedjan
51
LILLHÄL
Silje
Siljekullen
HÄLLOM
Hällom
SILJE

Henri Romagnesi, Rolf Lidberg, Siw Muskos, Carina Eriksson (Jutbo) outside St Olofs inn 1982.
Photo: Hjördis Lundmark.

Timrå parish

52 Indalsälven delta

6933143;1626441

Alnus, Betula, Picea, Salix.

Lactarius *deterrimus, glyciosmus, necator, pubescens, theiogalus, torminosus, trivialis, vietus*

Russula *aeruginea, claroflava, depallens, pubescens, queletii*

Also: *Cortinarius cremeolaniger, septentrionalis, Antrodiella niemelae, Daedaleopsis confragosa, Daldinia petriniae, Deconia crobula, Flammulina elastica, Graddonia coracina, Leptosporomyces septentrionalis, Marasmius setosus, limosus, setosus, siccus, wynneae, Mycena flacescens, Pholiota subochracea, Ramaria eomorpha, Rhodocybe parilis, Tectella patellaris, Trametes versicolor, Typhula gyrans, Verpa bohemica.*


Storholmen
Dopbholmen
Boholmen
Kråkholmen
Älgsand
Grönudden
Strandbergsrännan
Älgsandsrännan
Smackgrundet
52
Indalsälvens deltas naturreservat
Laxgrundet
Industriområde
Badplats
Långpålningen

Liden parish

53 Sundsjöåsen nature reserve

6946977;595910

***Betula, Picea, Pinus, Populus, Salix* in moist river slopes of river Indalsälven with *Aconitum septentrionale*. Big aspens. Per Sander led a group to Sundsjöåsen 13/9 2014, they found many rare fungi like *Cortinarius murinascens, C. roseoarmillatus, C. talimultiformis, Gymnopilus bellulus, Gymnopus terginus, Hemimycena nitriolens*. Necessary to have guide from the County Board because of locked forest road in to the reserve.**

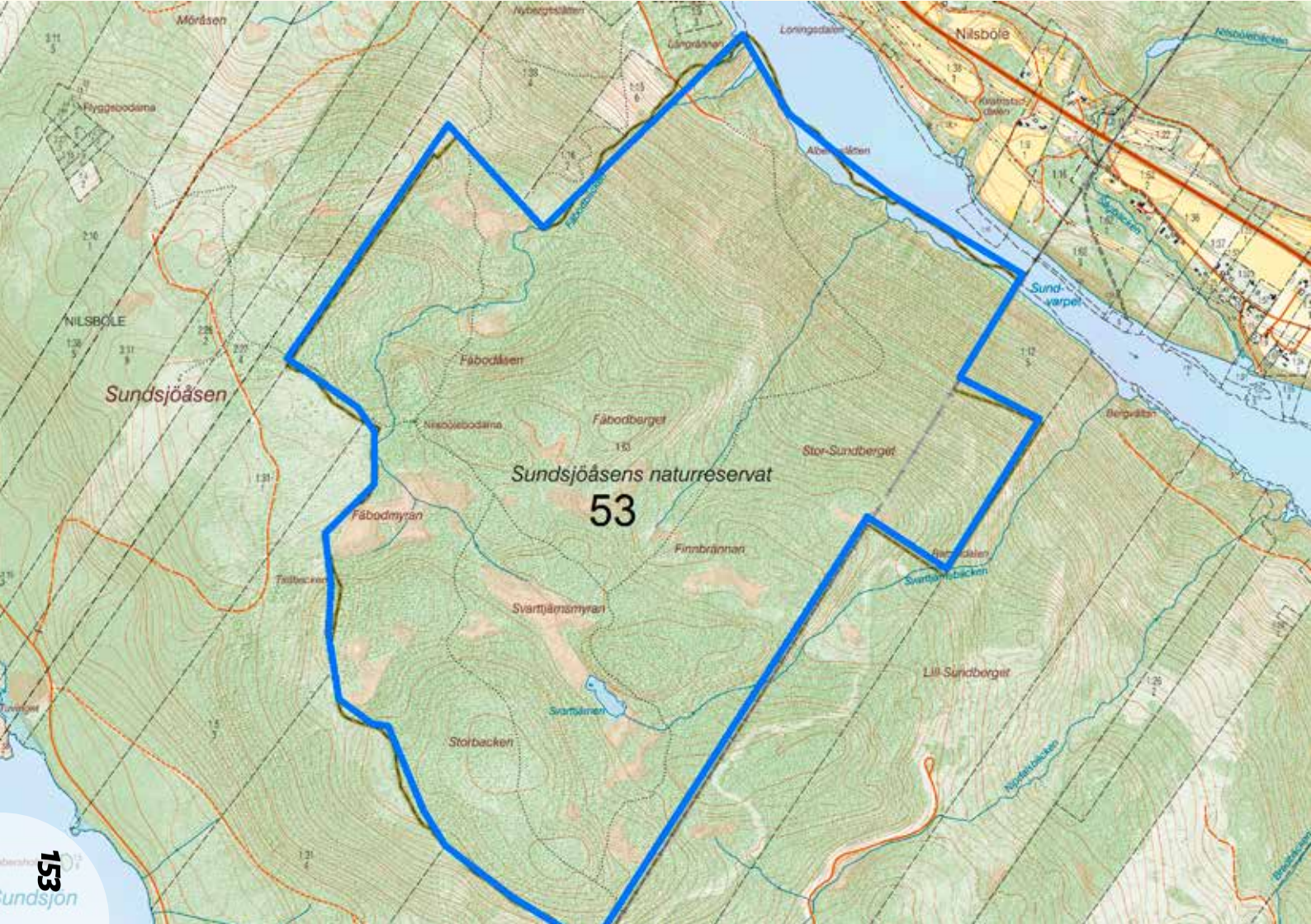
Lactarius *aurantiacus, aspideus, deterrimus, flavopalustris, fuliginosus, glyciosmus, helvus, hysginus, lacunarum, lilacinus, necator, omhaliformis, rufus, theiogalus, torminosus,trivialis, vietus, zonariodes*

Russula *aeruginea, atrorubens, claroflava, claroflave, decolorans, pallescens, paludosa, postiana, pubescens, rhodopoda, vinosa*

Also: *Boidinia furfuracea, Cortinarius crassus, C. harcynicus, imbutus, murinascens, roseoarmillatus, rosargutus, rusticus, talimultiformis, Crepidotus suberrucisporus, Dendrocorticium polygonoides, Echinoderma echinacea, Entoloma placidum, Gymnopilus bellulus, Gymnopus terginus, Hemimycena nitriolens, Hymenoscyphus albopunctus, Junghuhnia collabens Marasmius siccus, Melanoleuca exscissa, Ramaria corrugata, eumorpha, Typhula olivascens* (on *Mattheuccia*), *Uncinula adunca.*

Comment: *Russula pallescens* is closely related to *Russula farinipes*, a more southern species in deciduous forest. *R. pallescens* was described by Karsten in Finland and is rare, mostly under *Picea*, from the bothnian coast in Medelpad to the alpine tree border in Härjedalen and Jämtland. Also in alpine areas with *Betula nana* and dwarf *Salix*. Tor Erik Brandrud and Birgitta Wasstorp found *R. pallescens* at Mount Välliste, Jämtland in 1983. Jukka Vauras collected *R. pallescens* at Parteboda, Borgsjö during *Russula* workshop 2001 (TURA).

Russula pubescens is common in alpine areas with mountain birch in Härjedalen and Jämtland but also rather common with Betula down to the bothnian coast.


Sundsjöåsens naturreservat
53
Sundsjöåsen
NILSBÖLE
Nilsböle
Fäbodåsen
Fäbodberget
Fäbodmyran
Stor-Sundberget
Lill-Sundberget
Finnbrännan
Svarttjärnamyran
Svarttjärnen
Storbacken
Sundsjön
153

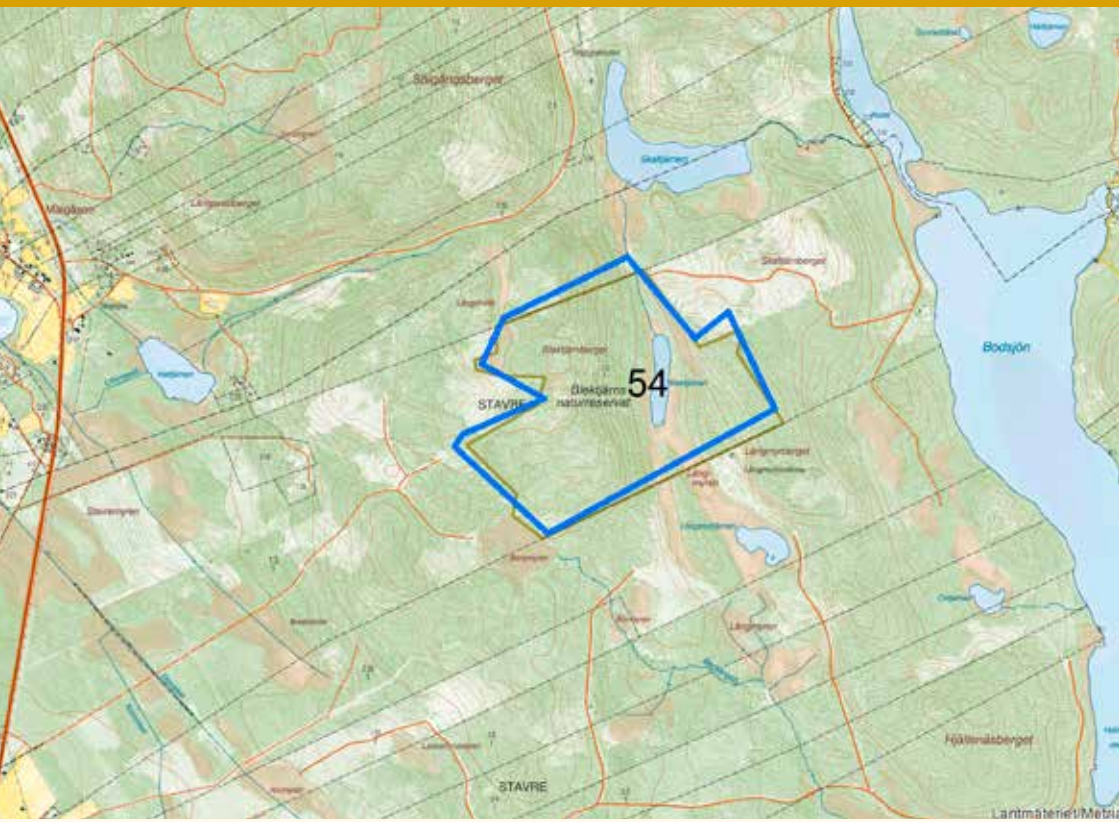
"Fagert är landet som blev vår lott och arvedel". Painting by Nils Forshed showing the old landscape in the province of Jämtland.

Province of Jämtland

Bengt Petterson made at pages 154–192 in excursion guide 2016 detailed maps and descriptions in Swedish of many localities in Jämtland: http://www.myko.se/wp-content/uploads/2016/06/Utflyktsguide_2016_korrektur_5.pdf

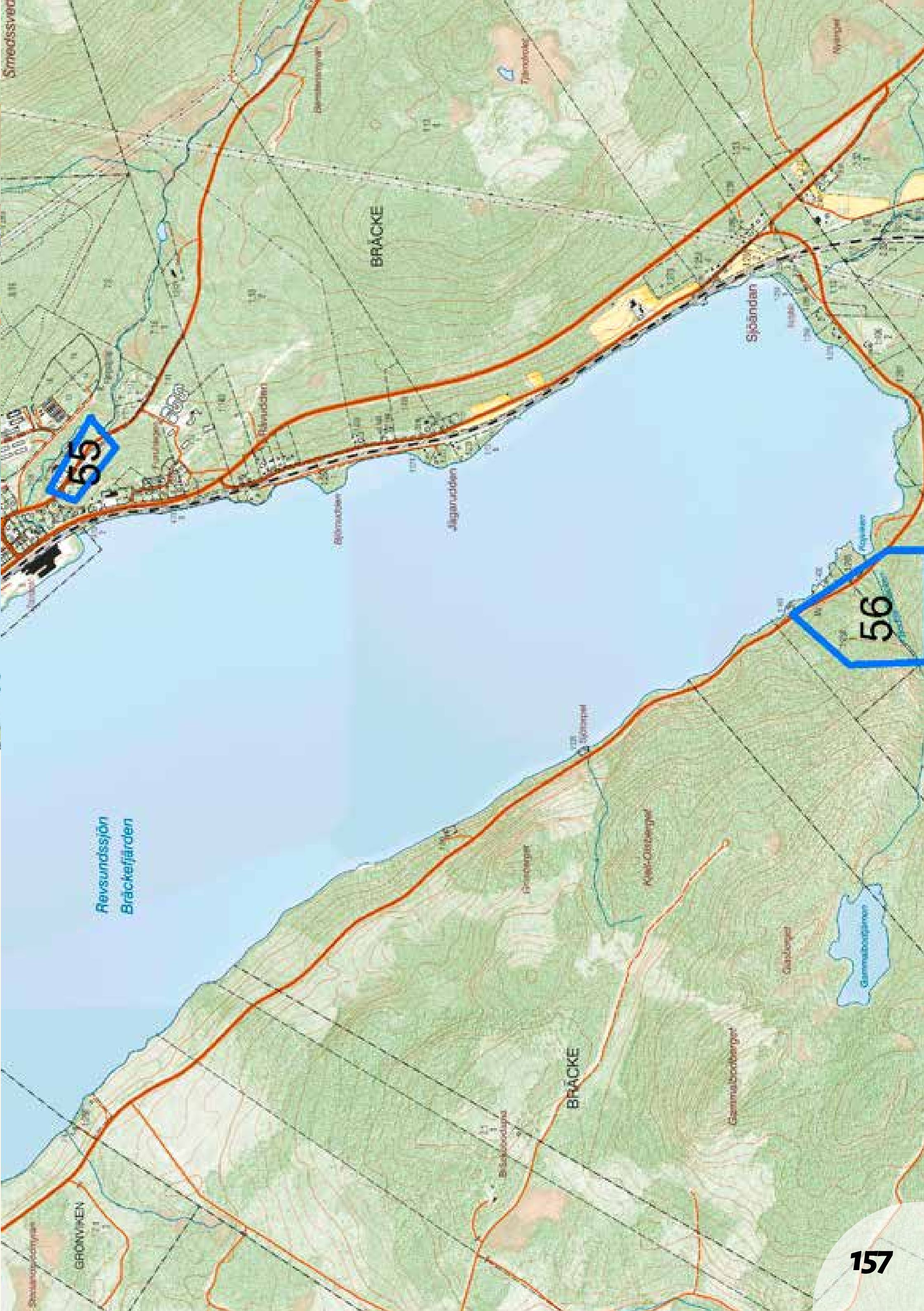
The province of Jämtland has the largest area with limestone bedrock in Sweden and the largest population in Europe of the beautiful and magnificent orchid *Cypripedium calceolus*. Here we find many rare, lime demanding ectomycorrhizal fungi in *Picea* forests with *Hepatica nobilis* and the moss *Rythidiadelphus triquetrus*. But the investigation of mykorrhiza species at the limestone plate in Jämtland have just started. Holotype for the new species *Tricholoma bryogenum* is from mossy forest type in Brunflo parish, collected during *Lactarius* workshop in Borgsjö 1997. The Nordic Mycological Congress 1982 took place at Birka college for adult education near Östersund. Andersön was visited by steamship. As often dry wheather and few mushroom findings around the city of Östersund. A visit 100 kilometers to the west and to alpine, more rainy areas as Mount

Cypripedium calceolus.
Painting by Rolf Lidberg



Välliste gave more result with *Lactarius citriolens, L. salicis-herbaceae, L. salicis-reticulatae, Russula font-queri, postiana.*

In 1984 Lars Lundberg and his friends in Östersunds Mykologiska Förening (ÖMF) arranged the Swedish mycological week at Edsåsdalen, ten swedish miles west of Östersund with Stig Jacobsson and Svengunnar Ryman as leaders. The fine mushroom forests at Sällsjö village were also visited. ÖMF celebrated their first ten years in 1987 by inviting among others Håkan Lindström and Hans Marklund to talk about *Cortinarius.* During three days *Russula* was also studied with Herbert Kaufmann as leader with many interesting findings like *R. heterophylla* and *R. parazurea. R. globispora* was common under birch in the parks of Östersund. Perhaps Lars Lundberg can join us during excursion to Storvålen or Tysjöarna if the parks in central Östersund are empty of mushrooms.


55
56
BRÄCKE
Revsundssjön
Bräckefjärden
Sjöändan
Jägarudden
BRÄCKE
GRÖNVIKEN

Bräcke parish

54 Blektjärn nature reserve

1477815;6970635

***Picea, Pinus* forest, moist areas with *Cypripedium calceolus*, old aspen. Bengt Petterson has made a map an description in page 168 in former guide: http://www.myko.se/wp-content/uploads/2016/06/Utflyktsguide_2016_korrektur_5.pdf**

55 Bräcke cemetary

6959260;1480480

Park with old *Pinus*.

Lactarius *deliciosus, pubescens*

Russula *acrifolia, adusta, cessans, densifolia , gracillima, roseipes, sanguinea*

Also: *Hygrocybe helobia, Inocybe melanopus, Tricholoma scalpturatum*

56 Bodtjärnsbäcken

6956317;1480368

Brook ravine in north facing slope towards the lake Revsundssjön. *Alnus, Betula, Picea, Salix.* Plants like *Moneses uniflora* and *Cicerbita alpina.* Old *Picea* forest around the ravine.

Lactarius *aquizonatus, badiosanguineus, deterrimus, fuliginosus, glyciosmus, leonis,*

lilacinus, mammosus, pubescens, representaneus, rufus, scoticus, scrobiculatus, torminosulus, torminosus, trivialis, tuomikoski, uvidus, vietus.


Bracke
6
Träindustri
6:16
7:19
1
S:1
16
13
15
14
7:14
1
55
7:1
2
4:73
2
R
Fångstgrop
7:2
7:1
7:17
Furuhagen
7:16
1
7:11
4:73
3
1:242
7:13
1
1:140

Spectacular sunset with an amazing sky. Photo: Hjördis Lundmark

Russula *consobrina, claroflava, decolorans, delica, depallens, favrei, gracillima, grisescens, olivaceoviolascens, olivina, paludosa, puellaris, vinosa*

Also: *Collybia impudica, Cortinarius claricolor, cupreorufus, diosmus, fervidus, malicorius, percomis coll., pluvius, sanguineus, tabularis, venustus, Collybia pudica, Lepiota castanea, Tricholoma sulphureum*

Comment: During Lactarius workshop 1–5/9 1997 the Borgsjö valley was nearly empty of fungi after an extremely dry and hot summer. But in Jämtland more rain had fallen. A group visited Bodtjärnsbäcken and Sidsjö 4/9. Ilkka Kytövuori, Maria Teresa Basso and others found 19 species of Lactarius at Bodtjärnsbäcken! Down in the ravine big groups of *Lactarius lilacinus* under *Alnus*!

57 Grötingen

Mostly *Betula* forest. Jacob Heilmann Clausen collected *Lactarius resimus* here 5.9.1997, see photo at page 117 in the book "The genus *Lactarius*, Fungi of Northern Europe, Vol. 2" (1998).


GRÖTINGSLANDET
MÅLGÅSEN
Grötingen
57
Grötingen
STAVRE
BODSJÖLANDET
BODSJÖLANDET
Högberget

Review of today's fungus findings. Birgitta Wasstorp make notes. Photo: Hjördis Lundmark

Bengt Petterson has been our excellent guide to fungus hot spots in Jämtland during many workshops in Borgsjö. Photo: Hjördis Lundmark

Lactarius *aquizonatus, necator, resimus, torminosus*

Russula *claroflava, gracillima, lutea, mustelina, versicolor*

Also: *Clitocybe strigosa, Cortinarius bivelus, porphyropus, septentrionalis, subbalaustinus, Tricholoma scalpturatum*

Comment: Håkan Lindström lead a group o Grötingen during the Lactarius workshop 1997 (Ilkka Kytövuori, Nils Lundqvist, Kjell Olofsson, Jacob Heilmann-Clausen, Doris and Peter Laber) to Grötingen and also to a moist forest along Gimån, page 23 and 25 in the report. They found at Grötingen the brown, mild *Russula mustelina*, a southern species, rare at inner parts of north Sweden, more common along the bothnian coast in Medelpad. *Russula mustelina* was found by Carina Eriksson and Henri Romagnesi at calcareous soil at along Skarpbäcken, Granboda village in Borgsjö 20/8 1983, the only finding of *R. mustelina* in Borgsjö parish. Herbert Kaufmann includes photo and description of *mustelina* from Sundsvall, Östtjärn 1982 in his article about section *Heterophyllae (*Svensk Mykologisk Tidskrift 28 (3): 21–69, 2007).

The german mycologist Erhard Ludwig is now preparing a book about *Lactarius* and *Russula.* He want part of a cap of a dried specimen of *L. resimus* in order to make microscopical drawings. Good if we can help our friend Erhard!

Brunflo parish

58 Slåtthornet nature reserve

6994100;1454430

Old coniferous forest near highway E 14 about five km southeast of Brunflo village, earlier grazed with nice paths. *Actaea spicata, Cypripedium calceolus, Cystopteris montana, Daphne mezereum.* Visited only once by mycologists during Borgsjö workshop in 2003

Lactarius *deterrimus, trivialis, zonarioides*

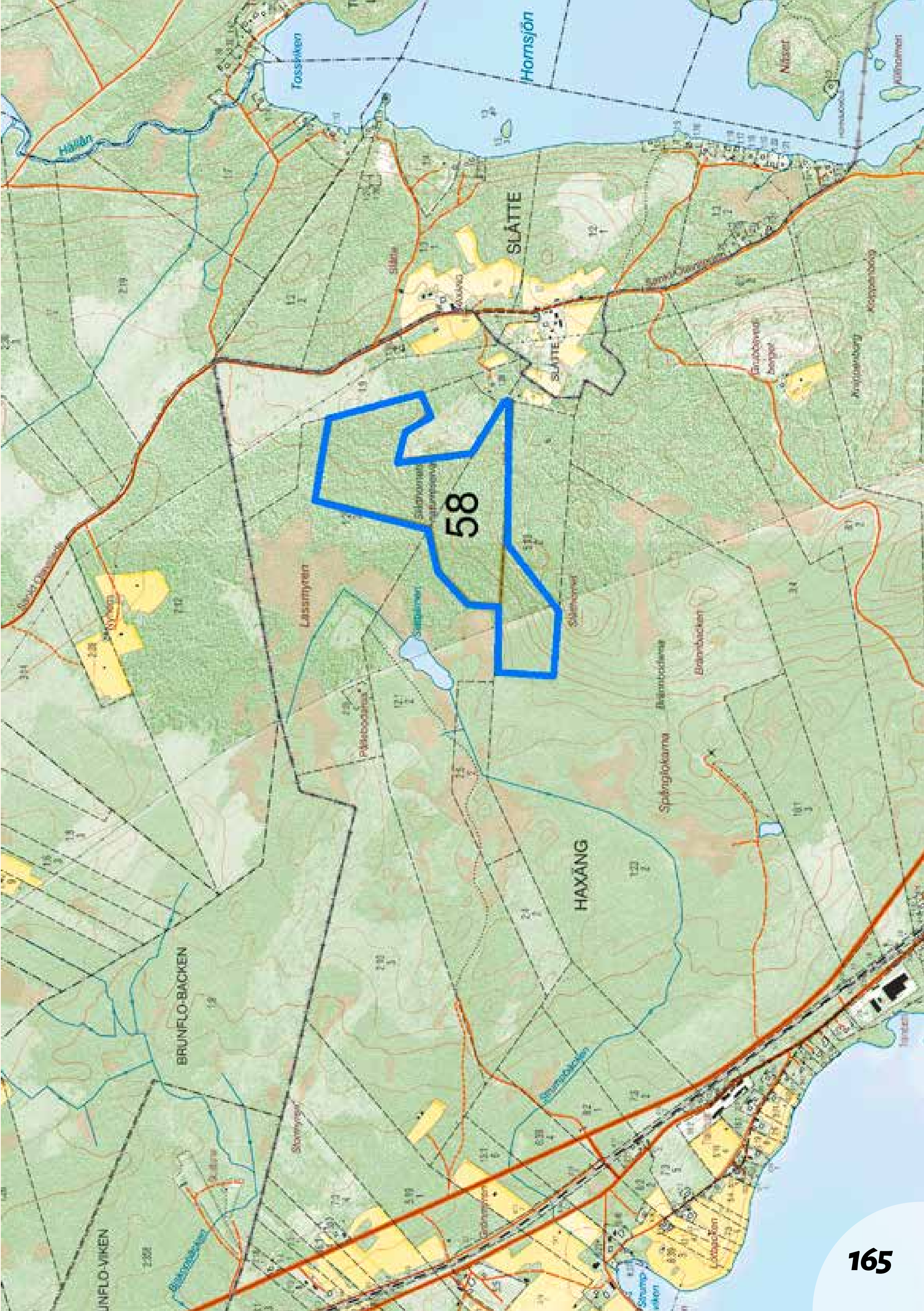
Russula *adusta, acrifolia, aurea, atrorubens, betularum, chloroides* (Herbert Kaufmann 10027, S, *clavipes, delica* (Herbert Kaufmann 10026, S), *firmula, foetens, fragilis, gracillima, heterophylla (HK), integra, intermedia, medullata, olivascens, olivobrunnea, parazaurea,queletii, vinososordida, Tricholoma fucatum*

Also: *Agaricus sylvaticus, Albatrellus subrubescens, Chrysomphalina chrysophylla, Cortinarius malicorius, mussivus, percomis, pini, russus, sanguineus, venustus, Hydnellum auratile, Hygrophorus atramentosus, Phellinus populicola, Ramaria eosanguineam, flava sensu lato, gracilis, karstenii, magnipes, rubrievanescens, testaceoflava, Trichoderma nybergianum*

Comment: Interesting findings of species in *Ramaria* and *Russula* during the only visit to Slåtthornet in 2003, both genera are now object for exciting research with DNA-tests and many new data.

Russula *chloroides* and *R. delica* are close, *chloroides* have close lamellas with greenish tint and is more common in Sweden than *delica*. A collection from Granbodåsen in 1983 was determined by Henri Romagnesi as *chloroides* and collections from Sällsjö in Jämtland

1983 also got the name *chloroides* by Romagnesi. We also see *Russula chloroides* at alpine heaths with *Dryas octopetala* and *Betula nana* for example at Hamrafjället, Mittåkläppen and Torkilsstöten in Härjedalen together with alpine *Russulas* like *Russula dryadicola.*


Hornsjön
SLÄTTE
58
HAXÄNG
BRUNFLO-BACKEN

Hällesjö parish

59 Djupdalsbäcken

1506825;6961655

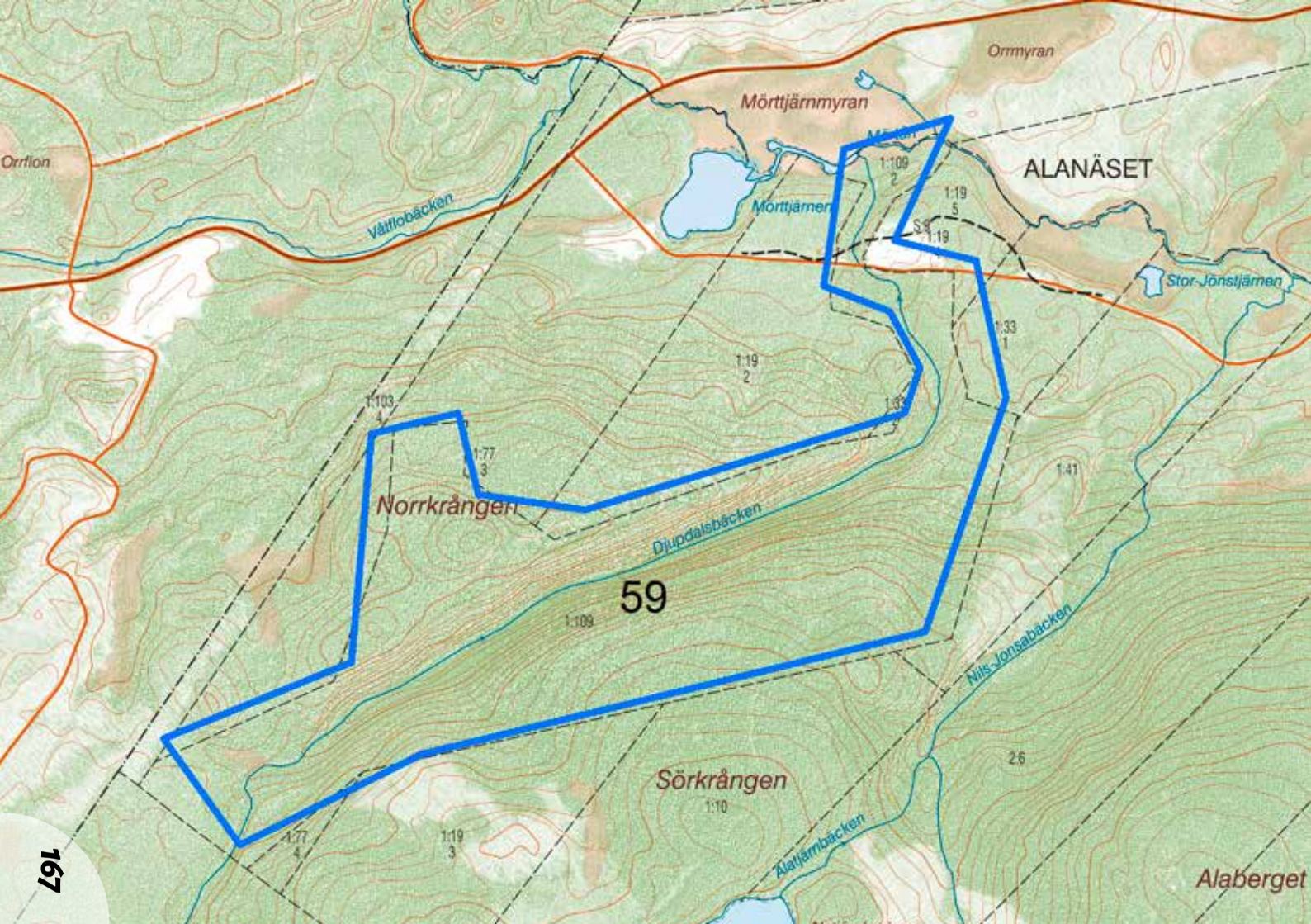
Fascinating deep, moist 1.5 km long ravine with herbrich virgin forest. *Picea* forest with *Alnus, Betula, Salix*. Vascular plants as *Aconitum septentrionale, Cystopteris montana, Daphne mezereum, Epipogium aphyllum, Hepatica nobilis. Poa remota, Ranunculus lapponicus, Viola selkirkii. Haploporus odorus* at 12 big *Salix caprea* spread a smell of parfume in the ravine. Thousands of *Diplazium sibiricum*, a rare eastern fern from the russian taiga grows along the brook.

Håkan Lindström was guide to Djupdalsbäcken during Borgsjö workshop in 1999 and presented to Birgitta Gahne, Nils Lundqvist, Birgitta Wasstorp and others a theory why the eastern fern *Diplazium sibiricum* exist here: a special more continental climate down in the deep ravine. The group found in 1999 many big groups of the rare and magnificent fungi *Catathelasma imperiale* ("kejsarskivling" in Swedish) among *Diplazium*. Our guide will be Mats Dynesius, researcher in ecology and mosses att Umeå university.

Lactarius *aquizonatus, badiosanguineus (common), rufus, scrobiculatus (common), torminosus, zonarioides*

Russula *olivascens (=postiana), queletii, rhodopoda, roseipes, velenovskyi*

Also: *Cathatelasma imperiale, Cortinarius agathosmus, fervidus, malicorius, rubellus, venustus, Hohenbuhelia mastrucata, Hydnellum aurantiacum, Hygrophorus karstenii, Pholiota lubrica, Thelephora palmata, Tricholoma virgatum*


Orrmyran
Mörttjärnmyran
Orrflon
Mörttjärnen
ALANÄSET
Vätflobäcken
Stor-Jönstjärnen
Norrkrången
Djupdalsbäcken
59
Nils-Jönsabäcken
Sörkrången
Alatjärnbäcken
Alaberget

Bodsjö parish

60 Sidsjö

6958192;1466138

113 a Sidsjö; Stuguberget, Pine dominated

1466215; 6958645 (600 m)

113 b Sidsjö; Smååkrarna/O/,

1465700; 6958750 (500 m)

113 c Sidsjö; Smååkrarna/SO/,

1465555; 6958435 (250 m)

113 d Sidsjö; Sidsjöån/N/, western part

1465410; 6958235 (250 m)

113 e Sidsjö; Sidsjöån/N/, eastern part,

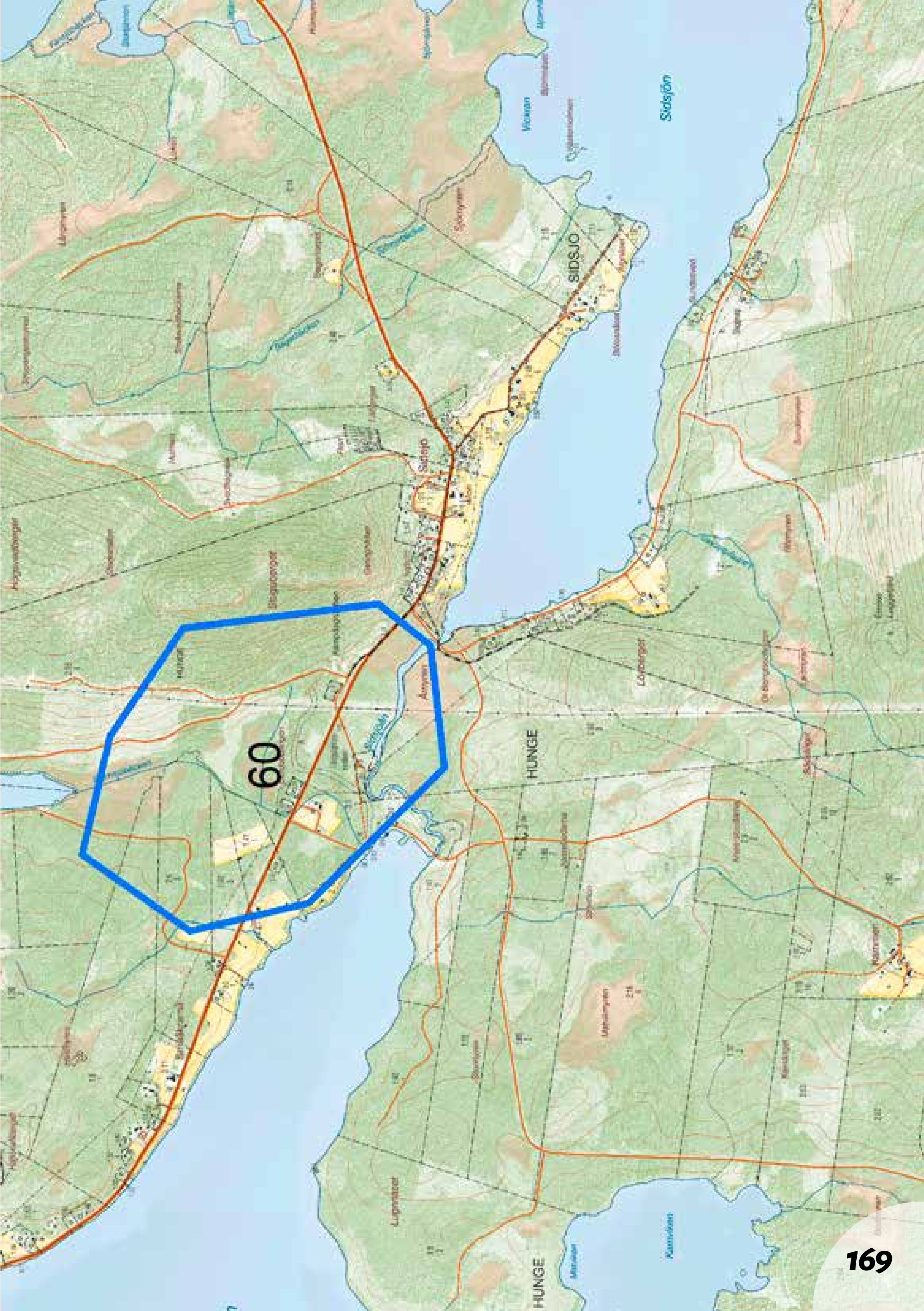
1465980; 6958260 (300 m)

We often go here because it often rains more here than down in the Borgsjö valley.

Moist *Picea* forest with *Betula*, also fen with *Cantharellus lutescens*, a popular fungus for food in Sweden. Dry *Pinus* heath and *Alnus-Salix* along the river.

Lactarius *aquizonatus, auriolla, badiosanguineus, deliciosus, deterrimus, fennoscandicus, flavopalustris, fuliginosus, glyciosmus, helvus, leonis, mammosus, musteus, necator, obscuratus, olivinus, pubescens, representaneus, resimus, rufus, scoticus, scrobiculatus, theiogalus, torminosus, torminosulus, tuomikoskii, trivialis, tuomikoski, uvidus, vietus, zonarioides*

Russula *acrifolia, adusta, aeruginea, anthracina coll., aquosa, atrorubens, betularum, claroflava, clavipes, consobrina, decolorans, depallens, emetica, gracillima, grisescens, integriformis, nauseosa, nitida, ochroleuca, olivascens, olivobrunnea, paludosa, queletii, renidens, rhodopoda, robertii Sarnari, roseipes, sanguinea, taigarum, versicolor, vesca, vinosa, vinosordida, xerampelina ss lat.*


Sidsjön
SIDSJÖ
60
HUNGE
HUNGE

Maria Teresa Basso och Rolf Lidberg, Borgsjö 1997. Photo: Hjördis Lundmark

Also: *Agaricus semotus, Albatrellus syringae* (roadside), *Bankera violascens, Boletopsis leucomelanea, Cantharellus lutescens, Conocybe huijsmannii, Coprinus acuminatus, Cortinarius arenatus, aureofulvus, bataillei, leucophanes, flavipallens* (Balint Dima seqv.), *malicorius, papyzon, privignipallens* (Balint Dima seqv.) *rusticus, sanguineus, septentrionalis, solis-occasus, uliginosus, venustus, Hebeloma circinans, Inocybe malenconii, muricellata, Hypocrea nybergiana, Limacella guttata, Melanoleuca stridula, Rhodocybe hirneola, Tremiscus helvelloides, Tricholoma orirubens, squarrulosum*

Comment: The group leader Lisbeth Kagardt, Ilkka Kytövuori, Maria Teresa Basso and others found 22 species of *Lactarius* and 17 species of *Russula* at Sidsjö 4/9 1997. At visit 2016 Birgitta Wasstorp found lots of *Craterellus lutescens*, a popular eating mushroom in Sweden.

Demonstration of mushroom dyeing and exhibition at a folk museum.
Photo: Hjördis Lundmark

Revsund parish

61 Tunsved nature reserve

1463180;6982945


FUNGI SUECICI 132
Artnamn Lactarius scrobiculatus
Svenskt namn
Landskap MPD Koordinat 6937650 / 1579980
Församling
Lokal/vägbeskrivning Gat berget
Substrat/biotop
Leg Hökl Datum 7/9-97
Det Conf

***Picea, Pinus*, also *Alnus, Betula, Populus, Salix. *Cypripedium calceolus*. Visited by a group during *Lactarius* workshop 1997 and also in 2010 and 2016**

Lactarius *aurantiacus, badiosanguineus, deterrimus, fuliginosus, flexuosus, glyciosmus, pubescens, scrobiculatus, theiogalus, trivialis, uvidus, vietus*

Russula *aurea, cessans, cyanoxantha, olivina, olivobrunnea* (Herbert Kaufmann 2016), *puellaris, queletii*

Also: *Cortinarius blattoi, caesiocinctus, crassisporus, ectypus, fuscoperonatus, piceae, sanguineus, solis-occasus, Haploporus odorus, Helvella crispa, Hydnellum auratile, Hygrophorus purpurascens, Hypocrea nybergiana, Infundibulicybe geotropa, Leccinum melaneum, Lepista densifolia, Ramaria botrytis, eosanguinea, karstenii, subtilis, suecica, testaceoflava, Sarcodon martioflavus, Tricholoma frondosae*


Öster-Andsjön
61
Tunsvedberget
ANVIKEN
Hanåsen
Mickelstorpet
Brännängesberget
Pilgrimstad
Revsundssjön

Frösö parish

62 Andersön nature reserve

7005351;1430418

Old Pinus at limestone, also Picea.

Lactarius *deliciosus, deterrimus, scrobiculatus*

Russula *atroglauca, aurea, densifolia, firmula,olivina, queletii, roseipes*

Also: *Albatrellus subrubescens, Cortinarius aureofulvus, aureopulverulentus, caesioarmeniacus, caesiocinctus, cupreorufus, diosmus, fuscoperonatus, mussivus, pini, pseudodiabolicus, rubrovelapes (new for Sweden 2010), russus, squamulopercomis in ed., violaceorubens, violaceomaculatus, Hydnellum auratile, Hygrophorus atratementosus, Hypocrea nybergiana, Ramaria safraniolens, Sarcodon fuligineo-violaceus, Tricholoma apium, aurantium, olivaceotinctum, Volvariella reidii*

Comment: Bengt Petterson has divided Andersön nature reserve in 20 different areas, see page 156–159 in the excursion guide 2016: http://www.myko.se/wp-content/uploads/2016/06/Utflyktsguide_2016_korrektur_5.pdf

63 Fillstabäcken nature reserve

1436400; 7003950 (600 m) Fillstabäcken/V/7004525; 1436570

Lime from springs during 5000 years. The orchid *Ophrys insectifera* in july together with *Cortinarius inexpectatus*, also rare *Cortinarius* species in *Bovini* group: *anisochrous, fuscobovinaster, oulankensis. Inocybe tricolor* is found in Sweden here and at Kinnekulle in Västergötland.

Lactarius *badiosanguineus, deliciosus, deterrimus, olivinus, pubescens, rufus, scrobiculatus, torminsosus, zonarioides*


Kåringnäset
Kjalmarsundet
Bynäsudden
Härke
Sommarhagen
Valla
Gravhög
304
Vallsundet
Andersön
Oxmelen
Andersön
62
Oxmelviken
Naturreservat
Trefotudden
Stå torpet
306
Målsta
Fillsta
Böle
Digernäs
Genvalla
Höglunda
313
Hegledbacken
Åkeräng
Ringsved
63
Naturreservat
Surbrunnsbacken
Isösundet
Isön
Killholmen
Skansholmen
Andersö skans
Fannbyviken
Lillsundet
Hegled
Rån
Fannbyn
Slutsved
399
Svindalen
Prästnäset
Kyrkoruin
296
Ödesböle
Smörögat
Bäckäng
Sunne
175

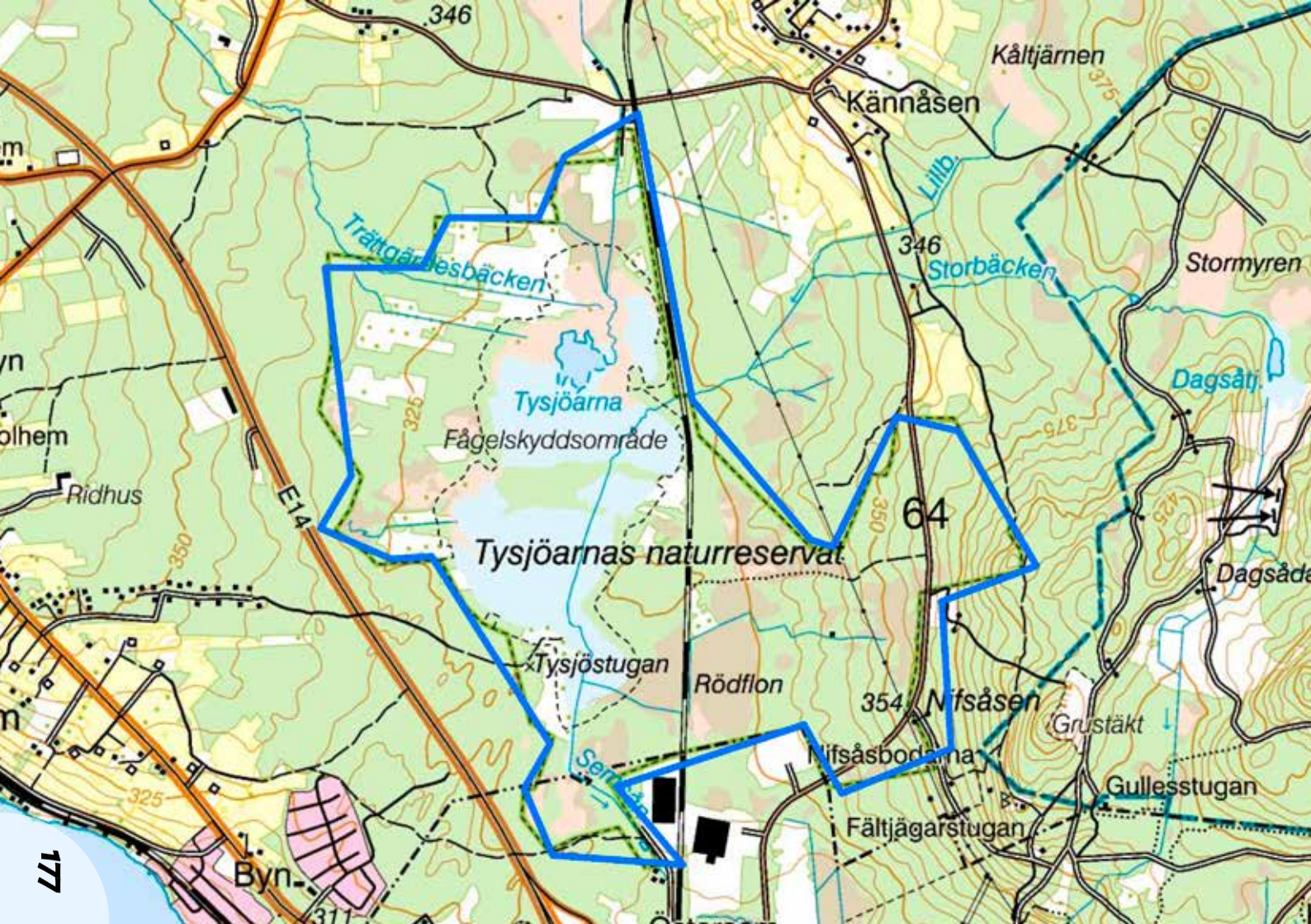
Jeanette cleans mushrooms for drying. Photo: Hjördis Lundmark

Russula *acrifolia coll.* (Ruben Walleyn 2001, Gent), *aeruginea, densifolia, integriformis* (herbrich *Picea*-dominated forest on calcareous soil, Ruben Walleyn, Gent), *lutea, olivascens, queletii, roseipes, zonarioides*

Also: *Agaricus augustus, Boletopsis leucomelanea, Catathelasma imperial, Clitocybe geotropa, Cortinarius anisochrous, fuscobovinaster, inexpectans, oulankensis, pini, russus, Hebeloma circinans, monticola, Hygrophorus gliocyclus, persicolor, purpurascens, Inocybe melanopus, tricolor, Ramaria fennica, Sarcodon lundellii, Sarcosphaera coronaria, Tricholoma atrosquamosum, aurantium, borgsjoeense, fucatum, olivaceotinctum*

Comment: Tuula Niskanen, Ilkka Kytövuori, Kare Liimatainen and Håkan Lindström described in Mycologia 105 (4) pp 977–993 three *Cortinarius* species in section Bovini: *C. anisochrous, fuscobovinaster, oulankensis.* They all appear at Fillstabäcken. Anki Suneson has found a huge fruitbody of *Boletopsis leucomelanea* under *Picea* and on lake marl , about half a meter in diameter.

Neotype from Fillstabäcken for *Tricholoma fucatum*, see Danish book about *Tricholoma* (Christensen-Heilmann-Clausen 2013, pages 96 and 209).


Kåltjärnen
Kännåsen
Lillb.
346
Storbäcken
Stormyren
Dagsåtj.
Tysjöarna
Fågelskyddsområde
Tysjöarnas naturreservat
64
Ridhus
E14
Tysjöstugan
Rödflon
354
Nifsåsen
Grustäkt
Nifsåsbodarna
Gullesstugan
Fältjägarstugan
Byn
325
350
375
425

Ås parish

64 Tysjöarna nature reserve- the promised land of Cypripedium calceolus

14424;70142

Information from County Council: https://www.lansstyrelsen.se/download/18.6ae610001636c9c68e574f8/1527077279012/Tysjöarna%20engelska.pdf

Bengt Petterson has also done a detailed map with desciptions and coordinates at page 162–163 in former excursion guide: http://www.myko.se/wpcontent/uploads/2016/06/Utflyktsguide_2016_korrektur_5.pdf

Tysjöarna has the largest area with lake marl (bog lime) in Europe, area of 90 hectares and about 25 meter thick deposit with loose chalk sludge from springs in the ground. Tysjöarna is a hot spots for ectomycorrhizal fungi and vascular plants at the lime plate. The promised land of *Cypripedium calceolus*! Thousands of this magnificent orchid blossoms in groups all over the visited forest slopes in the middle of june. *Cypripedium* grows also like weeds along the Kännåsen road with *Primula farinosa* in the ditches. The most beautiful road side in Sweden! *Ophrys insectifera* and a number of 16 orchid species are found in the reserve. The popular *Cantharellus lutescens* is very common. By a visit 2016 with a group of mycologists 51 found species of *Cortinarius* were found. At Tysjöarna 1999 Siw Muskos gave elkdung to Nils Lundqvist and in the evening he determined three dung species: *Lasiobolus papillatus, L. macrotrichus* and *Pseudoombrophila cervaria.*

Lactarius *badiosanguineus, citriolens (Ilkka Kytövuori 2016), deterrimus, glyciosmus, pubescens, rufus, scrobiculatus, scoticus, scrobiculatus, theiogalus, torminosus, trivialis, vietus, zonarioides*

Russula *adusta, consobrina, decolorans, gracillima, maculata coll., nauseosa, queletii,*

Beautiful evening sky. Photo Hjördis Lundmark

Also: *Conocybe elegans, Cortinarius , flavipallens* (Balint Dima seqv.), *fuscovelatus, infractiflavus* (Balint Dima seqv.), *luteobrunnescens, oulankensis, violaceorubens, viridivelatus, Entoloma korhonenii, Haploporus odorus, Melanoleuca cognata, grammopodia, stridula, Tricholoma argyraceum, scalpturatum.*

Comment: According to Funga Nordica *Russula maculata* is a southern species. Here in mid and northern Sweden we have instead *R. globispora* under *Betula*, many findings in the parks of Östersund. *R. maculata* has redish cap while globispora is faint yellow. The spores are also different. Mieke Verbeken and others now have studied and revised maculata group. We will hear exciting latest news during *Russulales* workshop 2018 in Borgsjö! *Lactarius citriolens* is bound to Betula at calcareous soil and was found by Ilkka Kytövuori at Tysjöarna in 2016. Also found under mountain birch in western Härjedalen, Jämtland and Lappland.

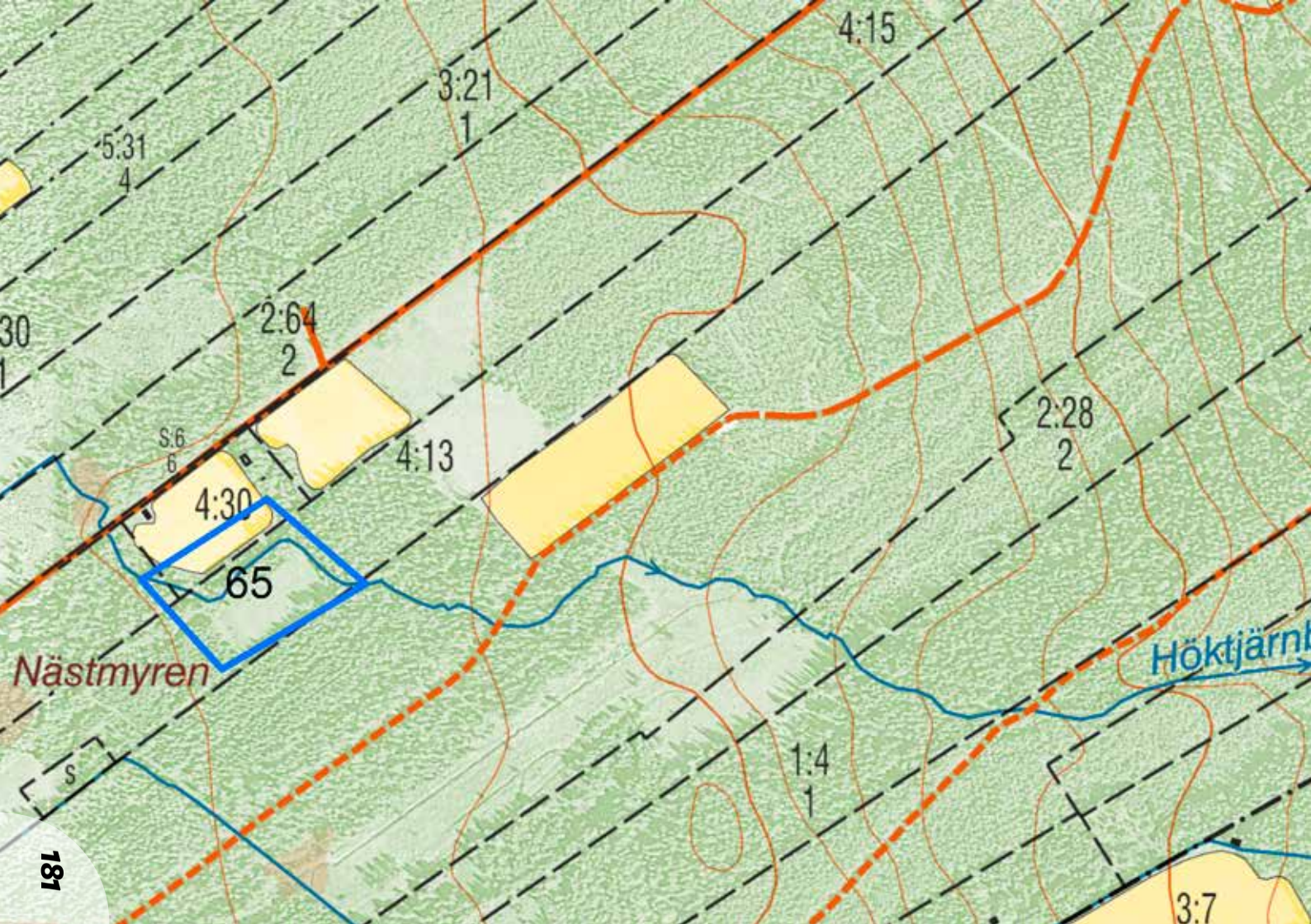
Mountain pasture (fäbod in Swedish) in Jämtland. Photo: Ninni Nordlund

Marieby parish

65 Nästmyren nature reserve, Fugelsta, meadow

6999816;1444536

Magnificent meadow with *Nigritella nigra* and *Taraxacum crocodes*. Rich grassland funga with *Entoloma caesiocinctum, clandestinum, Stropharia inuncta*. *Picea* wood at limestone around the meadow with *Cortinarius diosmus, Lactarius vietus*. In Fugelsta village also big, old, limestone quarry down by Storsjön with Picea and Salix in and around the quarry. No mycological investigation.


4:15
3:21
1
5:31
4
2:64
2
4:13
2:28
2
4:30
65
Nästmyren
1:4
1
3:7

66 Parks on limestone in the city of Östersund and on Frösö island

Old parks often have a rich *Russula* funga. Lennart Söderberg found 41 *Russula* species in Ramlösa park, Helsingborg, Skåne county in south Sweden (Jordstjärnan 1999, 20: 6–19).

If rain has fallen and fungal fruitbodies appear we will look for *Lactarius* and *Russula* species in the parks on limestone in central Östersund and at Frösön. *Inocybe erubescens* is found at a cemetary in the centre of Östersund. Jan Vesterholt found in 1997 *Entoloma violaceozonatum* in park outside the hospital in centre of Östersund, the only finding in Sweden. Lars Lundberg, founded Östersunds Mykologiska Förening 40 years ago. Lars lives in central Östersund, is now 96 years of age and got in 2017 the golden knife, the most prestigious prize a Swedish mycologist can receive. Perhaps Lars can join us in the parks of Östersund in company with Karin Kellström, today president of ÖMF. We pray for much rain resulting in fruitbodies of exciting *Russula* species in the parks of Östersund!

Betula park at the museum Jamtli

Birgitta Wasstorp and others found 2001 *Russula aurantioflammans, depallens, globispora coll.*

Björkbackaparken

Karin Kellström, president of Jämtland Mycological Society has studied Lars Lundbergs note books. Lars Lundberg and Stig Jacobsson visited 30.8.1990 Björkbackaparken in eastern part of Östersund centre with *Betula, Picea, Pinus* and found: *Amanita flavescens, muscaria, Conocybe lacteal, Inocybe rimosa, Marasmius oreades, Melanophyllum grammopodia, Russula aeruginea, depallens, farinipes, Tricholoma album.*

***Russula** aurea.* Photo: Lars Lundberg

Parks at Frösövallen and Frösö Strand

Ingrid and Lars Lundberg participated in the *Russula* workshop 2001. They


Hjälmtorpet
Ridhus
Göviken
Rannäsen
Rannäsli
E14
E45
307
Reningsverk
Naturreservat
Djurpark
Tanne
Lövlunda
Jamtli
Skidstadion
Berge
Östberget
Hörnsberg
Frösön
Sjukhus
Eriksberg
Solliden
Erikslund
466
375
350
Mickelsgård
Naturreservat
Lövsta
Ändsjön
324
My
Framnäs
Körfältet
Blomängen
Odenskog
329
Förnborg
Frösödal
Mjälle
Öneberget
Odenslund
Ånge
Marielund
Frösö strand
Odensvik
330
Odensala
183

Russula aurea. Photo: Lars Lundberg. We hope that Lars Lundberg, 96 years of age and grand old man among mycologists in Jämtland, will join us at an excursion to Björkbackaparken in Östersund and to the famous place Sommarhagen at Frösön. Join us at park excursion in Östersund.

guided to Frösövallen and Frösö strand 27/8 2001, mostly *Betula* but also *Picea* and *Pinus*. In the group also Håkan Lindström, Juhani Ruotsalainen, Jukka Vauras, Ruben Walleyn, Birgitta Wasstorp. They found and determined following *Russulas* in the parks of Frösövallen and Frösö Strand:


FUNGI SUECICI

Artnamn Russula aurantioflammans

Svenskt namn

Landskap MPD Koordinat

Församling

Lokal/vägbeskrivning Jamtli

Substrat/biotop Betula

Leg Ble Datum 01.08.27

Det Ble Conf

Russula *aurantioflammans, aurea, cessans, cremeoavellanea, depallens, elaeodes, font-queri, globispora, integriformis, medullata, nauseosa, olivascens, pelargonia, puellaris, queletii, sapinea*

Comment: Håkan Lindström also collected *Russula sapinea* at Frösövallen in august 2005 and have deposited the collection in herbarium UME. Dyntaxa has only 3 dots in Sweden: http://artfakta.artdatabanken.se/taxon/248739

Herbert Kaufmann in mail 23.6.2018:" I have 3 collections of *R. sapinea* in my herbarium *R.sapinea* HK870809, Jämtland, Andersön P-plats och stuga, 1987–08–09 and HK06027 Härjedalen, Hamrafjället 2006–08–19, first determined as *R. puellaris* and HK15008a, Lycksele Lappmark, chapel Voitajaure, grass under *Betula* and *Picea*, 2015–08–19." Herbert Kaufmann write about "Kremlefynd i Hemavans fjälltrakter-en rapport från Mykologiveckan 2015" in Svensk Mykologisk Tidskrift 37 (2) 2016, p. 13–28. He describe in detail with excellent photos the following alpine-northern Russula species: *heterochroa, laccata, nana, nuoljae, pubescens, renidens, rivulicola, saleceticola, sapinea, subrubens, vinososordida, violaceoincarnata.* Some of this *Russulas* will hopefully be found during

Russulales workshop in Borgsjö 2018 because many alpine *Russula* species also occur at meadows or below *Betula* and *Salix* in the Borgsjö area.

Park and forest at Sommarhagen

The famous composer and nature friend Wilhelm Peterson-Berger (1867–1942) lived here with wonderful view at the high alpine mountains. Sommarhagen is one of the most genuine and beloved Swedish places.

Maj-Britt Såthe and Lars Lundberg at fungi exhibition 20014 in the city of Östersund

Lactarius *zonarioides*

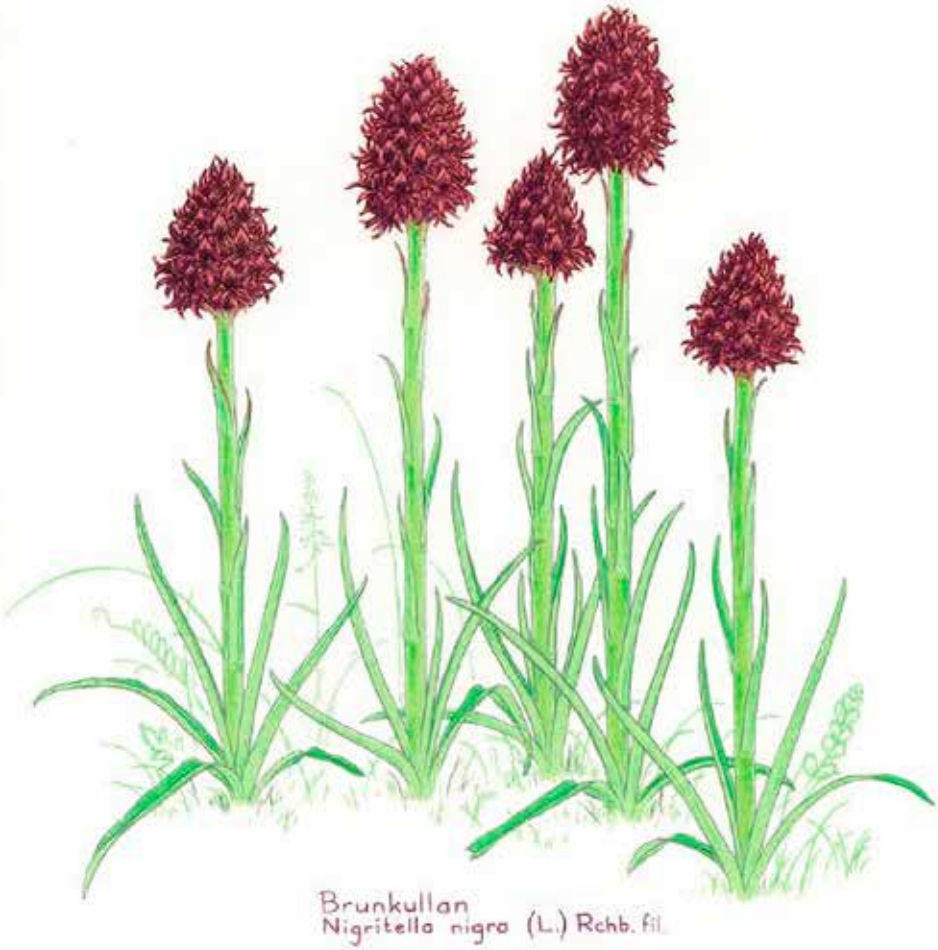
Russula *aurea, firmula, foetens, pelargonia, fulvograminea*

Also: *Tricholoma fucatum* (Lars Lundberg)

Comment: *Russula fulvograminea* Ruotsalainen, Sarnari & Vauras, Populus-Betula, leg G. Le Jeune, det. Juhani Ruotsalainen, First record for Sweden, colours as in typus (Riv. Micol. 1997:99), sporee 1V cd, Ruben Walleyn, Gent

Rannåsen north of Östersund

Håkan Lindström visited Rannåsen several times in 2006 at the request of the County Council in Östersund, once together with Lars Lundberg, and found among other things: Lactarius badiosanguineus, deliciosus, zonarioides, Russula olivascens, olivobrunnea, roseipes, Tricholoma aurantium.



The orchid Nigritella nigra. Painting by Rolf Lidberg

Lockne parish

67 Storvålen

1446600;6991200

a Meadow

1446600; 6991200 (150 m)

b Forest

1446860; 6991850 (300 m)

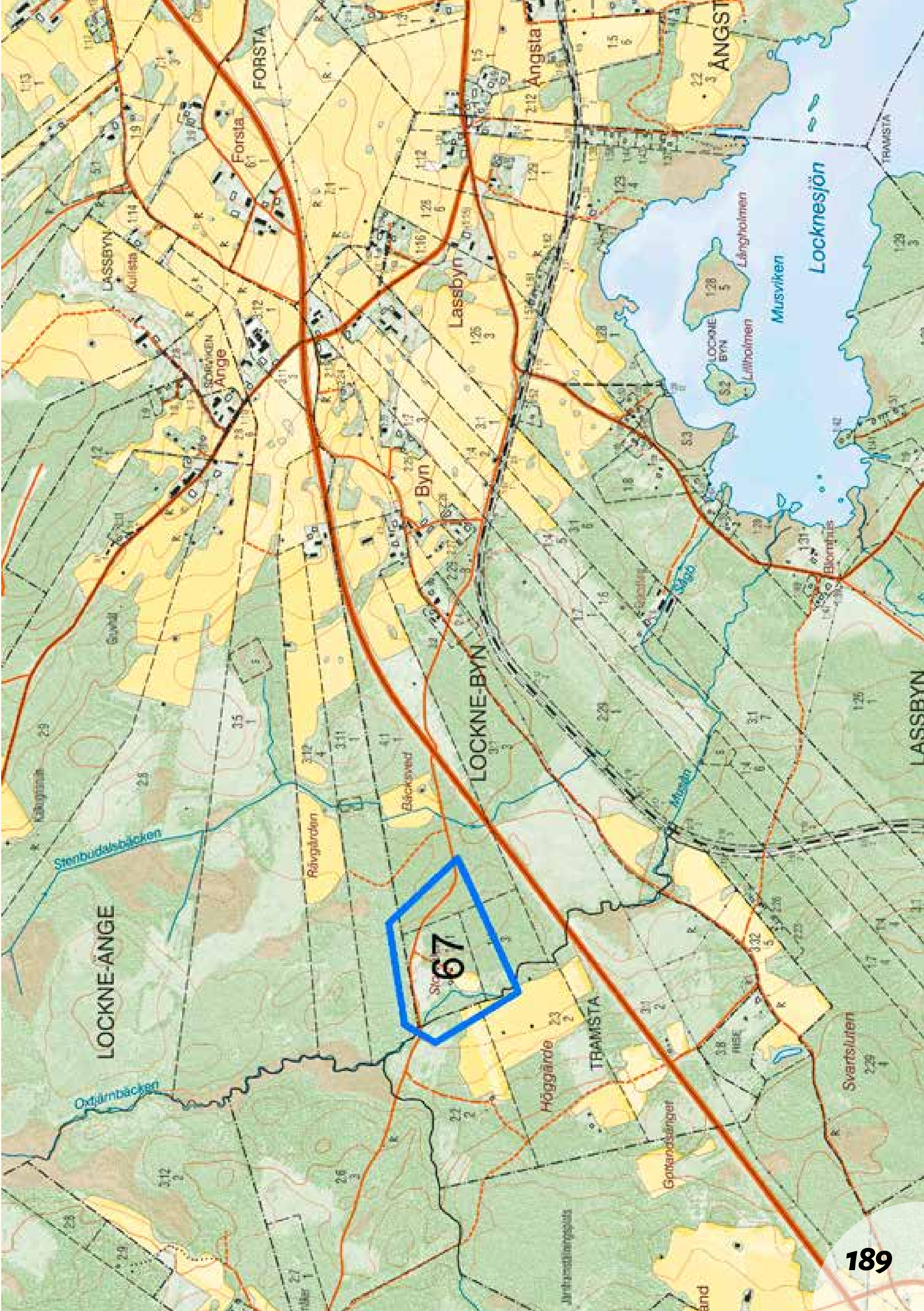
c Forest

1447255; 6991120 (300 m)

Mossy Picea forest at limestone. Grazed meadow with *Nigritella nigra* and thousands of *Gentianella campestris* (some white plants). The old mossy *Picea* forests east of highwayv E45 (the village Byn) are also very interesting with many rare mycorrhiza fungi according to Bengt Petterson. Good parking place just near E45.

Storvålen was visited in 1997 by Leif Andersson, Rolf-Göran Carlsson, Jacob Heilmann-Clausen, Erhard Ludwig, Jan Vesterholt and others. They found 145 fungi species, 20 Entoloma and 16 Hygrocybe species, two new species for Nordic countries: *Entoloma ianthinum* at the meadow and *Arpinia fusispora* along the small brook near the meadow. *Arpinia fusispora* has got the swedish name "huldreskål". Huldra (or vittra) is invisible forest creatures in old folklore and related to "troll". Perhaps we get contact with this kind creatures during our fungi excursions. Lars Lundberg informed in 1997 the land owner of the high nature value of the grazed meadow at Storvålen and he was proud to possess such a fine meadow.

Lactarius *quieticolor* was interesting finding at Storvålen 7.9.1997. We find *L. quieticolor* only in calcareous forests in the provinces of Jämtland, Medelpad and Ångermanland. Mikael Jeppson has written about *Lactarius quieticolor* and other Nordic *Lactarius* species in sect. *Deliciosi* in Svensk Mykologisk Tidskrift 28 (2): 27–37, 2007. Photo of *Lactarius zonarioides* at page 133 in the danish book "The genus *Lactarius*" is from Storvålen in 1997.


Locknesjön
Musviken
Långholmen
Lillholmen
LOCKNE-BYN
LOCKNE-ÄNGE
LASSBYN
TRAMSTA
FORSTA
Forsta
Ängsta
Lassbyn
Byn
Änge
Stenbudalsbäcken
Oxtjärnbäcken
Rävgärden
67

During *Lactarius* workshop in 1997 Jacob Heilmann Clausen collected "*Lactarius syringinus*" below *Betula* and *Picea* at Storvålen and photo was published in the book "The genus *Lactarius*, Fungi of Northern Europe, Vol. 2" (1998) with comment: "We recognize *L. syringinus* as a distint species although it is quite similar to *L. vietus*. It differs in having much stouter fruitbodies and a more vividly coloured cap, which is often zonate and only slightly pallescent. Apparently the vietus complex is in need of revision. *L. pilatii* differs in habit, is has more dull colours, and ints macrocystidia are slightly narrower than those of *L. syringinus. L. subcircellatus* and *L. hysginoides* have unchanging milk, a less acrid taste and longer macrocystidia." Maria Teresa Basso participated in *Lactarius* workshop in Borgsjö 1997 and she comment *L. syringinus* at pages 130–131 in her magnicicent volume about *Lactarius* (1998) and say that *L.syriginus* not differ so much from *L.vietus.* Funga Nordica (2012) has not *L. syringinus* at all. Apparently the *vietus* complex need revision. We are really looking forward at the new magnificent volume about Boletus and *Lactarius* (Noordeloos-Nyutinck-Verbeken) in the serie *Funga Agaricina Neerlandica* that will be presented during *Russulales* workshop in Borgsjö 2018.

Lactarius *aquizonatus, badiosanguineus, deliciosus, deterrimus, flexuosus, fuliginosus, glyciosmus, hysginoides, mammosus, necator, pubescens, quieticolor, rufus, scrobiculatus, torminosulus, torminosus, uvidus, vietus, zonarioides.* Photo of *L. fuliginosus* from Storvålen in the danish book "The genus *Lactarius*".

Russula *adusta, aeruginea, aquosa, atrorubens, aurantioflammans, cessans, chloroides, delica, favrei, fennoscandica, firmula, foetens, gracillima, lutea, nauseosa, olivascens, paludosa, postiana, queletii, renidens, roseipes, sapinea, versicolor, vinosa, vinososordida*

Also: *Boletopsis leucomelanea, Boletus edulis, Camarophyllopsis micacea, Cathatelasma imperiale, Clavaria purpurea, Cortinarius corrosus, malicorius, sanguineus, uraceus, venustus, Boletopsis leucomelanea, Entoloma chloropolium, xanthochroum, Hebeloma sinapizans, Hygrophorus sectretanii, Inocybe terrigena, Limacella guttata, Marasmius siccus, Sarcodon martioflavus, Stagnicola perplexa, Tricholoma atrosquamosum, olivaceotinctum*, sulphureum

Comment: Juhani Ruotsalainen and Jukka Vauras found *Russula sapinea* Sarnari at Storvålen in 2001 and wrote at field paper "herbrich forest with mainly *Picea*".

Little russulas

Melody: Little boxes...

Little Russulas on the hillside-Little Russulas made of brittle-brattle.
Little Russulas, Little Russulas-Little Russulas, all the same.
Oh, there´re green ones-and there´re yellow ones-and there´re red ones, and there´re purple ones-but they´re all made of brittle-brattle and they all key out the same.

First you peel them, them you print them-and you taste them, and you measure them-then scratch them with your fingernail-just to see if they will stain-Then you put them on the microscope and count up all the tiny things-Then you look´em in Ray Fatto´s book-and they all key out the same.

Little Russulas on the hillside-Little Russulas made of brittle-brattle.
Little Russulas, Little Russulas-Little Russulas, all the same.
You can look´em up, you can look´em up, you can throw´em up against a hardwood tree-But there´re all made of brittle-brattle-and they all key out the same.

Painting by Rolf Lidberg.
Gift from the artist to Hjördis Lundmark
at the international Mushroom Dyeing Congress
in Härnösand 1995