



Research group  
**MYCOLOGY**  
DEPARTMENT OF BIOLOGY  
GHENT UNIVERSITY



# International *Russulales* Workshop

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

## Report



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**Thanks to:** Gunilla Kärrfelt for many good advices

**Editor:** Sundsvalls Mykologiska Sällskap (Myko)

**Print:** Ätta 45 Tryck AB, Sundsvall

**Source of quotation:** Russulales, Borgsjö 2018, report

**Facebook:** Myko, Sundsvalls Mykologiska Sällskap & Svampfärgarsällskapet

**This report is digitally available at [www.myko.se](http://www.myko.se) and link Russulales 2018**

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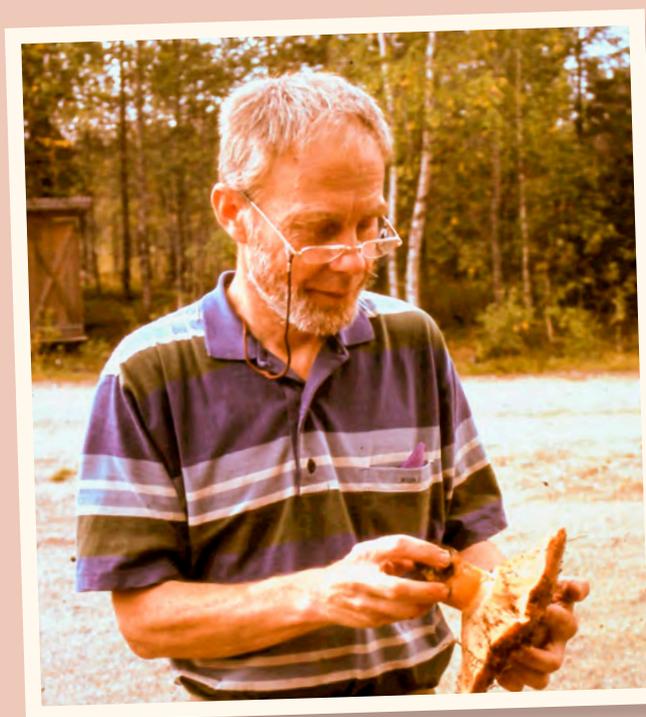
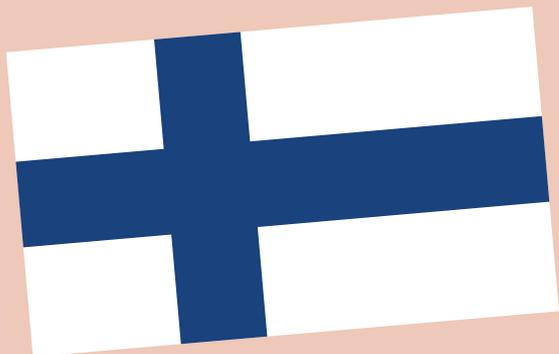
**Page 1:** Lactarius olivinus. Painting by Omer van de Kerckhove

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# Dedication

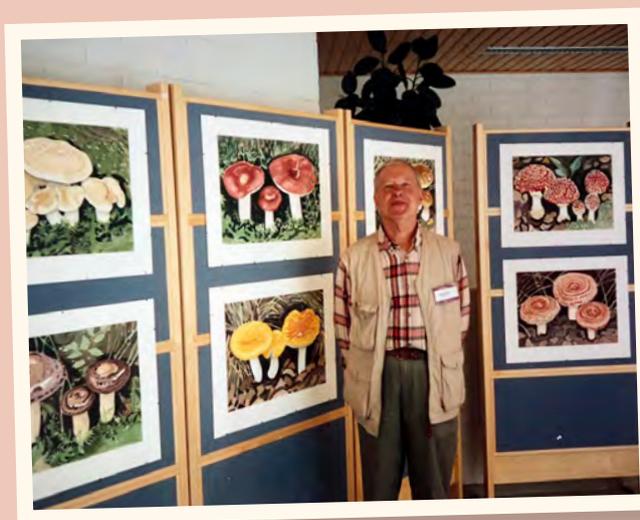
This report is dedicated to our Finnish friends  
Ilkka Kytövuori, Mauri Korhonen,  
Juhani Ruotsalainen and Jukka Vauras.



Ilkka Kytövuori is father to several Northern yellow-milked *Lactarius* species. We found in 2018 all the yellow-milked *Lactarius* species described by Ilkka. He is also an excellent field mycologist, here proudly showing *Tricholoma colossus* ("jättemusseron" in Swedish) on 1 Sept. 1997 on Värjsjöåsen gravel ridge in Jämtgaveln nature reserve. Photo: Hans Andersson



Mauri and Eine Korhonen in Borgsjö.  
Photo: Hjärdís Lundmark



Mauri Korhonen had popular fungus art exhibition at the Nordic Mycological Congress 1996 in Mekrijärvi, Finland. Photo: Hjärdís Lundmark



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



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Erikslund Folkets Hus, our working hall. Photo: Hjördis Lundmark

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

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

# Summary

**During millions of years fungi have transported water and nutrition to plants including forest trees.**

Fungi form an underground internet more sophisticated and more wonderful than our human internet. During an Autumn week 67 mycologists from 12 European countries and from Japan met together in Borgsjö and studied ectomycorrhiza fungi. Hjördis Lundmark and Jan-Olof Tedebrand were main organizers. Scientific leaders were Annemieke Verbeken from Gent, Belgium and Slavomir Adamčík from Bratislava, Slovakia. We had excursions to forests from Borgsjö parish in western Medelpad to areas around the city of Östersund in Jämtland. Matthias Lüderitz and Kai Reschke from Germany studied the special funga on old non fertilized semi-natural grasslands. During the evenings we determined our findings

in Erikslund Folkets Hus. We placed the named material on exhibition tables and had evening talks about the highlights of the day. A social banquet took place at Träporten inn. We also demonstrated wool dyeing with mushrooms during a popular day open for people in the area. The local culture and history of the excursion areas was also presented. Hot summer weather from April to the end of July and much rain in August resulted in a remarkable mushroom peak during the workshop. The mycological week in Borgsjö resulted in better understanding of the important forest workers under ground. We had much fun together and could enjoy delicious *Boletus edulis* after the hot summer. High quality of life!



# Key words

**Friendship**

**High quality of life**

**Mycorrhiza connects  
– important factor for life on earth**

***Lactarius* and *Russula* provide  
important ecosystem services**

***Russulales* workshop in Borgsjö**

**More knowledge about ectomycorrhiza  
species in northern forest**

**Wool dyeing using mushrooms**

**Joy in finding rare species**

**Culture and nature tourism**





Hjördis and Jan-Olof, Merlo Slott,  
Timrå parish, Medelpad.  
Photo: Jessica Andersson



# Preface

**We (Hjördis and Jan-Olof) spoke with each other almost every day half a year before the *Russulales* workshop. We had an organizing team with Slavomir Adamčík, Per Marstad, Birgitta Wasstorp and Annemieke Verbeken. Annemieke sent invitations to fellows around the world interested in *Russulales*. All participants received an Excursion guide at their arrival in Borgsjö Sunday 26 Aug. 2018. You can see Annemiekes invitation and the Excursion guide on our homepage [www.myko.se](http://www.myko.se) and link "*Russulales* 2018".**

## Interesting mycologists

Friendship and "social mycology" means much for us. Mycologists are as exciting as mushrooms. We remember with joy our friends sitting outside the working hall at Erikslund Folkets Hus late in the warm August evenings working with their collections and talking with each other. We thank our participants from European countries and from Japan. We also thank our county governor Berit Högman who opened *Russulales* workshop with a personal welcome speech, see her speech in the report. We had a well-trained team for excursions and practical matters in the working hall: Margareta Byström, Inga-Lill Franzén, Elise Hagberg, Gunilla Kärrfelt, Bengt Larsson, Berthold Lundmark, Siv Norberg, Gunnar Selling, Kristoffer Stighäll, Håkan Sundin, Jeanette Södermark. Karin Kellström, Lars Lundberg and Bengt Petterson from Östersund Mykologiska Förening and the city gardener Frida Larsson gave us good advises about the parks in Östersund and on excursion sites in Jämtland. Lars-Olof Grund collected *Russula* species near his home at Frösö Strand. Håkan Blomkvist, nature expert at the forest company SCA and moss researcher Mats Dynesius helped us organize the successful visit to the fantastic hot spot Djupdalsbäcken in Hällesjö parish.

## Teamwork

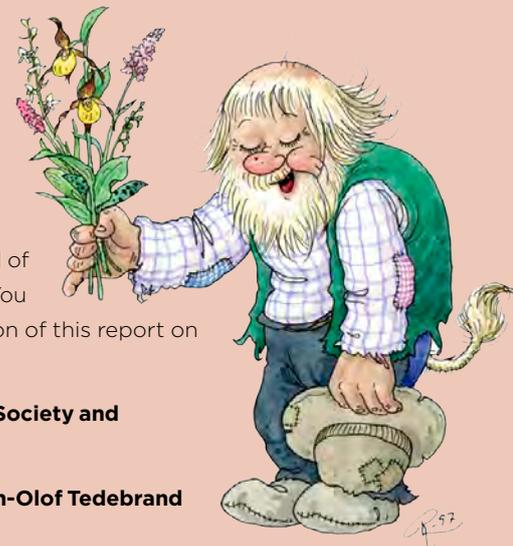
We had much help of our local friends from Ånge: Kent Sahlström, the friendly boss for Erikslunds Folkets Hus, dataexpert and local politician Leif Edh, Göran and Jack at Elektrotjänst in Ånge, Nadinka Gielen and her parents at Träporten inn, Åsa Skarpsvärd at hotel Mitlandia, Carin Nilsson at Täljegården, Hans and Sara Lejdebring at Saras Bed & Breakfast in Gubbyn, Katarina Dahl-Nilsson at Hussborg manor, Ulla-Britt Olsson, Inga Lill and Mats Fhanér in Borgsjö hembygdsförening, Sonja Martinsson in Erikslunds skidklubb, church guide Conny Olsson, Joel Grelz at Ljunganbladet, Roger and Ronnie Sundin at Slöjdmuseet in Västanå. Sara Stierna and her fellow workers at Ånge Naturum helped us, as many times before, with maps and information. Our participants praised Naturum for good help and service during the week. Per Sander at the county government of Jämtland helped us with maps in excursion guide. Per has participated in several earlier workshops in Borgsjö. Hjördis

son-in-law Torkel Edenborg made wonderful layout of the Excursion guide and also layout of this report. Kristiina Oikari put information about *Russulales* 2018 on our homepage, [www.myko.se](http://www.myko.se). We thank our sponsors: Callans Trä AB, the county governments of Jämtland and Västernorrland, Naturskyddsföreningen Sundsvall-Ånge, the forest company SCA, Maria och Erik Strangells Foundation for Animal and Nature Protection. Thomas Læssøe has visited us many times. He read a rough draft at an early stage and made many corrections. Thomas has just published a fantastic 2-vol. book on Fungi of Temperate Europe together with Jens H. Petersen. Michael Krikorev has made lists and tables of our findings, see Excel file at [www.myko.se](http://www.myko.se) and link *Russulales* 2018. We send an especially warm thank to Siv Norberg, president of the Mushroom Dyeing Society. Siv slept all evenings during the week at Erikslunds Folkets Hus carefully watching fungi and microscopes.

We apologize for all remaining faults in the report. This is not a scientific report. We are not professional mycologists. Just amateurs who like friends, fungi, local culture and nature. We hope you will enjoy this documentation from our studies of the important genera *Lactarius* and *Russula* in northern forests. We also try to have a broader approach in the report than focus on single species. We mention memories from earlier mycological workshops in Borgsjö, culture and historical facts on our excursion area, on Swedish mycology and on nature conservation concerning fungi. Please, follow us on an exciting journey in to the fascinating world of fungi and fungi lovers. You can read a digital version of this report on [www.myko.se](http://www.myko.se)

**Sundsvall Mycological Society and  
Wool Dyeing Society**

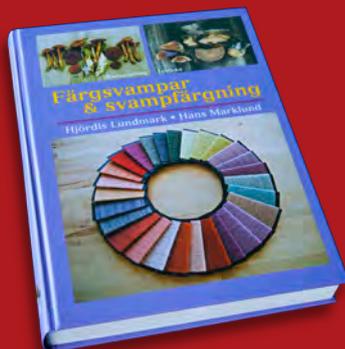
**Hjördis Lundmark Jan-Olof Tedebrand**





## Svampfärgarsällskapet, Mushroom Dyeing Society

Wool dyeing with mushrooms is an important and popular part of mycological workshops in Borgsjö. Siv Norberg is president and contact person in Svampfärgarsällskapet: [siv.norberg@telia.com](mailto:siv.norberg@telia.com)



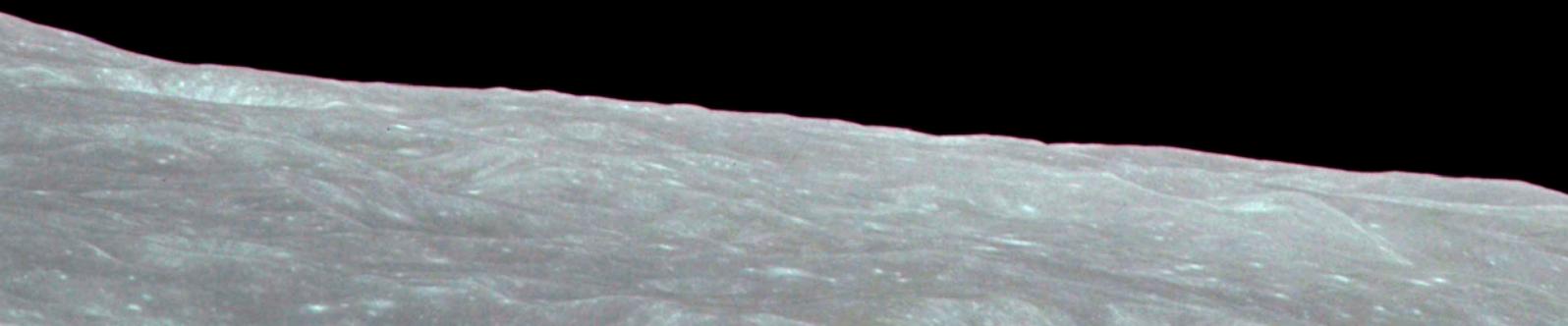
Hjärdís Lundmark and Hans Marklund are the authors of the book "**Färgsvampar & Svampfärgning**". The book describes the dyestuff of mushrooms which you easily can dye both wool and silk with. (Latest edition 2018)



# Biological diversity and climate change – two equally important challenges for mankind

The *Russulales* workshop 2018 in Borgsjö took place when climate change and biological diversity were top issues in the global debate. The young Swedish school girl Greta Thunberg inspired young people all over the world to fight for climate and for biological diversity. In May 2019 an important election was held to the European Parliament when green and liberal parties were strengthened all over Europe. Greta Thunberg emphasized both climate crisis and the mass extinction of species in her famous and strongly emotional speech at the European Parliament in springtime 2019.

You can watch the speech on Youtube.



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## IPBES globala rapporten 2019 - slutsatser

SENAST ÄNDRADE: 17 MAJ 2019

Dessa är slutsatserna från den globala rapporten från IPBES, "The global assessment of biodiversity and ecosystem services", som offentliggjordes den 6 maj, sammanfattade av Torbjörn Ebenhard, medarbetare vid Centrum för biologisk mångfald, och medlem i den svenska delegationen vid förhandlingarna om rapporten.



Den biologiska mångfalden är nödvändig för människans överlevnad, men dess status försämras världen över. Samtidigt urholkas de flesta ekosystemtjänster.

Naturen och den biologiska mångfalden är grunden för människans existens och välmåga. De flesta av naturens nyttor – ekosystemtjänsterna – kan bara delvis ersättas av tekniska lösningar, och vissa är helt omöjliga att ersätta. (mat, mediciner, bränsle, fibrer, trä – syre, rent vatten, ren luft, pollinerings – kolsänkor)

Produktionen av naturens nyttor är ojämnt fördelad i tid och rum, och olika folkgrupper har olika tillgång till nyttorna – en orättvis fördelning är vanlig.

KONTAKT  
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### UN report about biodiversity

In May 2019 an important report from United Nations Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem services, IPBES, attracted much attention all over the world. More than 600 experts and 132 countries stood behind the report on the present status of biological diversity on earth: [www.ipbes.net](http://www.ipbes.net) The conclusion of IPBES: about one million species of animals, plants and fungi risk to disappear in the coming decades. See a summary of the report in Swedish by Torbjörn Ebenhard:

<https://www.slu.se/centrumbildningar-och-projekt/centrum-for-biologisk-mangfald-cbm/verksamhet/internationell-verksamhet/ipbes/slutsatser-global-rapport-ipbes-2019/>

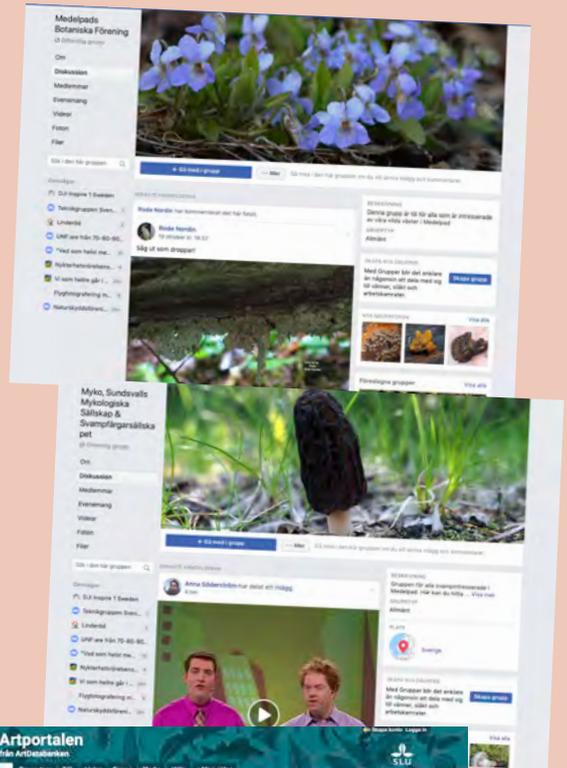
### Krista Mikkonen about the big challenges for mankind: climate and loss of biodiversity

In July 2019 all EU ministers for environment and climate met in Helsinki, Finland. The new green Finnish minister Krista Mikkonen said in her welcome speech that climate change and loss of biological diversity is the two big challenges for mankind in our time. The new Finnish government has decided to strengthen biological diversity. There are also big problems concerning the diversity of nature. Just during 2018 an area of tropical rainforest, big as Belgium, was destroyed. President Jair Bolsonaro of Brazil

plan to cut away parts of Amazonas. Many tropical forests with a wonderful biological diversity are today replaced by plantations of oil palms, soya and grasslands for beef production. Annemieke Verbeken and other mycologists have done important studies of fungi in tropical areas of Africa, Asia and South America. Thanks to Annemieke and her research group the genus *Lactarius* is one of the most wellknown genera of larger agarics in tropical areas of the world. The last old forests with a rich biological diversity in the northern taiga belt should also be preserved such as the one hundred Swedish miles long belt of old forests along the Swedish alpine mountains.

### Mycology week

SMF arrange a yearly mycology week in different provinces from Skåne in the south to Lappland in the north. In autumn 2019 the mycology week was organized by Kurt-Anders Johansson and his friends in Västgötabergens Svampklubb in the province of Västergötland. The mycology week in 2020 will take place in Nybro in the province of Småland with old oak landscapes. There are about 25 local mushroom societies from Puggehaten in the province of Skåne to Luleå Svampklubb in the province of Norrbotten. "Svampklapp" is a popular Swedish forum on Facebook with about 60 000 followers.



# Digital Information

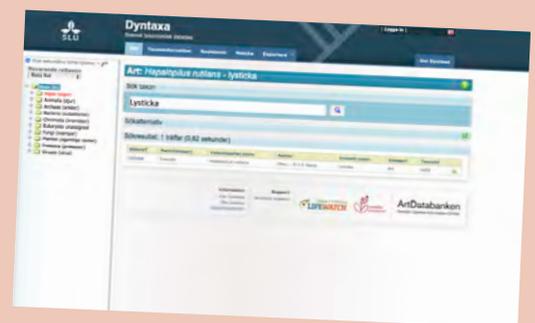
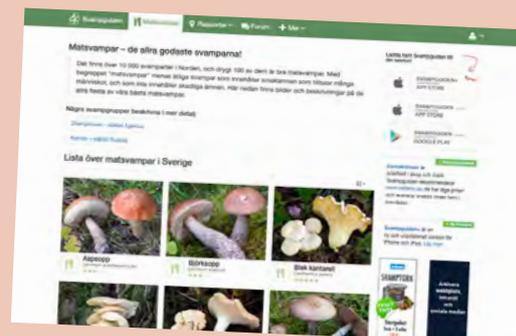
The Facebook group "Svampklapp" is a popular meeting point for about 60 000 fungi lovers in Sweden. You can find information about fungi, vascular plants and nature in the province of Medelpad on following Facebook groups:

- Medelpads Botaniska Förening
- Myko, Sundsvalls Mykologiska Sällskap & Svampfärgarsällskapet
- Växter i Medelpad

## Private databases

There are also private digital data bases with facts and photos of fungi including *Lactarius* and *Russula* species:

- Michael Krikorev´s homepage: [www.svampguiden.com](http://www.svampguiden.com)
- Dan Olofsson´s homepage: [www.fungus.se](http://www.fungus.se)
- Jan Svensson´s homepage: [www.skogensrost.co.m](http://www.skogensrost.co.m)
- Anita och Leif Stridvall´s homepage: [www.stridvall.se/la/](http://www.stridvall.se/la/)





Rolf Lidberg (1930-2005), artist, botanist, founder of Sundsvall Mycological Society, also inspirator for many people to study the biological diversity of nature. Stefan Grundström presented Rolf Lidberg in *Svensk Botanisk Tidskrift* 2013/3-4. Stefan has also written an excellent book on the life of Rolf Lidberg, please contact: [stefan.grundstrom@hotmail.com](mailto:stefan.grundstrom@hotmail.com).





Håkan Lindström on alpine heath with *Dryas octopetala* in Härjedalen during the Swedish mycological week in 2006. Håkan liked to study alpine ectomycorrhizal fungi together with his friend Håkan Sundin. Photo: Pierre Arthur Moreau.

## We miss Håkan Lindström

**On the last day of the *Russulales* workshop some friends of Håkan Lindström (1950-2018) left the workshop for a pieciful funeral on a sunny autumn day in a beautiful old church in Fränsta, the birthplace of Håkan.**

Christer Andersson, friend of Håkan at many botanical adventures, came from southern Sweden. Stig Jacobsson, fungi researcher and Lars Ericson, retired professor in ecology at Umeå university, and many others visited the funeral. We put wild flowers and brown *Cortinarius* fungi on green moss beds on the coffin. Who will now tell us correct names for all those brown things in the autumn forest?

Håkan died from cancer just some weeks before the workshop. He was happy that we arranged a workshop about *Lactarius* and *Russula*. During spring 2018 Håkan sent his collections of fungi to Katarina Stenman at Umeå university herbarium (UME). Among his collections of *Russula*: *citrinochlora* (Jämtland, Frostviken, Leipikvattnet), *clavipes* and *sapinea* (Jämtland, Frösövalen), *cremeoavellanea* (Medelpad, Nordanede), *fennoscandica* (Jämtland, Håsjö, Sandmon), *intermedia* (Jämtland, Ragunda, Näset), *laccata*

(Jämtland, Östansjö), *subrubens* (Härjedalen, Torkilsstöten).

Håkan was one of the initiators of the 17 mycological weeks in Borgsjö 1982-2018. He gave us good advices concerning excursions to different nature types. He often said that biological diversity means to maintain many different nature types in the landscape. The exact ecology for every vascular plant in the book *Medelpads Flora* (2010) are written by Håkan. He was especially interested in the genus *Cortinarius*. He had, often together with Tor Erik Brandrud, Ilkka Kytövuori and Karl Soop, informative shows at the *Cortinarius* table during workshops in Borgsjö.

Birgitta Wasstorp had many similar informative talks at the *Russula* table. Håkan's special interest was to identify the small and extremely difficult species in *Cortinarius* subgenus *Telamonia*. Mission impossible would many say!





*Russula* painting by the young Hjördis Böhning who participated in the *Russulales* workshop.





Pieceful picture of our Swedish mycorrhiza researcher Anders Dahlberg in 2016 at the idyllic Borgsjö hembygdsgård. Photo: Tatyana Svetasheva

## The Wood Wide Web

**Kerstin Varenius is mycorrhiza researcher. She had a fascinating talk in March 2018 at the annual meeting of Sveriges Mykologiska Förening on the important ecosystem services of ectomycorrhiza fungi in the northern forests.**

See more information on the research by Kerstin Varenius: <https://www.forskning.se/2017/11/16/kalhuggning-stryper-energin-till-svamparna/>

The root system of a tree is often enlarged more than a thousand times thanks to the fungal hyphae. There may be 1–5 million root tips from one tree that are connected to the "fungus internet" down in the forest soil. Per square meter! This cooperation between fungi and green plants was a condition when animals and plants entered the land from the sea about 400 million years ago. Almost all plants have mycorrhiza, as common and important as we human beings have microbes in our stomachs. This co-habitation is essential for the growth and well-being of trees and other plants. Fungal networks are present in all ecosystems on earth.

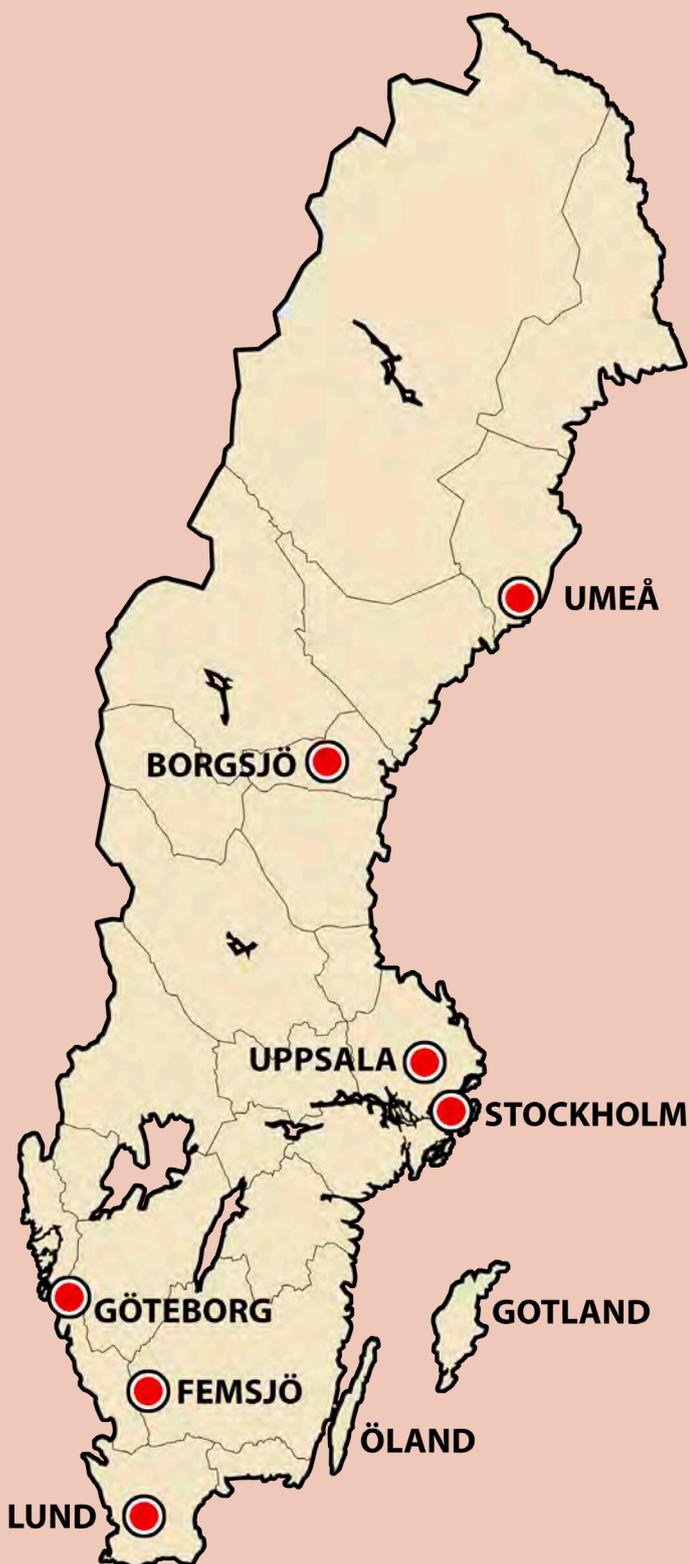
TED is a famous digital forum for scientific talks. See at TED Paul Stamets homage to the mushroom internet: [www.ted.com](http://www.ted.com), search for "six ways in which mushrooms can save the world" (text in various languages).

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 on the underground forest network. Another eloquent star on the mycorrhiza researchers heaven is Suzanne Simard at the University of British Columbia in Canada, who also gives TED speaks: [www.ted.com/talks/suzanne\\_simard\\_how\\_trees\\_talk\\_to\\_each\\_other](http://www.ted.com/talks/suzanne_simard_how_trees_talk_to_each_other).



# Sweden and Swedish mycology

Sweden is situated in northwestern Europe and has temperate, boreal and alpine ecosystems.



Elias Fries (1794–1878), often referred as the "Father of Mycology", was born in Femsjö, a small village in southwestern Sweden (see map). Sveriges Mykologiska Förening (SMF, homepage [www.svampar.se](http://www.svampar.se)), was established in Femsjö 1979 and is now in 2019 celebrating its 40 years. The promoters and initiators were the artist Rolf Lidberg and the troubadour Bengt Sändh. Following persons from Sundsvalls Mykologiska Sällskap visited the historical meeting in Femjö: Rolf Lidberg, Håkan Lindström, Hjördis Lundmark, Katarina Lundmark, Siw Muskos, Erik Olovson, Bo Söderström, Jan-Olof Tedebrand. We joined Nils Suber and others from the society Stockholms Svampvänner and collected together *Choironomyces venosus* in forest with aspen in the province of Sörmland before leaving for Femsjö. Jan-Olof was member of the board and secretary in SMF 1998–2005 when Mats Elfström and Kerstin Bergelin were presidents. SMF currently publishes Svensk Mykologisk Tidskrift (SMT), earlier named Jordstjärnan, with informative articles about Swedish mycology. Mats Elfström and Åke Strid were editors of SMF's review for many years. The present editor of the excellent review SMT is Mikael Jeppson, also an international authority on gasteroid fungi such as earthstars and puffballs. Many famous mycologists lives at the mycological fascinating island Gotland e.g Hjalmar Croneborg, president of SMF, and Michael Krikorev. Membership fee for SMF 2019 is 325 SEK for members in Sweden and 450 SEK for members abroad, see homepage [www.svampar.se](http://www.svampar.se)



Mikael Jeppson. Photo: Hjördis Lundmark





Participants at *Russulales* 2018, Borgsjö, Sweden. Photo: Håkan Sundin

## Participants



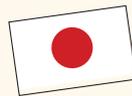
### Belgium

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



### Germany

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



### Japan

Yoshito Shimono  
Kazako Shimono  
Maki Sato  
Hiroatsu Sato



### Sweden

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



### The Netherlands

Jorinde Nuytinck



### Norway

Per Marstad



### Slovakia

Slavomir Adamčík  
Miroslav Cabon  
Sona Jancovicova



### Spain

José Maria Traba-Velay



### Bulgaria

Pavel Nedelev and his sister



### Greece

Ilias Polemis



### Finland

Tero Taipale



### Italy

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



# Welcome

## Welcome Speech by County Governor Berit Högman.



County governor Berit Högman at Erikslunds Folkets Hus 26 Aug. 2018. Photo: Hjördis Lundmark

### Dear guests

Welcome to Borgsjö, Ånge, Västernorrlands län.

You are here to talk, exchange experiences and learn more about:

- Mycorrhizal fungi, which are a determining factor for life on earth.
- Russulales, one of nature's essential ingredients for life.
- Dyeing wool with mushrooms.

And also to make friends.

These are some of the key words for this conference. I believe this is a very interesting mix of subjects and skill sets you all have come here to take part in.

I have understood that this is a meeting where amateurs and experts meet, we will call it a "get together", regardless of your level of knowledge.

These interests related to mushrooms may include eating, counting, understanding and categorizing, or to dye wool to create the most beautiful yarn.

Or—like in my case—to learn more.

I have picked berries my entire life, but where fungi are concerned, I am in fact

still an amateur. My father told me that mushrooms were food for animals, so the first time I went mushroom picking, I was already in my twenties. But even though I discovered mushroom harvesting later in life, I have always wandered through the forest, and I am interested in what grows in nature and how people can sustainably utilize nature's bounty.

I long for the first stinging nettles in the spring. The first ones are perfect for making soup. You boil them with water, butter, some salt and flour... and serve with an egg.

For the typical Swedish lady of my generation—making use of what is available is very important.

And, in fact, I am a typical Swedish old lady. A "tant", in Swedish.

A "tant" is usually full of wisdom, for example:

Bramble bush (åkerbär) – is difficult to find, but good for liqueur.

Wild strawberries (smultron) – contain hundreds of flavours.

Mountain ash berries (rönnbär) are small as peas, but just three of them contain your daily dose of vitamin C.

Just like "a typical tant" I can go on for ever and ever.

And if something unpredictable happens—a tant is prepared.....

What if suddenly we find ourselves in a situation where we cannot import or export food like we are used to?

We can, of course, never be totally prepared for everything, but there are things we can do.

One thing is to buy more locally produced food.

Another is to raise our awareness on how we would handle a situation where shelves in the grocery stores are empty.

Both as individuals and as a society, it is important to be prepared for situations we cannot foresee.

And as the typical tant I am, I keep both a backpackers cook stove and a dehydrator to dry berries and mushrooms.

The typical tant is not a shy person, she is wise and keeps calm and carries on. A "tant" possesses wisdom and experience.

We try at least!

These characteristics happen to be very useful even in the role as "landshövding" of Västernorrland.

An important part of my job is to promote all the good and precious things we have in this region.

And now I will mention some of the great things we have here:

We have 210 nature reserves, one national park, the High Coast world heritage site...

And we have the geographical center point of Sweden. It is called "Flataklocken", situated here in Ånge kommun, not far from where we are now.

Even though we are in the geographical center of Sweden, Västernorrland is still considered to be in the northern part of the country.

A person who doesn't know better might think that the landscape of the north is homogenous, with forests, lakes and mountains.

My response to that person might include the importance of our industries, or our lack of housing for people who want to live here. I would also add that Sundsvall is fast becoming Sweden's leading center of digital development, which is a great source of pride for the entire region.

That same person may also think that a forest is "nothing more than a bunch of regular trees", all looking the same,





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

standing next to each other.

Well I would have to prove them wrong. The proof can be found here, in this meeting.

I was told that every year during this meeting someone discovers something new, something never seen or discovered before!

Isn't that amazing?!

We who are gathered here today have

one important thing in common – whether we're experts or amateurs:

And that is we see the diversity of the forest.

But for more people to discover the hidden gems of this landscape, we have a job to do, to make them take the first necessary steps, on—or away from—the path.

To feel welcomed, tempted and stimulated by nature—that is what is crucial.

Otherwise we won't make use of the areas that are so important for all of us, for recreation, discovery, and for life itself.

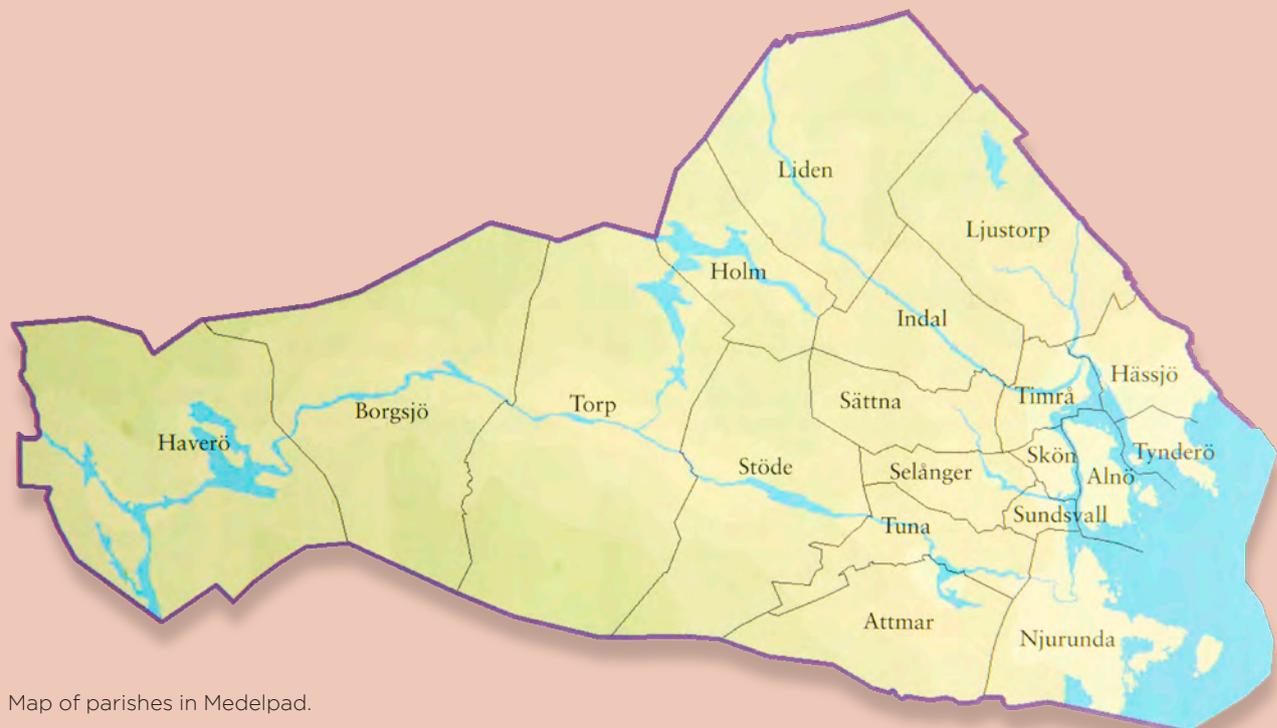
It is often said that for one to be an advocate for the natural world, one must have a relationship with it.

We must pass on our love of nature to future generations so they are willing to stand up for and save the last remaining wild places and resources we have.

Thank you very much!



# Parishes of Medelpad

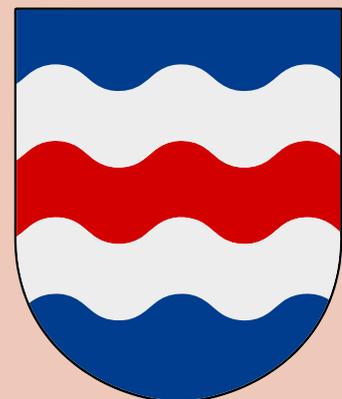


Map of parishes in Medelpad.

## 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.**

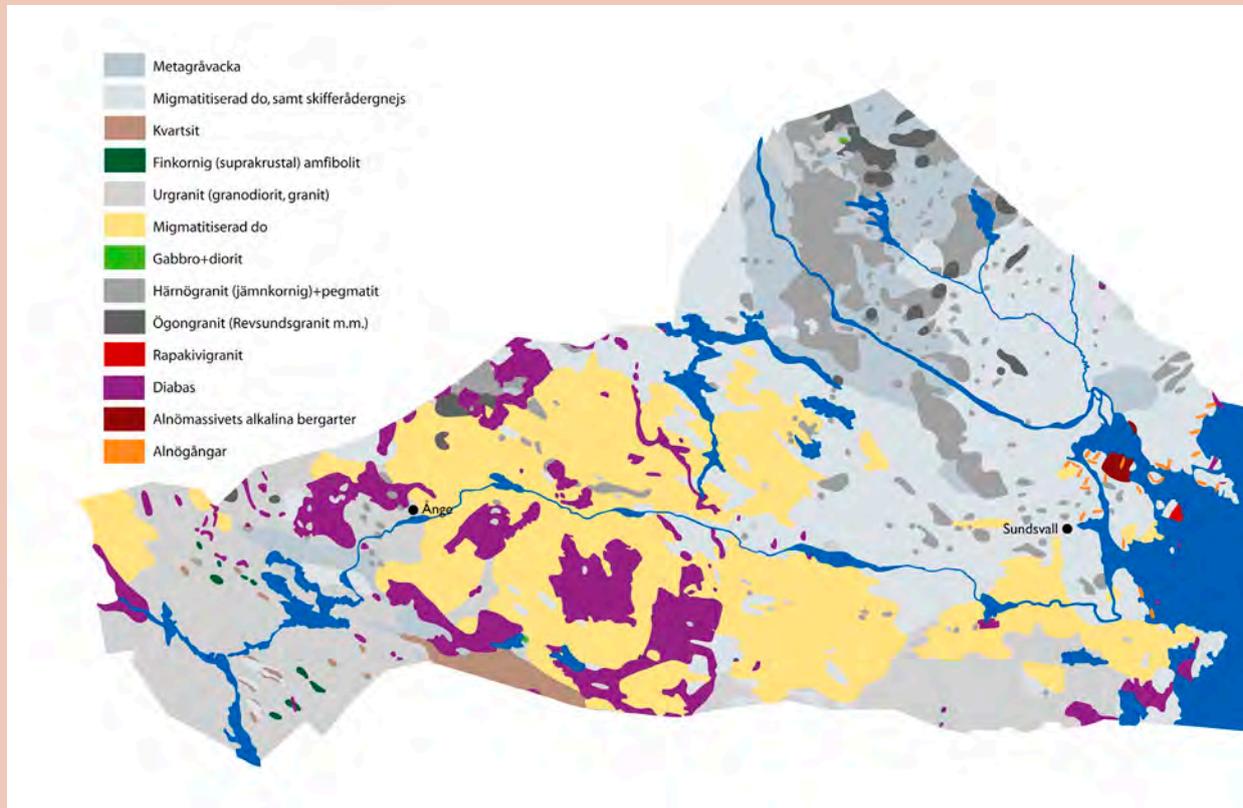
Medelpad is one of Sweden's 25 landscapes, which has the 13th largest area, 13th highest population density and 16th largest population. Of Northern Sweden's nine landscape, Medelpad has the second smallest area, the sixth largest population and the second highest population density. The largest length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



Medelpad  
coat of arms



# Geological Map of Medelpad



## Our excellent guides Bengt Larsson and Håkan Sundin

**Bengt and Håkan were guides during *Russulales* in Borgsjö. They can identify almost all creatures in nature: birds, butterflies, fungi including lichens, mosses, vascular plants.**

Bengt lives with his wife Lena in the Borgsjö valley. Some of their children now have their own families. During the warm and sunny summer 2018 Bengt made an inventory of butterflies at the request of Annika Carlsson at the county government of Västernorrland and Bodil Carlsson at the county

government of Jämtland. Håkan Sundin lives at the coast of Medelpad in the limestone district around the island Alnö with many rare and southern fungi species. Håkan is member of the board and cashier in Svensk Botanisk Förening. His wife Eva is president of Medelpads Botaniska Förening.





Birgitta Wasstorp and Åke Strid, two leading Swedish mycologists at the first workshop in Borgsjö 1982. Photo Hjördis Lundmark

### **Birgitta Wasstorp and Åke Strid**

Birgitta Wasstorp has been leader of many mycological weeks arranged by Sveriges Mykologiska Förening. Åke Strid is a honourable member of Sundsvall Mycological Society (Myko) and specialist on wood inhabiting crust fungi. He wrote his doctor's thesis in 1972 about "Wood inhabiting Fungi of Alders Forests in North-Central Scandinavia". Åke has also during decades been one of the editors of the review, published by Sveriges Mykologiska Förening. Åke has been a dear friend and scientific adviser to mushroom amateurs in Medelpad during his time as researcher at Umeå university and later at Naturhistoriska Riksmuseet in Stockholm. Åke visited, at an age of 87, the annual meeting of Sundsvalls Mykologiska Sällskap in april 2019. Birgitta and Åke have been very active in Stockholms Svampvänner, <https://www.ssv1879.se>

### **Flora Agaricina Neerlandica volume 7 presented at *Russulales* workshop in Borgsjö**

Flora Agaricina Neerlandica-volume 7 (2018) was presented during the *Russulales* workshop in Borgsjö with latest scientific news on families of agarics and boleti. More information and how to buy: email: [lidiacandusso@libero.it](mailto:lidiacandusso@libero.it) and <http://edizionicandusso.it>

Full text of the book: Flora Agaricina Neerlandica-volume 7 (2018). Critical revisions of families of *Agarica* and *Boleti*. Boletales by Machiel E. Noordeloos, Henk C. den Bakker and Sietse van der Linde.

*Russulales* part 1 by Annemieke Verbeken, Jorinde Nuytink and M.E. Noordeloos (*Lactarius* & *Lactifluus*), page 632, photocolor, 154 drawings.

### **Some literature about *Russulales***

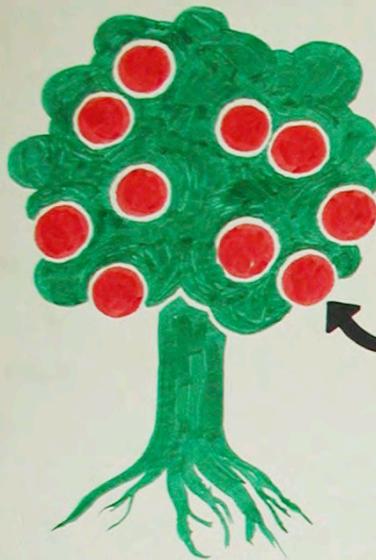
References are given to some literature at the end of this report. The Swedish mycologist Mats Adolf Lindblad (1821–1899) defended in 1855 an academic thesis about *Lactarius*: Monographia Lactiarum Suecicae. Lars Romell (1854–1927) was another Swedish mycologist who studied *Russula*. Henri Romagnesi published in 1967 his magnum opus on *Russula* in Europe and Northern Africa (49). Since then much has been written about European and Northern *Russulales* especially by Mauri Korhonen, Ilkka Kytövuori, Juhani Ruosalainen and Jukka Vauras. A good book on "Lactarius in Northern Europe" was published in 1998 by Jacob Heilmann-Clausen, Annemieke Verbeken and Jan Vesterholt in the Danish serie Fungi of Northern Europe (14). See also reports from the *Lactarius* workshop in Borgsjö 1997 and from the *Russula* workshop in Borgsjö 2001 at homepage [www.myko.se](http://www.myko.se), links "Publikationer" and "Borgsjörappporter". Pilze der Schweiz/6 deals with *Russulaceae* (2004) with descriptions and photos of 82 *Lactarius* species and 136 *Russula* species occurring in Switzerland. Mauro Sarnari from Italy participated in the Borgsjö workshop 1997. He wrote two books on *Russula* (1998, 2005) with preface of Bart Buyck. Mauro quotes many collections from Jämtland and Medelpad. Maria Teresa Basso visited Borgsjö in 1997. She published in 1998 a magnificent book on *Lactarius* and quoted collections from Jämtland and Medelpad. Maria Teresa found 22 species of *Lactarius* at Sidsjö in Bodsjö parish on 4 Sept. 1997!

In 2002 Birgitta Wasstorp, Håkan Lindström, Hjördis Lundmark, Jan-Olof Tedebrand described all known *Russulas* from Jämtland and Medelpad (33). Funga Nordica (2012) is excellent. But we look forward to an updated version now in the DNA era. Our Norwegian friend Per Marstad published "Russula in the nordic countries" with short descriptions and photos of 142 Nordic *Russulas*, for more information contact Per at [p.marstad@broadpark.no](mailto:p.marstad@broadpark.no). Many *Lactarius* and *Russula* species are good edible mushrooms. A popular Swedish book on edible mushrooms is "Nya Svampboken" by Hans Marklund and Pelle Holmberg.

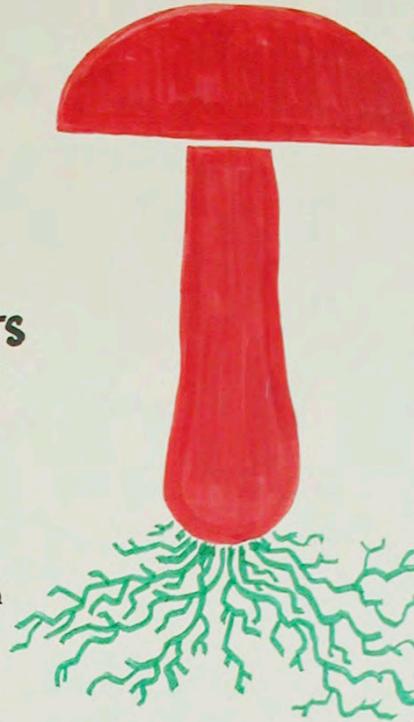
### **Fungi of Temperate Europe by Thomas Læssøe and Jens H. Petersen**

*Lactarius* and *Russula* species are described on pp. 372–447 in Fungi of Temperate Europe (FTE) with Jens H. Petersen's wonderful photos. FTE is among the most comprehensive mycological books ever published! Featuring more than 7,000 photographs, this lavish two-volume set treats more than 2,800 species of fungi across the region. Including agarics, boletes, chanterelles and morels but also more obscure

# VAD ÄR SVAMP?



TRÄDETS FRUKTKROPP

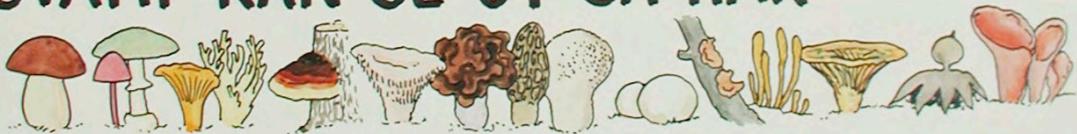


SVAMPENS FRUKTKROPP

DEN EGTLIGA SVAMPEN (MYCEL)

MAN KAN LIKNÄ DEN UNDERJORDISKA SVAMPEN (= MYCELET) MED ETT ÄPPELTRÄD. DET VI PLOCKAR ÄR ENDAST FRUKTKROPPARNA (ÄPPLEN och "SVAMPAR")

## SVAMP KAN SE UT SÅ HÄR



## ...MEN ÄVEN SÅ HÄR



Vad är svamp? Drawing by Rolf Lidberg





Minimal exhibition. Photo: Hjördis Lundmark

groups such as cyphelloids, cup fungi, pyrenomycetous fungi and hysterioids, this guide takes an unprecedented broad approach at communicating fungal diversity. All species are illustrated with one or more photographs and information on morphology, ecology and distribution within temperate Europe is given. Furthermore, 1,500 + species are discussed as potential look-alikes. The books are divided into 80 "form groups" each starting with an innovative comparison wheel with guiding photos, distinguishing characteristics and drawings of essential microscopic features. Poisonous and edible species are colour coded within the text.

Thomas Læssøe is a mycologist and senior researcher at the Natural History Museum of Denmark. He has previously been a senior scientific officer at the Royal Botanic Gardens, Kew and associate professor at the University of Copenhagen. He is the author of several guide books. Jens H. Petersen is a mycologist, graphic designer, and photographer. He taught mycology at Aarhus University for more than 20 years and is the author of *The Kingdom of Fungi* (Princeton). Petersen and Læssøe co-created the online identification tool MycoKey.

### **Eight Danish mushroom boys and Machiel Noordeloos took over the apartment of Hjördis and Berthold!**

Danish mycologists have visited us several times in Medelpad. In august 1986 eight Danish boys and Machiel Noor-

deloos from the Netherlands followed us to Medelpad after a Nordic Mycological Conference in Korpilampi, Finland. They lived in the apartment of Hjördis and Berthold Lundmark who understably ran away to their summer house!

### **Siw Muskos lead us to *Larix* forest with *Lactarius porninensis***

We spent some wonderful days in 1986 together with our Danish friends and Machiel on meadows and in forests during a fantastic peak in the mushroom season. The group found a rare *Tricholoma* whose name today is *T. boreosulphurescens* under *Betula* in moist limerich soil at Kokkerabacken in Stöde parish. They found *Xeromphalina fraxinophila* var. *fraxinophila* under old aspen trees at Granbodåsen (C). Siw Muskos took the group to a *Larix sibirica* forest in her home district in Tuna parish with finds of *Lactarius porninensis* (coll. and photo Rald) and a *Hebeloma*, later described by Jan Vesterholt as *Hebeloma monticola* (type locality). On 29 Aug. 1986 Jan wrote a long letter to Hjördis and Siw Muskos about the exciting *Hebeloma* collection and thanked "for deres gaestfrihet og for att i viste os jeres spaennnende svampelokaliteter". Siv made a painting of *Hebeloma monticola*. Erik Rald collected rare fungi on semi-natural grasslands such as *Dermoloma josserandii* at Gammelbodarna in Borgsjö and *Hygrocybe glutinipes* in the memorial park at Borgsjö churchyard. Wonderful memories!





The group that finished "Medelpads Flora" gathered in 2009 at "Trollbyn" in Järkvissle, the home village of Rolf Lidberg. From left: Hjördis Lundmark, Gösta Åslund, Lage Sandgren, Gudrun Fredén, Jan-Olof Tedebrand, Bernt Persson, Olof Svensson, Håkan Sundin, Stefan Grundström, Håkan Lindström, Eva Sundin, Bengt-Gunnar Jonsson. Photo: Anders Andersson

## Vicarage and later Saint Olof's inn-popular center for Botanists and Mycologists

Saint Olof's inn was central meeting point during many mycological workshops in Borgsjö. Eef Arnolds collected in 1987 *Hygrocybe acutoconica* var. *konradii* at the lawn outside the inn. In older times the house was vicarage for the priest and his family.

Rolf Lidberg tells us on page 70 in "Medelpads Flora" (2010) that the famous Swedish botanist Gunnar Samuelsson (1885–1944) often visited the priest's family: "Här skall nu emellertid avslöjas att Samuelssons botaniska karriär faktiskt började i Medelpad-vid Borgsjö prästgård 1895! Där samlade nämligen den då 10-årige Gunnar växter bl.a. knottblomster *Microstylis monophylla*. Sedan återkom han till prästgården flera gånger under sina unga år och fortsatte sitt idoga samlande. Samuelssons besök gällde i första hand prästgårdens invånare, kyrkoherden Karl Theodor Åberg, hustrun Anna Margareta (född Senell) som var Gunnars

moster, och alla prästgårdsbarnen-Gunnars kusiner. Två år före sin död (1942) återsåg han Borgsjö prästgård och även *Microstylis*-han nöp ytterligare några exemplar." *Microstylis monophylla* is one of Sweden's rarest orchids according to Michael Löfroth in Svensk Botanisk Tidskrift 17/1997. We find *Malaxis* in Borgsjö, sometimes in the same nature type as *Amanita friabilis*: swampy *Alnus* forests. A famous "drive-in place" for *Microstylis* is the roadside along highway E14 at Råabäcken, our best moist lime meadow (kalkfuktäng) with the only site in the county for the vascular plants *Sesleria uliginosa*.





Rolf Lidberg and Hjørdis Lundmark in 1982 at Saint Olof inn. Photo: Kjell Olofsson

### **Hans Marklund and Siw Muskos started mushroom education in 1980**

Hans Marklund and Siw Muskos started in 1980 education in "Allmän svampkunskap" (common knowledge about mushrooms) at Saint's Olof inn, Borgsjö. In 1982 Hans and Siw continued with a course in "Allmän Svampkunskap" at Hussborg inn near Borgsjö.

### **Botanical weeks on vascular plants organized by Rolf Lidberg and Håkan Lindström**

In 1982 and 1983 Rolf Lidberg and Håkan Lindström organized several botanical weeks in western Medelpad where amateurs and experts on vascular plants made inventories in different nature types. Among wellknown participants were Nils Dahlbeck. He was an early pioneer in Swedish nature conservation, employed by the Swedish Society for Nature Conservation. Nils also initiated the Swedish World Wildlife Fund (WWF). He had for many years a popular nature program called "Naturen och Vi" on Radio Sweden.

### **Medelpads Flora about vascular plants-an excellent guide to the nature in Medelpad**

During more than 40 years we visited, together with Rolf Lidberg and Håkan Lindström, different nature types in every parish and almost every village all over our native landscape Medelpad.

We noted down facts on vascular plants but also on fungi. Medelpads Botaniska Förening was established in 2005. Then we had winter meetings together with our professional ecologist Bengt-Gunnar Jonsson at Mid Sweden University in Sundsvall resulting in the magnificent book "Medelpads Flora" (2010) with wonderful paintings by Rolf Lidberg and text by Håkan Lindström on exact ecology for vascular plants just here in Medelpad. We continue today around 2020 with inventories of vascular plants every summer with Bengt-Gunnar as leader from the Bothnian coast to the highlands in Haverö parish ("the roof of Medelpad") in the west.

### **Meinhard and Tor Erik - king and crownprince in the kingdom of *Cortinarius***

In 1982 Sundsvall Mycological Society received an offer to organize the annual Swedish mycological week. Carina Eriksson, Rolf Lidberg, Håkan Lindström, Hjørdis Lundmark, Siw Muskos, Jan-Olof Tedebrand and Jan-Ola Wimo decided to place the mycological week in Borgsjö. We had in 1982 one course on general mycology with Gro Gulden and Bo Nylén as leaders and one course on *Cortinarius* with Tor Erik Brandrud and Meinhard Moser as leaders. Meinhard and Tor Erik were like father and son, king and crown prince in the kingdom of *Cortinarius*. We remember when Meinhard proudly showed his find of the beautiful *Mycena oregonensis*. He was happy as a child





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

despite its white spore print! We continued in 1983 with a *Russula* workshop and Henri Romagnesi as invited expert. We became fascinated by *Russula* and invited our Danish friend Henning Knudsen to lead yet another *Russula* week 1984 in Borgsjö. We remember with joy many pleasant mycological talks inside and outside old Saint Olof inn.

### **Cortinarius Flora Photographica (CFP)**

The first workshop in 1982 with Meinhard Moser and Tor Erik Brandrud was the starting point for the project *Cortinarius* Flora Photographica (CFP) resulting in five volumes co-published in four languages 1988–2018. *Cortinarius* workshops with Tor Erik as leader also took place in 2003, 2010 and 2016. The genus *Russula* has been theme for workshops in 1983, 1984 and 2001. We summed up our knowledge on *Russula* in an article: Lindström, H., Lundmark, H., Tedebrand, J.-O. & B. Wasstorp 2002. Släktet *Russula* (kremlor) i Mittsverige. *Jordstjärnan* 23(3): 4–39, 2002. Some other ectomycorrhiza forming genera have also been studied: *Inocybe* (1989), *Leccinum* (1993), *Tricholoma* and allied genera (1995), *Hebeloma* and *Lactarius* workshop in 1997.

Fungi on old grasslands was the main theme for workshops on *Entoloma* (1985) and on *Hygrocybe* (1987). We also looked on fungi in semi-natural grasslands with Johan Nitare as leader in 1989. We summed up our know-



Michael Krikorev and Tor Erik Brandrud at the European *Cortinarius* meeting in Borgsjö 2016. Photo: Hjärdís Lundmark

ledge on meadow fungi in an article: Lindström, Nitare J., Tedebrand, J.-O. 1992. Ängens svampar. En sammanfattning av 1980-talets inventeringar i Medelpad. *Jordstjärnan* 13 (2): 3–54. *Polyporales* fungi and corticioids on dead wood was the focus in 1986 with Leif Ryvarden and other wood fungi researchers. Fungi and nature conservation have been a theme during all workshops in Borgsjö. Fungi collections have since 1982 been deposited in European herbaria. Many





Mor vid källaren 1920. Photo by Gullik Gulliksson. Gullik Gulliksson (1894–1983) was farmer in the village Sillre norra, Borgsjö parish. Photo owner: Västernorrlands Museum

articles have been written on interesting fungi found in our excursion area. Reports from 7 Borgsjö workshops 1995–2018 are digitally available at [www.myko.se](http://www.myko.se)

### **Hans Rydberg: "many visits necessary to find mycorrhiza fungi of high value for nature conservation"**

Hans Rydberg, wellknown botanist and mycologist, emphasize in an article that many visits is necessary to find fungi that indicate valuable forest nature (56). Jörgen and Mikael Jeppson studied 1974–2014 fungi in forests on limestone at Näsmarkerna nature reserve in Örebro county (Länsstyrelsen Örebro län, report 2016:13). We still find new interesting fungi, in spite of many earlier visits, at sites like Granbodåsen. Julåsen and Storvålen!

### **Ånge municipality**

80 years ago Ånge municipality had about 19 000 inhabitants. Today Ånge has about 9300 inhabitants, just a few inhabitants per square kilometer. The Netherlands has 417 inhabitants per square kilometer. Ånge has from east to west three old parishes: Torp, Borgsjö and Haverö. The socialdemocrats are in power not least due to Sten-Ove Danielsson, a popular leading politician the last twenty years. Now in September 2019 Ånge received a hard message:

the saw mill at Östavall in Haverö parish will shut down in summertime 2020 and many people will lose their jobs.

More information about Ånge at home page: [www.ange.se](http://www.ange.se) and <https://valkommen-hit.se/en/ange/start>

Municipalities in different parts of Sweden whose economies are based mostly on agriculture and forestry have for a long time experienced population decreases. Young people leave, old people stay. The big forest industries and the big saw mills are situated like a string of pearls along the coast of the Bothnian bay. Saw mills like Callans Trä in Ånge are still important and provides inland jobs.

### **Naturum Ånge**

Many of the new jobs will, according to researchers, come in private and public service such as care sector and education, in industries with production of sophisticated products and also in culture and nature tourism. Naturum Ånge should develop like Skule Naturum in the north part of the county Västernorrland. Ånge and Borgsjö are perfect situated along highway and railway Sundsvall-Östersund-Trondheim. Naturum has an important role to inform about local culture and nature. Tourism is a growing branch of business and give already most jobs in Jämtland. The number of people walking along the pilgrim road is increasing. The popular Slöjdmuseet in Västanå should perhaps move to Naturum.





Skogsstämpling i Åskullen 1930. Pappa vid prickbrädan. Photo: Gullik Gulliksson. Photo owner: Västernorrlands Museum.

## Some historical aspects on our excursion area

The big changes in agriculture and in forestry the last hundred years have influenced the composition of the funga. Meadow plants were, as an example, common about one hundred years ago according to landscape books about vascular plants in Medelpad (1909) and in Jämtland (1938). A historical approach to our excursion area is essential for understanding the situation today and in the future.

### The saw mill industry

Two hundred years ago Sweden had about 800 ironworks. There were also many ironworks in Medelpad among others Galtström, founded in 1673, and Torpshammar, near Borgsjö, founded in 1797. Much charcoal was needed from the forests around the ironworks. The saw mill industry started about 150 years ago. The region around Sundsvall became the greatest saw mill district in Europe. Large pine trees were taken away from old forests mostly influenced by fires, storms and grazing by cattles and reindeers.

The history of Sundsvall saw mill district and surrounding areas is described in three volumes of "Sundsvalls Historia" with editor Lars-Göran Tedebrand and many co-writers (73). Many saw mills were also established along the railway to Jämtland during the latter part of the nineteenth century. The proletarian writer Karl Östman has written on the life for forest and saw mill workers during this dramatic period in the local history of Jämtland and Medelpad (70).





Ol-Gulles mor vid äppelträdet 1923. Photo by Gullik Gulliksson who lived in the village Sillre norra. Photo owner: Västernorrlands Museum.

### Slåtthornet and Tunsved nature reserves with interesting lime demanding fungi

Bräcke municipality, west of Ånge, has today about 6300 inhabitants, about 2 inhabitants per square kilometer. During the mycological workshops in Borgsjö we have often excursions to sites in Bräcke municipality in the old parishes Bodsjö, Bräcke, Hällesjö and Revsund. At Tunsved nature reserve along highway E14 we have found calciphilous fungi such as *Cortinarius blattoi*, *C. ectypus*, *Hygrophorus purpurascens*, *Russula aurea*, *olivobrunnea*, *Sarcodon marioflavus* and *Ramaria* species. Göran Eriksson from the county government of Jämtland guided 24 Aug. 2010 Herbert Kaufmann, Tobias Fröslev, Barbro Otterstedt and others to Slåtthornet nature reserve with many interesting finds like 6 *Ramaria* and 23 *Russula* species, see pp. 63–64 in the report: [www.myko.se/wp-content/uploads/2014/06/2010-Femtonde-Borgsjöveckan-Jubileum.pdf](http://www.myko.se/wp-content/uploads/2014/06/2010-Femtonde-Borgsjöveckan-Jubileum.pdf)

### Mycologists use the ferry from Stavre to Ammerön during Borgsjö workshops

We have often passed the village Stavre on our way to mycological hot spots in Jämtland like Fillstabäcken, Storvålen and Tysjöarna. We have also taken the ferry boat from Stavre to the island Ammerön in Revsundssjön. At Ammerberget Anita Stridvall in 2010 made a list of 113 fungi species, many belonging to the finest lime forests like *Hydnellum auratile*, *Russula aurea* and *Tricholoma olivaceotinctum*. Anita listed eight species in the genus

*Hygrophorus*, typical for rich forests and slopes in the lime district of central Sweden.

### The historian Mats Rolén

Mats Rolén has in several books written on the history of Jämtland and Härjedalen, the Revsund district, building of railways, the early forestry (47,48). Just now Mats Rolén is writing a book about the village Stavre along highway E14. The mother of Jan-Olof and Lars-Göran Tedebrand lived in Stavre in her youth. Berit Rodling-Martinsson, a wellknown Swedish amateur mycologist in Västerås has her roots in Stavre. The book of Mats Rolén about Erik Olof Sundin (1849–1930) in Stavre tells us not only about a farmer son who started with forest- and horseaffaires but also describe a dramatic historical period suitable for a long TV-serie. The magnificent building Sundingården in Stavre is today a popular tourist place along the pilgrim route, see homepage:

[https://www.bracke.se/besokare/upplev/museer/sundingarden.4.5c941007162f6338fa56d8c3.html?fbclid=IwAR3uMkOCnRSkk3J0V9nGNkUrmUKHutqZvNcc8-F\\_SF3\\_2USsRWkw8zePJcoad](https://www.bracke.se/besokare/upplev/museer/sundingarden.4.5c941007162f6338fa56d8c3.html?fbclid=IwAR3uMkOCnRSkk3J0V9nGNkUrmUKHutqZvNcc8-F_SF3_2USsRWkw8zePJcoad):

### Giant, old pine trees

Mats Rolén tells us about forestry 100-150 years ago in Jämtland and Härjedalen (47, 48). Big pine trees, often more than 500 years old and more than 50 cm in diameter, were felled during this "forest gold rush". Mats Rolén describe





Happy mycologists waiting for the ferry from Ammerön to Stavre in 2010: Anne Molia, Stig Jacobsson, Anita Stridvall, Kjell Olofsson, Kill Persson. Photo: Kjell Olofsson.

how Erik Olof Sundin 1890-1915 bought and sold forests in western Medelpad and along the railroad in central and western Jämtland. In 1906 a new law prohibited companies to buy private farms and forests. In 1929 the forest company SCA was established. The early history of SCA is described in the book "SCA-50 år-studier kring ett storföretag och dess föregångare" (Sundsvall 1979). The forest researcher Anders Staaf (1916–2003) made an interesting speech at the old historic yard in Borgsjö on 7 July 1968 about forestry in the Borgsjö area, see Borgsjöbygden 9 (1969), pp. 33–48.

### Beautiful old wooden houses

During the mycological workshops in Borgsjö we sometimes have guided trips along the local road east of our working hall at Erikslunds Folkets Hus and admires beautiful, old wooden houses built about 150 years ago. A tourist way telling us much about old times in Borgsjö. We visited earlier the late Jan Abramsson in the village of Ö together together with Rolf Lidberg. The family of Jan lives in a fantastic wooden building from 1888, almost like a castle. We also use to arrange visits during mycological weeks to "Västana slöjdmuseum" where Roger and Ronnie Sundin show us their father's fantastic wooden sculptures presenting the daily life in the old farmer society.

### Emigration to North America

The economic and social development in Bräcke municipality the latest centuries, described by Mats Rolén, has many similarities with the history of Ånge. Both municipalities have, like many external parts of Europe and Sweden, suffered of out-migration of young people to expanding

urban areas. The historian Lars-Göran Tedebrand has written about the big emigration from Västernorrland county to North America 1875–1913 (72).

### Green highway, hydroelectric, solar and wind energy-important part of the future

Sweden as a country use today 145 Twh electricity and produce 170 Twh electricity. Much electricity power is produced in Ånge municipality by hydroelectric power and wind parks. "The green highway E14" with chargers for electric cars from the Botnian coast to the Atlantic ocean give both Bräcke and Ånge a strategically central position. The famous Ångström family has their roots in Ånge. Today researchers at Ångström Center at Uppsala University are world leading in advanced future technology for batteries and strongly expanding electric solar energy. The Swedish Nobel prize in chemistry 2019 was awarded to battery researchers. Solar and wind power (zero-carbon energy sources) are the safest, easiest, and cheapest ways to cut greenhouse gas emissions and can be stored in batteries. See fascinating information about battery researcher Kristina Edström, professor in chemistry at Ångström Advanced Battery Centre in Uppsala: [www.kemi.uu.se/research/researcher-profiles/kristina-edstrom/](http://www.kemi.uu.se/research/researcher-profiles/kristina-edstrom/)

See also information on Vesta Si, a silicon (kisel) factory in Ljungavärk, Ånge, with big plans for the future in solar energy and peak technology for batteries in cooperation with Mid Sweden University: <https://www.svt.se/nyheter/lokalt/vasternorrland/industrijatte-storsatsar-i-ljunga-verk-utvecklar-banbrytande-energiteknik>.



Global Warming is a reality, It shows not only melting iceberg at Arktis. Vegetation zones are now moving northwards in Sweden with about 5 to 10 kilometers per year. Photo: Alto Crew on Unsplash

# Climate change and biological diversity

United Nations climate panel, IPCC, published a report on global climate in 2013 based on tenth of thousands with scientific publications. The next big report by IPPC will come in 2021.

The message is clear from the climate researchers: global warming is a fact resulting in a warmer weather. Alistair Auffret at the Swedish University of Agriculture Sciences has studied plants and climate change in the provinces of Bohuslän, Öland, Uppland and Medelpad. He says that southern plants will slowly move towards North in a warmer and more wet climate. But he also stress that changes in agriculture and forestry and foreign invasive species also have an influence on species composition in the Swedish landscape. The average temperature in Sweden is today 1.7 degrees higher than in preindustrial time. The vegetation period has become one month longer in Abisko, northern

Sweden the last hundred years. According to Swedish SMHI (report 35, 2015) the increase may be 3–6 degrees warmer than today in Jämtland and Medelpad around the year 2100 which will give 1–1 months longer growth periods. During the last warm period 5000-3000 BCE hazel and southern broadleaved trees like *Tilia* appeared west to Haverö parish in Medelpad. Hazel nuts are found in Haverö fens.

## Have southern fungi moved north in the last decades?

During the Swedish mycological week 2014 in Timrå many southern fungi were found. Mats Karlsson and Mats Otto





Jeanette Södermark and Margareta Byström. Photo: Hjärdís Lundmark

Nilsson placed a beautiful collection on the foray table of typical *Russula violeipes* from the wet lime stone marshes south of the wooden planks at Stornäset nature reserve with lime present in the bedrock where the climate is mild due to the proximity of the sea. According to Artportalen *R. violeipes* have 111 finds from Skåne, 41 from Västergötland and 2 from Småland. We don't know if *R. violeipes* has been at Stornäset for a long time or if it has moved to Medelpad in recent time. The southern *Russula illota* was found in the broadleaved forest on limestone at Stornäset in 1991 by Hans-Gunnar Unger and others. Siw Muskos found the southern *Russula sardonica* (det. Stig Jacobson) under old pine on limerich shells at Bergafjärden, Njurunda parish. We have sometimes during mycological weeks visited the calcareous, herb-rich slopes at Sundsjöåsen nature reserve near the river Indalsälven and found southern species like *Entoloma placidum*. A detailed study of fungus data in Artportalen should perhaps answer the question in the headline above.

#### ***Lactarius pyrogalus* and *Russula odorata* follow their host trees northwards**

We know that many southern ectomycorrhizal fungi follow their host trees up north. In 2014 Herbert Kaufmann found *Russula odorata* under *Quercus* in the park of Åvike Bruk at the coast of Medelpad. Håkan Lindström and Jan-Olof found *Boletus reticulatus* under old *Quercus* in a park at Tunadal in Skön parish. Rolf Lidberg and Håkan Lindström saw *Lactarius pyrogalus* with hazel at Hattberget in Liden parish, the most northwest site for hazel in Sweden. Some truffle fungi also seems to follow *Corylus* and *Tilia* to the north but truffles are still little known. Southern "Öland fungi" appear in mild coastal sites in the lime stone area around Alnö island like gasteroid and *Lepiota* species. Håkan Sundin almost every year find interesting plants and fungi on limestone at Tynderölandet north of Alnö.

Jeanette Södermark made a sensational record of a "Öland fungus", *Limacella vinosorubescens*, on limestone at Bergaforsen during the Swedish mycological society week in Timrå 2014.

#### ***Laetiporus sulphureus* (svavelticka) at Skarpbäcken in Borgsjö-effect of a warmer climate?**

Vegetation zones in Sweden are today moving northwards with about 5 to 10 kilometers per year. We had an extremely dry and hot summer weather in 2018 with no rain from mid april until the 20th of July. But then much rain fall over our excursion areas in western Medelpad and in Jämtland. Some fungi favoured by hot summers like *Boletus edulis* and *Imleria badia* appeared in big number from mid august until the beginning of september. Anita Stridvall and the group from Västergötland found *Laetiporus sulphureus*, *Lepiota cortinarius* and *Postia guttulata* at Skarpbäcken in Borgsjö. We have visited Skarpbäcken many times before but never seen these southern species!

#### **The southern *Lactarius evosmus* was found in Östersund after the hot summer 2018**

We also made a sensational find of the southern *Lactarius evosmus* under *Populus* at limestone in Lillskogen park in Östersund. The southern *Boletus satanas* ("djävulssopp" in Swedish) appeared 2018 in a park in Uppsala. The hot summer weather in 2018 is perhaps the reason why this rare, southern species formed fruitbodies in Östersund and Uppsala. Jens H. Petersen discuss in the Danish review Svampe 79/2019 "Rörehattexplosionen" in Denmark and give us facts about distribution earlier as well as today for 20 species of *Boletales*. His conclusion is that the impact of the climate on nature and biological diversity is complicated. We can not say clear that southern species have moved northwards because of a warmer climate. But Jens



says that one *Boletus*, *Aureoboletus projectellus*, now is violently spreading along the coasts of the Baltic sea. How to explain this fast distribution of a single fungi species?

### ***Postia guttulata* and *Pycnoporellus fulgens* are rapidly increasing in Denmark**

Spores of fungi are typically wind disseminated. Most spores land a few meters from the source but can also spread over long distances. In the book "Danmarks Svampeatlas" (2019) data on the distribution of fungi in Denmark is discussed at pp. 95–97. *Postia guttulata* was found in 1992 for the first time in Denmark. Today it is known all over Denmark. *Pycnoporellus fulgens* occur on dead wood with brown rot caused by *Fomitopsis pinicola*. The first Danish record is from 1999. *Pycnoporellus fulgens* is now spreading rapidly all over Denmark but it is still rare in Jutland.

The sensational finds of Kurt-Anders and his friends along Skarpbäcken in 2018 was interesting. In spite of many visits to Skarpbäcken we have never seen *Laetiporus sulphureus*, *Lepiota cortinarius* and *Postia guttulata* before. Have they been all the time at Skarpbäcken and just formed fruitbodies because of the extreme hot summer 2018? Or have they spread to Skarpbäcken during recent years?

Perhaps spores of *Laetiporus sulphureus* came to Skarpbäcken with winds during the hard storms in 2011 and 2013? But anyhow, we know that they must have come to Skarpbäcken with winds from remote places.

### **Anders Dahlberg about spreading capacity of fungi**

We know that many birds and butterflies have expanded towards the North during the last decades. But we have few facts on fungi that have moved northwards. More interesting for the composition of the funga in Medelpad and Sweden are perhaps changes in farming and forestry. Old semi-natural grasslands and grassland fungi disappear when forest trees take over. Anders Dahlberg is an ectomycorrhiza researcher. He follows the latest research about climate change and spreading capacity of fungi. Anders say in mail on 12 Sept. 2019: "It is a common misconception that fungi easily disperse long distances by spores. They certainly have a high potential to disperse as every sporocarp produce many millions, sometimes billions, of spores. However, the vast majority are deposit within single meters and the very few spores transported longer have to compete with many millions of locally produced and deposited spores and therefore have a negligible low probability to establish. Germinating spores are efficiently outcompeted by established mycelia. This is an exciting area waiting for discoveries, as the knowledge of at what conditions and frequencies spores establish is almost zero. However, also events with infinitesimal low probability may rarely happen. It is tricky to figure out history of newly recorded species, as the ones at Skarpbäcken, as they can have

been present as mycelia many years without fruiting. The time is limited for wood-inhabiting fungi as they cannot be older than the age of the wood. For example, mycelia of *Phellinus nigrolimitatus* seems to be present in many logs in northern Sweden but is only fruiting at later stages of old wood decay. On the other hand, soil-dwelling fungi such as *Cortinarius* may be present as mycelia for long periods without fruiting and not detected. Analyzing almost 10 millions fungal records between 1970 to 2010 from several European countries, professor Håvard Kausarud in Oslo and his colleagues found the fruiting season of fungi steadily increasing and concludes the cause to be longer vegetation season due to climate change. This will cause the distribution of species gradually to move northwards. An example of this is the pine fungal parasite *Diplodia*, common in Central Europe, that recently was discovered close to Stockholm and now has been observed at several places in Sweden."

### **Egil Bendiksen has studied the succession of fungi**

There is important with both small and vast protected areas in a forest landscape where trees are allowed to be very old. Then mycorrhiza fungi can spread to surrounding younger forests. The mycorrhiza researcher Kerstin Varenius stress the importance of leaving groups of trees at clear-cut areas instead of single trees. The Norwegian mycologist Egil Bendiksen is *Cortinarius* expert and workmate to Tor Erik Brandrud (they call themselves "the *Cortinarius* brothers"). Egil has studied the succession of fungi (fruitbodies) in young, middle aged and old forests. Egil will perhaps as pensioner publish his great work on fungi establishing and fungi succession.

### **Fires, floods and storms**

Disturbances like fires, floods and storms are, to a certain extent, normal and positive for biological diversity in the northern taiga region along the Arctic Ocean. But causes much suffering for many people. In 2000 enormous floods took place in central Sweden. The Ljungan valley became famous all over Sweden. The Swedish king traveled by air along Ljungan river from Sundsvall to Ånge. Severe storms took place in mid Sweden both in 2011 and in 2013. Many old *Picea* monocultures in central and northern Europa are today damaged by the beetle *Ips typographus*. Mixed forests with more of broadleaved trees like aspen, birch, mountain ash and sallow will be necessary in the future to resist fires, floods and storms in a warmer climate without ground frost in winters. More of broadleaved trees and pine are also good for thousands of forest species. Damages on pine will also diminish when elk and deers can eat broadleaved trees. Today there is almost no young pine trees in the southern half of Sweden according to Christer Kalén at the Swedish Forest Board.





*Ramaria longispora* Christan, Gotlandsfingersvamp. Gotland, Brucebo nature reserve 2011. Photo: Hjördis Lundmark

## Nordic Mycological Conference, Gotland 2011

Egil and Katriina Bendiksen in Brucebo nature reserve at the Nordic Mycological Conference, Gotland 2011. They visited 29 Sept. 2011, together with Hjördis, Brucebo nature reserve north of Visby. Hjördis found a *Ramaria* that Egil and Katriina sequenced and identified as *Ramaria longispora* Christan, even today the only Nordic finding. Johan Nitare named it "gotlandsfingersvamp" at pp. 254 in the book "Skyddsvärd skog" (44). Hjördis like *Ramaria* species. She found *Ramaria schildii* in *Picea* forest along the river Indalsälven in Medelpad together with Jens H. Petersen on 23 Aug. 1995.





Happy mycologists at the *Lactarius* workshop in Borgsjö 1997: Inga-Lill Franzén, Siw Muskos, Magnus Källberg, Birgitta Hagman. Photo: Kjell Olofsson

## In search of lost time

### – *Lactarius* workshop in Borgsjö 1997

Memories are important parts of our lives. "A *La Recherche du Temps Perdu*" is a famous novel by Marcel Proust (1871–1922) with reflexions over memories, lost friends and lost time. We have wonderful memories of exciting *Lactarius* and *Russula* finds and of dear mycological friends during 16 earlier mycological weeks in Borgsjö. The workshop in 1997 had *Hebeloma* and *Lactarius* as theme with Jan Vesterholt and Mauri Korhonen as invited experts and leaders, see detailed report: [www.myko.se/wp-content/uploads/2014/06/Borgsjö-1997.pdf](http://www.myko.se/wp-content/uploads/2014/06/Borgsjö-1997.pdf)

#### Nordic Mycological Conference 1996 in Karelen, Finland

Håkan Lindström, Hjördis and Jan-Olof have visited many Nordic Mycological Conferences (NMC), often together with Birgitta Gahne and Birgitta Wasstorp. A report by Jan-Olof is given in the review *Jordstjärnan* 1996 (3), pp 47–50 from the 13th NMC meeting in Mekrijärvi, Finland in 1996. During the meeting in Mekrijärvi Hjördis and

Jan-Olof invited Maria Teresa Basso, Machiel Noordeloos, Annemieke Verbeken, Ruben Walley and Jan Vesterholt to visit the *Hebeloma-Lactarius* workshop in Borgsjö 1997. Annemieke talked in Mekrijärvi about *Lactarius zonarioides* and related species. Maria Teresa showed slides of species in *Lactarius* subgenus *Plintogalus*. Machiel talked on brown *Lactarius* species. The interest in *Lactarius* was peaking.





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

Mauri Korhonen stand next to Hjördis Lundmark on the group photo and back of his wife Eine and Siw Muskos. Rolf Lidberg (with beard) stands to the left together with Thea von Bonsdorff from Helsinki. In the background Ilkka Kytövuori (with cap) near Kurt-Anders Johansson and Karl Soop. Jan Vesterholt stands behind Maria Teresa Basso. Olle Persson (white shirt) stands in front and in middle of the photo between Inga Lill Franzén and Ingemar Andersson. Ingemar's daughter Irene Andersson received in 2019 "The golden knife", the finest reward for a Swedish mycologist. To the extreme wright stands Jan-Olof and Kjell Olofsson. Kjell participated in all workshops in Borgsjö until he passed away some years ago. He took all group photos at the Borgsjö workshops. Håkan Lindström, Hjördis and Jan-Olof visited Kjell in Umeå a short time before he died from cancer. The hairy guy in the background is Jacob Heilmann-Clausen. A younger version of Lennart Vessberg stands left of Annemieke. Machiel Noordeloos wears a green sweater and stands in front of Annemieke.



Maria Teresa Basso. Drawing by Rolf Lidberg.





*Lactarius lignyotus*. Painting by Maria Teresa Basso.





Maria Teresa Basso and Rolf Lidberg, Borgsjö 1997. Photo: Hjärdís Lundmark

### **Mauri: "a nice week, we collected 40 species of *Lactarius*"**

The summer of 1997 had been hot in Borgsjö with a forest fire covering 700 hectares south of lake Ånge. But much rain had fallen in Jämtland. We had a planing group: Hans Andersson, Carina Eriksson, Birgit Hagman, Sven Hansson, Nils Jansson, Lisbeth Kagardt, Bengt Larsson, Hjärdís Lundmark, Siw Muskos, Anki Sunesson and Jan-Olof Te-debrand. We decided to have most excursions in the rain belt of Jämtland. Erhard Ludwig, Maria Teresa Basso, Omer van de Kerckhove painted wonderful aquarelles of fresh fruitbodies. The local newspaper had a Sunday supplement with Rolf Lidberg and Maria Teresa and headlines: "The queen of *Lactarius* from Evert Taube's Liguria". Mauri made a summary the last evening: "We have collected 40 species of *Lactarius*. A high amount, there are no beech or hazel here. All collections were in a very good condition. A nice week". On 1 Dec. 1997 we received a letter from Maria Teresa Basso and Massimo Candusso in Alassio, Italy: "Thanks for the nice days in Borgsjö. It was a wonderful organization who permitted us to study interesting Nordic species of *Lactarius*. Usually at congresses the organizers only show us the places, because we arrive one week later than fungi. But in Borgsjö

we collected many specimens of each species, we had the opportunity to see all possible variability in shape and colour of species typical of Nordic area, earlier unknown for us." Maria Teresa and Massimo also sent a list of all *Lactarius* collections from their visit to Borgsjö e.g. collections of *L. hyginooides*, *subcircellatus* and *torminosulus*.

### **Rolf and Maria Teresa had contact for a long time**

Maria Teresa published her magnificent book on *Lactarius* in 1999 with many references to findings at classical mycological sites in Jämtland and Medelpad like Granbodåsen, Julåsen and Sidsjö. Rolf Lidberg and Maria Teresa sent letters in Italian language to each other during many years. Rolf spoke fluent Italian. Annemieke Verbeken wrote in 1998 the book "The genus *Lactarius*" together with Jacob Heilmann-Clausen and Jan Vesterholt, volume 2 in the Danish serie "Fungi of Northern Europe". The book was dedicated to Ilkka and Mauri. After the mycological week in Borgsjö 1997 we had invited Mats Karström from Jokkmokk to lead a popular course in Borgsjö about finding biological rich forests nature according to the method "Steget Före" (Step before).





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.

## Annemieke Verbeken presents herself and her *Lactarius* research

**Do coincidences mean that you are on the right path? I am sometimes tempted to believe this. Look at attached "drawing" I made when I was four years old: the oldest traceable paper document that I created during my life. Mushrooms were always on my path.**

During that period in my life my parents rent a house in the middle of a forest in a, to Belgian standards, rather hilly region. My first childhood memories include climbing a hill in the forest with a path full of ferns and mosses, the smell

of *Geranium robertianum*, a huge witches' broom in a larch tree. This one made me a little bit scared because they told me that it could fall down every minute and I could not walk underneath.



### My first mushroom books

When I was about 10 years old I got my first mushroom books and a hand lens. I remember my designation when I found out that not every species I wanted to find a name for was in the book, and moreover very clever people in my environment did not know the name either.

My high school time was brightened up by the fact that the school was bordering a vast (again, to Belgian standards) forest area where I could map songbirds before school time or count bats after school time, or make a list of all mushrooms and take some home to cook. It was pretty obvious I had no other option than to study biology if I wanted to find out more about all these fascinating living things. It was as a Biology student at Ghent University that I found out that there were several good reasons to prefer mushrooms above birds, bats or even mosses: they do not fly or run away, you want use all your senses to study them and above all nobody seemed to know a thing or took the slightest interest in them. Except for my botany professor who encouraged me to become a member of the local mycological society and to do a thesis on *Lentinus*. Well, *Lentinus* was great because it was an absolute taxonomic mess at that time, but I broke too many cover glasses on those tough gills and felt that my heart was not really there. Meantime I had met my alter ego and soulmate in the passionate mycologist Ruben Walley. He was fond of *Russula*, I decided I would become his partner in crime and study the milkcaps. But Africa, it had to be... because unexplored areas and beautiful landscapes were waiting for me. I did my PhD on *Lactarius* in Africa and tasted the fun of pioneering work, enjoyed the excitement of seeing mushrooms that looked like nothing I ever saw before, knowing that nobody ever touched them or named them.

### Professor

I became a professor shortly after that and had the chance to start a mycological research group because I was convinced this was needed to launch the study of a group of such diverse organisms playing key roles in every ecosystem. The love for Ruben was ever lasting, and so was the love for the milkcaps. Many things happened. In the mycological world molecular tools did their entrance and thanks to Jorinde who came to do a PhD in our lab those tools became ours. In my personal life, I lost my dearest and beloved soulmate way too soon, but my job that surrounded me with lovely students and colleagues, with fascinating mycological challenges, always kept me going.

### Major aims

As a mycologist my major aims are the following: I want to make the milkcaps (now *Lactarius* and *Lactifluus*) the best documented group of ectomycorrhizal fungi world-wide.



Only by collecting as much information as possible on their biodiversity, we can answer questions like: where and when did they evolve? How did they disperse? What triggered their speciation? Why did they develop certain characters in certain areas?

Secondly, I want to argue and fight for mycotaxonomy. With currently roughly 120.000 species described, this means that almost certainly considerably less than 5 percent of the real number of fungi is covered. Such a staggeringly large diversity requires an accelerated investment in mycotaxonomy and a more efficient effort. Particularly in a time where taxonomists have access to challenging new tools and the most direct information in an organism (its DNA), institutions that played an important pioneering role in mycotaxonomic research in the past have a moral duty to maintain that knowledge and where possible, expand it. The knowledge gaps we are facing now have far-reaching ramifications with regard to a large number of ecologically and socially relevant fields. Training of good and modern taxonomists, in- and outside Europe, will always be a priority for me.

And the third aim is of course to continue to enthuse young people for mycology, to catch their interest when teaching mycology and to turn it into a deep passion and aim in life.

### A major role

Mycology played a major role in my life. It not only got me to know fabulous species of mushrooms and brought me to beautiful places on earth in (almost) every continent, but mycology also brought me in touch with so many nice, warm and enthusiastic people. It is hard to describe the joy of meeting other mycologist and spend some days in the field together. Borgsjö is a perfect place to experience such a feeling. The Swedish mycologists are as amazing as their mushrooms, the forests seem endless. Looking for mushrooms in a vast forest is perhaps the best thing a sensible person can do, it is mindfulness and therapy in one, with the best coach ever: nature itself! To share this with mycological friends is a joy forever.





Slavomir Adamčík. Photo: Hjördis Lundmark

## Slavomir Adamčík

### presents himself and latest news in *Russula* Research

**I was born in East Slovakia in the small village Kvakovce at the end of a road. The village is surrounded by fields, pastures and forests. My grandfather worked in an iron factory in Czech Republic (formerly Czechoslovakia) and always after coming home, he took me to the forest to collect fungi, berries and brooms to make baskets and brooms. I love my grandfather and I love the forest and fungi.**

My passion for fungi deepened at high school, when I bought a Czech handbook on *Russula*, "Holubinky", by Svrtek et al. (1983). I started to make my *Russula fungarium*, collected spore deposits and learnt to recognize my first species. During my studies at the Comenius University in Bratislava,

I found in the library of the Botanical department the *Russula* monograph by Romagnesi (1967) and I was fascinated by the number of species that can be recognized using a microscope and how many characters are available for this group compared to other agarics or fungal groups. I took the



challenge offered by Romagnesi, who was uncertain about number of species in the section *Xerampelinae* (shrimp *russulas*) and he considered the group "terrible" because of the enormous variability in colour and size of fruiting bodies. And the group proved to be "terrible"! In 2010, there were 59 validly published names and 8 invalid ones applied for the group members. However, the first phylogenetic study (Adamík et al. 2016a) recognized only 8 phylogenetic species, with possibly unresolved species diversity in the *R. graveolens* complex. The number was much smaller than the number of available names. Less attractive groups received less attention in mycological studies and our recent sequencing of *Russula maculata*, a brownish yellow spotted species, revealed an additional undescribed species *R. nympharum* (Adamík et al. 2016b). How is that possible and what are the reasons for the unequal research and taxonomic treatment of different *Russula* groups?

The answer is not simple and we need to search for specifics of European *Russula* taxonomy. First *Russula* species were described in Friesian times (Elias Magnus Fries, 1794–1878) by European mycologists based on collections originated in this continent. Many species were described before formal requirement of depositing a type specimen. This makes a disadvantage for European *Russula* taxonomy, because often no original material is available for older species names or the specimens are not preserved in a good condition. The opposite situation is in North America, where most *Russula* type collections are available (<https://www.ou.edu/cas/botany/micro/ben/ben539.html#5>). The research in other continents have been delayed by economic and political problems and by the uncertainty of how to apply European names and not knowing how widespread the species are. And uncertain distribution of *Russula* species makes it also difficult to decide if some North American names have priority over European names. Another European "problem" is the general popularity of the genus *Russula* that brought a lot of publications of mixed quality with a lot of different opinions on the application of names, species boundaries, some of them in local journals and in many different national languages.

From the beginning of my *Russula* career I was focusing on answering the question if look-alike collections from different geographical areas or continents represent different species. This is the reason why I studied North American *Russulas* in cooperation with Bart Buyck and we published together 77 type studies, among them studies of all types of species described by Charles Horton Peck (Adamík et al. 2018). Morphology of the type is the first step to understand species concept and sometimes, when the quality of the type DNA is not sufficient, it is the only tool to assign the name to a defined phylogenetic species.

Some studies dealing with lineages of closely related *Russula* species revealed existence of recently evolved and very related species with minor differences in the ITS region (the DNA region that is used as fungal barcode). Such studies are still very rare and most new *Russula* publications are now about new *Russula* species described based on sequence proved by search of ITS in the public sequence databases (usually GenBank, <https://www.ncbi.nlm.nih.gov/genbank/>). I have a feeling that mycologists avoid questions about rapid speciation and diversity beyond the threshold and they leave it for future generations. What will happen when we want to compare closely related and morphologically similar species? And how many such groups exist? To my experience, a GenBank BLAST search of ITS sequences may often result in a high identity match of 98–99% with a sequence from different continent or distant geographical area. This similarity is under a generally accepted threshold for species rank. Molecular analysis of the ITS region of sect. *Xerampelinae* members from North and South America showed minor ITS divergence but clear clustering of geographically and ecologically defined groups. It seems that collections associated with conifers from Mexico, West and East US all represent different species, but previously were called by the collective European name *R. xerampelina* (Adamík et al. in prep.). To understand species limits, more than the name we need to learn about its biological characteristics: phylogenetic delimitation, evolutionary history, morphological variation, ecological amplitude and geographical limits.

The global problem of *Russula* taxonomy is a lack of generally accepted standards for species descriptions. Our analysis of recently published *Russula* species in last 12 years (worldwide information until 2018) revealed author and region specific pattern in selection of characters and the way they are described (Adamík et al., in prep.). *Russula* descriptions (i) are incomplete or differ in selection of structures and morphological characters; (ii) are inconsistent in terminology; (iii) have insufficient statistical support; (iv) use different techniques and chemical reagents; and (v) have low quality of illustrations. As a part of our initiative named "Quest for a globally comprehensible *Russula* language" (<https://www.researchgate.net/project/Quest-for-a-globally-comprehensible-Russula-language>) we organized with my colleagues Miroslav Cabo, Soňa Janovičová and Katarína Skokanová the "*Russula* microscopy workshop" in February, 23rd–28th 2018 at my home institute Plant Science and Biodiversity centre of the Slovak Academy of Sciences in Banská Bystrica, Slovakia (<http://ibot.sav.sk/dipofungi-en/project-team/events/>). Participants from different countries dealing with *Russula* collections from different continents discussed minimal requirements and standards for morphological description of *Russula* species. As a result we proposed a unified *Russula* terminology and description templates. These standards are applied for description of 23 new species and





Slavomir Adamcic och Per Marstad. Photo: Annemieke Verbeke

three re-described *Russula* species from South-East Asia, Australia, Europe, North and Central America (Adamcik et al., in preparation). The *Russula* microscopy workshop we presented also during the Russulales microscopy workshop in Borgsjö, Sweden. *Russula* workshop in Slovakia boosted cooperation and from November 2018 to June 2019, I hosted Ruben de Lange from Belgium, Felix Hampe and Cathrin Manz from Germany, Munazza Kiran From Pakistan and Michelle Vera Castellanos from Colombia. All these young people received training, and we shared sampling to build better sampling and datasets.

*Russula* is also involved as a model genus of our national project APVV 15-0210, DIPOFUNGI (Distribution potential of different fungal trophic groups in Europe) dealing with distribution limits of fungi with different trophic strategies in Europe. As part of this project we published a study on the European species *Russula dryadicola* Cabon et al. (2019). This study demonstrated that relative homogeneity of boreal and arctic environments across the northern hemisphere and its geographical continuity is the possible reason for the wide distribution of *Russula dryadicola*, but climate and geographical discontinuity probably caused divergence and endemism of two new Asian *Russula* species described from southwestern and southeastern Himalayas.

My future plan is to use my knowledge in diversity research for understand fungal interactions and their role in the function of the ecosystems. We want, with my colleague Miroslav Cabon, to start new research based on amplicon next generation sequencing allowing DNA based identification of species from environmental samples, particularly soil, root and endophytic fungi. We will search for interactions of ECM fungi with fungi from other trophic groups and changes of fungal communities with different environmental factors or

land managements. And we hope to start our new research with new PhD students starting in September 2019."

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## Excursion guide

At their arrival all participants in the 2018 *Russulales* workshop received an informative Excursion guide with facts and maps detailing excursion sites. Per Sander did an excellent job with maps over excursion sites. Torkel Edenberg, son-in-law of Hjördis, made a beautiful layout. Please, have a look, enjoy and study facts about nature and fungi at 67 exciting excursion areas in Jämtland and Medelpad.





Jan-Olof at the biggest *Picea* tree in Medelpad at Seleboåsen in Sättna parish, a mountain farm belonging in older times to Silje village in Selånger parish. In 1985 Jan-Olof and Rolf Lidberg made a nature path with big signs at Seleboåsen at request from the forest company SCA with information about the mountain farm, vegetation and nature conservation. Photo 1981: Gösta Åslund

## Northern Calcareous Coniferous Forests (kalkbarrskogar)

# A Paradise for Orchids and rare Ectomycorrhiza Fungi

During the last hundred years broadleaved trees in Jämtland and Medelpad have been taken away by clearing (röjning), thinning (gallring) and with hormoslyr. Therefore monocultures of *Picea abies* have been rather dominating for a long time on forest slopes and depressions in the provinces of Medelpad and Jämtland. There is a need to thin away spruce in many forests and favour more of aspen, birch and willow. Many forest owners are interested in more of broadleaved trees in their forests. Some protected areas also ought to be burnt in coming decades and centuries. The new forests in coming centuries will also have *Picea* as dominating tree but hopefully 20-30 percent of broadleaved trees. Mixed forests (blandskogar) will be necessary in a warmer climate and is good for the biological diversity.

*Pinus sylvestris* is common on sandy heaths, gravel ridges, old delta lands and on stony mountain tops. The fast growing *Pinus contorta* has been planted rather much in Jämtland and Medelpad the last sixty years. It grows in dense clumps and is cut down already at an age of about 70 years which is bad for all species demanding old forests. *Alnus incana* is common in swampy forest depressions and along lakes and rivers at former open semi-natural grasslands. *Betula pubescens* and *B. verrucosa* appears in young clearfelled areas, near villages, in moist areas and along streams, often together with *Salix* spp. *Populus tremulae* appears as groups in *Picea* forest but also, together with *Betula* and *Salix caprea*, on abandoned arable land in the culture landscape and in ravines and slopes along lakes and rivers.





Nils Lundqvist, Rolf Lidberg and Carina Eriksson. *Russula* workshop in 1983. Photo: Nils Jansson.

### Rolf Lidberg and Bo Mossberg studied orchids

Rolf Lidberg (1930-2005), artist and founder of Sundsvall Mycological Society, was very fond of orchids. His favorite genus was *Dactylorhiza*. He travelled several years together with another artist, Bo Mossberg, hunting orchid species all over Europe. A book about the orchids of Europe with text by Sven Nilsson was published in 1980. Nature friends in Medelpad often visit rich forests and fens in western Medelpad and in central Jämtland with orchids like *Cypripedium calceolus*, *Calypso bulbosa* and *Epipogium aphyllum*. At Fillstabäcken we enjoy the beautiful orchid *Ophrys insectifera* and rare fungi such as *Cortinarius inexpectatus* and *Inocybe tricolor*.

### Swedish mycological week in Ramsele, western Ångermanland 2002

Some part of western Ångermanland like Ramsele parish have similar calcareous nature as Borgsjö in Medelpad with orchids like *Cypripedium calceolus*. In 2002 Elisabeth Engerdahl and Lennart Vessberg arranged the Swedish mycological society's week in Ramsele. Stig Norell and Elisabeth Wedin from Härnösands Svampklubb entered all findings in the database Artportalen. We visited hot

spots like Gideåbergsmyrarna nature reserve and fantastic semi-natural grasslands at the village Nordsjö.

Among more interesting *Lactarius* findings: *aquizonatus*, *badiosanguineus*, *musteus*, *resimus*, *scoticus*, *subcircellatus*, *tuomikoskii*. Among *Russula* findings: *albonigra*, *alnetorum*, *aurantioflammans*, *cessans*, *cyanoxantha*, *fragilis*, *oliva-ceoviolascens*, *olivina*, *olivobrunnea*. Karl-Henrik Larsson, expert on crust fungi, determined *Xenasma rimicola* from Stordjupdalen, first record from Sweden and growing on a big, fallen *Salix caprea* with two other rather rare crust fungi: *Hypochnicium polonense* and *Peniophorella guttulifera*. At Vallsjöskogen nature reserve in Dorotea parish Karl-Henrik recorded *Hyphoderma involutum*, up to now the only known site in Sweden. Another interesting find was *Suillosporium cystidiatum* (fjunskein in Swedish) in the old forest at Rågsvedjeberget.

### Michael Krikorev

We found during *Russulales* meeting in Borgsjö 42 species of *Lactarius*, 73 species of *Russula* and 52 redlisted species. We totally found 720 species of fungi and we made 3104 findings of fungi. You can find all lists and tables by Michael Krikorev in an Excel file on our homepage [www.myko.se](http://www.myko.se) and link *Russulales* 2018. Michael has also entered our findings in Artportalen.





The *Russula* group Häxringen was founded in Falköping in 1980 at the first mycological week of Sveriges Mykologiska Förening. Bengt Sändh was organizer of the mycology week. An exciting and inspiring week. From left: Sven Persson, Jean-Marie Becker, Hjördis Lundmark, Sven Nilsson, Anna Stillmark, Herbert Kaufmann. Missing at the photo: Agneta Strandberg Arveby and Kjell Olofsson. Photo 1980.

## Hjördis tells us about her passion for *Russula*

**I have been interested in *Russula* since the start of our mycological society in 1970. I myself and my friend Anna Stillmark found many beautiful and interesting *Russula* collections at places like Bänkåstorpet, Alnö parish and Segersjön, Selånger parish.**

We had contact with the famous Swedish mycologist Nils Suber and read his books with *Russula* descriptions. The first edition of the excellent book "Svampar i naturen" came in 1977 with text by Sven Nilsson-Olle Persson and wonderful paintings by Bo Mossberg. Our friend Mats Karström has in the latest version very good writings about fungi and nature conservation.

At the Swedish mycological week in Falköping 1980 a special *Russula* group was founded called "Häxringen" with Jean-Marie Becker, Herbert Kaufmann, Hjördis Lundmark, Sven Nilsson, Olle Persson, Sven Persson, Anna Stillmark and Agneta Strandberg-Arveby. Sven Nilsson was coordinator of

the group that met at the home place of the members during five years. Mauri Korhonen participated in two meetings. Many members of the group then participated in *Russula* workshops in Borgsjö 1983 and 1984. Herbert Kaufmann visited the annual meeting of Sundsvalls Myko in 1987 at the office of Svenska Handelsbanken, talked and showed slides about *Russula*. Herbert told us that *Russula mustelina* had no finds around Stockholm and Uppsala. According to Artportalen this remarkable distribution has not changed with most finds of *R. mustelina* in western part of Sweden and along the coast of northern Sweden. Herbert has determined many of our difficult *Russula* species.





Mauri Korhonen had exhibition of *Russula* paintings at Nordic Mycological Congress in Karelen, Finland in 1996. Photo: Hjärdís Lundmark

#### Four memorable *Russula* weeks in Borgsjö

Our deep passion for *Russula* resulted in four Borgsjö weeks with invited experts: 1983, 1984, 2001, 2018. A memorable "Russula happening" was the visit of Henri Romagnesi in 1983. Rolf Lidberg who spoke fluent French and Jacques Melot visited Henri at his work place in Paris. The two charming guys invited Henri to the *Russula* workshop in Borgsjö during the autumn 1983. Erik Malm and Birgitta Wasstorp met Henri at Stockholm airport and took him by car to Saint Olof's inn in Borgsjö. On the first evening Siw Muskos bid Henri welcome in French. Rolf presented the special nature of our excursion area in western Medelpad and in Jämtland. Some weeks before the meeting we received a daily menu consisting of grilled meat and vegetables at every dinner. We talked with the local butcher. He delivered elk meat to Saint Olof's inn. Henri was satisfied with our arrangements. He kept his warm overcoat during the meals. Henri was a very kind person.

#### Henri Romagnesi: "C'est une *aeruginea* très pale"

Henri Romagnesi studied for several hours a white *Russula* from mount Välliste in Jämtland. All people in the working hall waited and waited for his statement. We still remember his five words: "C'est une *aeruginea* très pale" = It is a very pale *aeruginea*. Henri also determined *Russula pyrenaica* from mount Välliste. Stig Jacobsson studied the collection. He said that it was a more robust form of *Russula gracillima*. In spite of the hot summer weather we found many

exciting *Russula* species. Stig Jacobsson wrote an article on all *Russula* records in "Jordstjärnan", the review of Swedish Mycological Society (17). Henri also met Åke Strid and Nils Suber at Naturhistoriska Riksmuseet in Stockholm before his flight back to Paris.

#### *Russula dryadicola*, not only with *Dryas octopetala*

In 2006 mycologists from all over Sweden and also from other countries gathered among limerich alps in western Härjedalen at the Swedish mycological society's week. Organizers were Bengt Petterson, Maj-Britt Sâthe and others from Östersund Mycological Society and Hjärdís, Jan-Olof, Siw Muskos from Myko. Stig Jacobsson and Jan Vesterholt were invited experts and leaders. We also had experts on alpine fungi like Ellen Larsson and Pierre Arthur Moreau. The calcareous slopes with mountain birch and two meter tall *Aconitum septentrionale* is a paradise for ectomycorrhizal fungi in *Cortinarius*, *Lactarius*, *Russula* and other genera, see report below. Interesting was also ectomycorrhizal fungi associated with *Dryas octopetala* like *Russula dryadicola*. Thanks to rich collections during Russulales 2018 in Borgsjö and DNA-studies by Miroslav Cabon we can say that *R. dryadicola* also is common in forests and parks in the lowland district around Borgsjö and Östersund! A commented report is available on all finds during the memorable alpine mycological week in Härjedalen 2006: [www.myko.se](http://www.myko.se)





Herbert Kaufmann found in 2014 the rare southern *Russula odorata* under *Quercus* at Ävike bruk in Hässjö parish, Medelpad. Photo: Herbert Kaufmann

### Alnö limestone district, almost like Öland

During the Borgsjö seminars we use to visit the Alnö district at the Bothnian coast. Already in 1974 the nature on Alnö limestone area fascinated mycologists Ronald Petersen from Tennessee University and Erast Parmasto from Tallinn University. Lastlavaberget in Timrå parish is one of many hot spots in the lime district around Alnö island with finds of rare vascular plants and also rare fungi such as *Cortinarius cupreorufus* and *Otidea* species. Sture Persson and Håkan Sundin are visiting Lastlavaberget several times every year and find new exciting fungi. Many rare and southern gasteroid fungi was also found at meadows and forests in the Alnö limestone district by Lars Erik Kers about 40 years ago. *Tectella patellaris* was found by Siw Muskos and Elisabeth Wedin in 2000 (UPS) and is according to Artportalen only found in Sweden at Alnö lime district. Siw Muskos found in 1982 *Mycena sudorella*

at Alnö, Slädabäcken det. R.A. Maas Geesteranus (L,S), the first find since Singer described the type collection in 1943 from Altai mountain in Central Asia, see article by Siw in *Jordstjärnan* 1992/3: "Alnöhättan från Altai". Slädabäcken is today protected. *Clavicornia taxophila* was found on 24 Aug. 1986 by Thomas Læssøe on *Alnus* litter in Stornäset nature reserve, also a fine site for rare *Pluteus* species like *P. chrysophaeus*.

At the sheep grazed, limestone rocks of Långharsholmen nature reserve, Thomas and others found *Clavaria tenuipes*, *Clavulinopsis microspora*, *Dermoloma pseudocuneifolium*, *Echinoderma jacobi*, *Entoloma tjallingiorum* var. *alnetorum*, *Lepiota pseudolilacea* and *Pseudobaespora paulochroma*. At the fungus hot spot around the village Pottäng we find rare fungi such as *Hygrophorus hyacinthinus*, *Pholiotina percincta* and also fungi demanding both nitrogen and lime such as *Melanophyllum eyrei* and *Tricholomella constricta*.





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

### Alnö limestone district – a paradise for truffles

In 2014 Anne Molia and her truffle dog Lello found *Tuber puberulum* and four species in *Hymenogaster* near the Alnö bridge. Anne also found *Hymenogaster lycoperdineus*, new for Sweden, in forest at lime rocks at Hörningsholm near the home of John Granbo. See report from the Swedish mycological society's week in 2014 when we visited many hot spots in Alnö lime stone district. Lars Erik Kers was a famous truffle hunter. He determined a truffle from Åssjöskogen, a *Picea* forest on limestone, protected as Habitat Protection Area and the best site in Medelpad for species in *Cortinarius* subgenus *Phlegmacium*. Lars Erik Kers mentioned in his amusing letter below many microscopical details. He also wrote: "Hjärtligt tack för en intressant hypogé. Det är *Hysterangium separabile* Zeller (enligt tjeckiska floran). Jag har själv sett den ett par gånger, precis som du beskriver nerbäddad i barrförnan i frisk granskog. Arten är nog samma som Th. Fries benämnt *H. clathroides* Vitt och som han uppger från Uppsala, Älvkarleby och Åreskutan i Jämtland. Fyndet är av stort intresse och jag ber att få gratulera till den goda iakttagelseförmågan. Utlägg för porto bifogas". Åssjöskogen is described on page 65 in the Excursion guide (see myko.se) at the Swedish mycological week 2014. Mats Karlsson and Nils-Otto Nilsson visited Åssjöskogen 12 Sept. 2014, see pp. 234–235 in the report, and wrote to us after the week: "Åssjöskogen var en kanonfin lokal".

### Alnö limestone district-an uncut diamond

Alnö limestone district has similarities with the famous and popular limestone islands Öland and Gotland. A so called LONA-project has just started, led by civil servants at the municipality of Sundsvall, to cut the diamond: meadows on limestone, *Alnus* forests on limestone, *Picea* forests on limestone and a beautiful old historical landscape.



Monica Svensson. Photo: Hjärdís Lundmark

Stefan Grundström has made an excellent inventory of the wonderful semi-natural grasslands of Alnö island and Långharsholmen. There are plenty of horses who can graze more of the unique old speciesrich grasslands. The meadow biologist Annika Carlsson could perhaps lead a coming LONA-project to restore semi-natural grasslands on Alnö limestone areas.

### Monica found the rare *Mycocalia sphagneti* in SCA Sörgraninge Mångfaldspark

Swedish mycological week in 2014 took place in the limestone district around Alnö island. Magnus Andersson also guided to sandy pine forests and old spruce forests in SCA Sörgraninge Mångfaldspark where our dear friend Monica Svensson found the rare *Mycocalia sphagneti*. See Monica's fascinating story about her exciting find at pp. 172–173 in the report: [www.myko.se/wp-content/uploads/2014/05/Svamppapport\\_web.pdf](http://www.myko.se/wp-content/uploads/2014/05/Svamppapport_web.pdf)



Landscape in Medelpad. View from Mount Vitterknulen, Liden parish. Photo: Håkan Sundin

### Some interesting fungi in calcareous coniferous forests (kalkbarrskogar) of Jämtland and western parts of Medelpad and Ångermanland

*Albatrellus subrubescens*, *Alloclavaria purpurea*, *Amanita friabilis*, *Boletopsis grisea*, *leucomelanea*, *Cantharellus lutescens*, *Clitocybe alexandri*, *ornata*, *Cortinarius anisochrous*, *anthracinus*, *barbaricus*, *blattoi*, *bovinaster*, *bovinus*, *caesiocinctus*, *corrosus*, *cupreorufus*, *dalecarlicus*, *diosmus*, *flavipallens*, *fuscoperonatus*, *fuscovelatus*, *fuscobovinaster*, *inexpectatus*, *metarius*, *mussivus*, *norrlandicus*, *ionosmus*, *oulankensis*, *percomis*, *phrygianus*, *pini*, *pseudoglaucopus*, *Cystodermella adnatifolia*, *Echinoderma pseudoasperula*, *Gauthieria cf othii*, *Geopora cooperi*, *Gerronema prescottii*, *Gomphus clavatus*, *Gyrodon lividus*, *Hebeloma circinans*, *monticola*, *syrijense*, *Hydnellum geogenium*, *mirabile*, *Hygrophorus calophyllus*, *chrysodon*, *gliocyclus*, *hyacinthinus*, *inocybiformis*, *purpurascens*, *subviscifer*, *Inocybe terrigena*, *tricolor*, *Lactarius aquizonatus*, *auriolla*, *leonis*, *olivinus*, *resimus*, *Lepiota cortinarius*, *Lepista irina*, *Lima-cella glioderna*, *guttata*, *Mycena oregonensis*, *Notholepista subzonalis*, *Ophiocordyceps gracilis*, *Ramaria botrytis s.l.*, *fennica*, *primulina*, *rubrievanescens*, *Russula aurea*, *olivina*, *olivobrunnea*, *Sarcodon lundellii*, *martioflavus*, *Rugosomyces onychinus*, *Sarcosphaera coronaria*, *Sphagnophalina brevi-*

*basidiata*, *Trichoderma nybergianum*, *Tricholoma atosquamosum*, *aurantium*, *dulciolens*, *ilkaii*, *olivaeceotinctum*, *sulphurescens*.

### Some hot spots with many rare ectomycorrhizal fungi in calcareous coniferous forests of Jämtland and Medelpad

Jämtland: Andersön in Sunne parish, Storvålen in Lockne parish, Tunsved in Revsund parish, Fillstabäcken in Frösö parish, Tysjöarna in Ås parish, Vackermyran in Hammerdal parish. Magnus Andersson also point out forest NW Alkvattnet, Loke, Lokmarken, Rödde in his report 2015 about "Marksvampar I kalkbarrskogar i Jämtland", see below.

Medelpad: Lastlavaberget, Åssjöskogen and other sites in Alnö limestone district, Ensillre, Granbodåsen, Julåsen, Kullbäcken-Markbäcken, Lombäcksheden, Lönnån, Oråsbäcken-Husmyrbäcken in Borgsjö parish, Långberget, Tubbobäcken-Mörberget in Torp parish,

Warm southern lime influenced mountains such as Rankleven and Siljeberget.

Information on fungus hot spots in Jämtland and Medelpad is available in excursion guides and in reports from the mycological weeks in Borgsjö. The Excursion guide in 2018 contains detailed information on 67 biological rich forests and meadows.





More than one hundred thousand plants of the magnificent orchid *Cypripedium calceolus* are found in Jämtland. Most finds of *Cypripedium* in Europe! Painting by Rolf Lidberg



# Magnus Andersson tells us about old *calcareous*, *coniferous* forests

**My name is Magnus Andersson and I usually attend the mycological workshops in Borgsjö to learn more about rare and threatened mushrooms. Here in Sweden we have biologists who make inventories of valuable nature for future protection and care. In my work as a biologist, I often assess the conservation value of beautiful old forests.**

Among the many exciting assignments, some seem more fun than others. I get warm in my heart when I think of the amazing coniferous forests on limerich soil that I have visited in the counties of Jämtland and Gävleborg. The assignments have been to find and document the very special soil funga in old and lime influenced coniferous forests. Even though they are very special forest environments, they may differ in appearance. These include herbrich stretches with a high water table, slopes with green-stone blocks, ravines with calcium-rich, sandy soils or herb stands along streams. As a rule, these forests have been earlier grazed by cattles, which contribute to the rich funga. Most often there are elements of vascular plants that demands lime, but not always.

The inventories resulted in two reports, see the links below! There you can read about the different areas, what was found and look at pictures of some interesting fungi. Some of the most interesting finds in the county of Gävleborg were *Tricholoma ilkkae*, *T. roseoacervum*, *Ramaria lutea* and *Phellodon secretus*. In the county of Jämtland I found for example *Tricholoma dulciolens* that gave me moments of happiness. In both counties, the rare *Ramaria fennica*, *Cortinarius pseudoglaucopus* and *C. dalecarlicus* were found. Some of the finest lime coniferous forests in Jämtland were Rödde, Loke, Lokmarken, and NV Alkvattnet, see report: <http://www.lansstyrelsen.se/Jamtland/Sv/publikationer/2015/Pages/marksvampar-i-kalkbarrskog.aspx>

Hillesjön, Vibyberget, west of Gröntjärn belong to the finest calcareous forests in the county of Gävleborg, see report: [www.lansstyrelsen.se/Gavleborg/Sv/publikationer/2017/Sidor/inventering\\_av\\_marksvamp\\_i\\_gavleborgs\\_kalkbarrskogar\\_och\\_sandtallskogar\\_2016.aspx](http://www.lansstyrelsen.se/Gavleborg/Sv/publikationer/2017/Sidor/inventering_av_marksvamp_i_gavleborgs_kalkbarrskogar_och_sandtallskogar_2016.aspx)



Magnus Andersson with a beautiful *Ramaria* collection, Borgsjö 2016. Photo: Hjördis Lundmark





*Cortinarius blattoi* indicate old valuable forest at limerich soil. Jämtland, Revsund parish, Tunsved nature reserve, 23 Aug. 2010. Photo: Kjell Olofsson

## Norwegian mycologists present papers on *calcareous, coniferous* forests

**Tor Erik Brandrud has been scientific leader of mycological weeks in Borgsjö on the genus *Cortinarius* in 1982, 2003, 2010 and 2016, see reports from meetings 2010 and 2016 at [www.myko.se](http://www.myko.se) Tor Erik is a professional mycologist, chairman of the Norwegian red listing committee, member of the board of JEC, Journées Européennes du Cortinaire and also expert on *Entoloma*.**

His special interest is *Cortinarius* subgenus *Phlegmacium* ("ädelspindlingar" in Swedish), typical for the finest Nordic forests on limestone and other calcareous soils. See informative papers by Tor Erik and others on Norwegian lime forests (4, 5). We sometimes visit the limestone forests with deep holes around Steinkjer in the region Nord-Trönderlag in Norway. We use to call this special habitat "kalkbarrskog med håll"! Tor Erik sometimes participate in memorable me-

etings with the Swedish red listing committee for fungi, latest in april 2019 at Ekenäs in Sörmland. Species in *Cortinarius* subgenus *Phlegmacium* (ädelspindlingar in Swedish) are presented in the new book from Skogsstyrelsen and Johan Nitare on biologically valuable forests in Sweden (46). Good examples of interesting and rare *Phlegmacium* species in the lime district of Mid Sweden are *Cortinarius blattoi*, associated to *Picea*, and *Cortinarius pini* with *Pinus*.



### Jenny and Maria will favour the biological diversity in Uppland

Maria Forslund at the county government in Uppsala has for a long time studied old, calcareous forests in the north-eastern part of the province Uppland together with Gillis Aronsson, Lars-Thure Nordin, Johan Nitare and others. Upplandsstiftelsen is an organization that promote biological diversity e.g. in chalkrich forests and in semi-natural grasslands. Jenny Lundström is chairperson of Upplandsstiftelsen and also leading expert on the extremely difficult agricultural rules in EU and Sweden. Maria Forslund showed slides at a memorable meeting in eastern Uppland about lime forests arranged by Elisabet Ottosson and the Swedish Mycological Society. You can see Maria's beautiful and informative presentation at [www.myko.se/wp-content/uploads/2016/06/kalkbarr\\_20170916\\_liten.pdf](http://www.myko.se/wp-content/uploads/2016/06/kalkbarr_20170916_liten.pdf)

### Birgitta Wasstorp and Svengunnar Ryman took us to "kalkbarrskogar" in Roslagen

In 1997 Stockholms Svampvänner arranged the Swedish mycological society's week in Roslagen, the eastern part of Uppland with excursions to past grazed, calcareous coniferous forests from the city of Norrtälje in the south to the parish Häverö in the north and at Vaddö island. Leaders were Svengunnar Ryman and Birgitta Wasstorp. We visited herb-rich forests with hazel, spruce, oak, rich fens and also forests with much dead wood. Åke Strid wrote informative excursion guide and report with interesting facts about fungi and nature in Roslagen.

### Billudden-a popular stop and a fungus hot spot

Since many years mycologists from Sundsvall's Myko have had a tradition to stop at Billudden in the northernmost part of Uppland on their way to Swedish mycological society weeks. Siw Muskos and others have found fungi such as *Sarcodon fuligineoviolaceus* in sandy pine dunes with lime near the sea and also interesting fungi in old mossy *Picea* forests.

### Anders Arnell and Britt-Marie Lindström arranged memorable meeting in 1995 about nature conservation

During mycological workshops in Borgsjö we have discussed different issues concerning nature conservation with representatives from forest companies, forest owner organisations, the Swedish Forest Agency and the county government. During a meeting in 1995 at Saint Olof's inn Rolf Lidberg pointed out that forest ditching was very bad for fungi, orchids and other forest species who need wet areas. Rolf Lidberg was happy when forest ditching came to an end about 25 years ago. N Bo Callans Forest, owner of Callan's saw mill, participated in the meeting. He initiated the first Habitat Protection Area in Borgsjö in



Gunnar Selling from the Swedish Forest Agency led an excursion during the Borgsjö meeting in 2003 to Ensilrebodarna during which alternative methods in the richest calcareous forests were discussed. From left: Håkan Lindström, Tor Erik Brandrud, Hjalmar Croneborg, Anders Dahlberg, Johan Nitare. Per Simonsson also participated in the excursion. Photo: Leif Stridvall

his own forest: an area with big aspen trees at Holkåsen. N Bo Callans also promised Rolf Lidberg not to cut down the swampy forests around the rich fen Hallmyran. Today in december 2019 Halmmyran and surrounding forest has been nature reserve. The memorable meeting at Saint Olof's inn 1995 was arranged by Anders Arnell and Britt-Marie Lindström at the county government.

### Håkan Berglund presented facts on actual status for biodiversity in Swedish forests

Before the publication of the Swedish red list, scheduled for 2020, a seminar was arranged in September 2018 at the Swedish Species Information centre (ArtDatabanken) for people in all redlisting groups with presentations of present status for the nature types of Sweden. Håkan Berglund talked about forests, see his and other presentations: <https://share.mediaflowpro.com/?RSARD8NEWX>

### Sustainability-key word today

Today around 2020 sustainable farming and sustainable forestry are key words in the Swedish discussion. Consumers and buyers of Swedish wood products from abroad demand certification and good nature conservation in Swedish forestry. This underlines the importance of preserving the last old forests with long continuity and also to stimulate more of broadleaved trees and more of forests without clear-cut areas. Mycorrhiza researcher Anders Dahlberg emphasize the importance of leaving more trees in clear-cut areas to enable fungi to survive and spread in the surroundings. In 2011 Anders wrote a report for the Swedish Forest Agency about forestry without clear-cut areas: <http://shop.skogsstyrelsen.se/shop/9098/art51/10768251-68e6a3-1837.pdf>

Just a few percentages of the forests in the counties of Jämtland and Västernorrland are legally protected. The most valuable calcareous forests in Jämtland and western parts of Medelpad and Ångermanland should be identified, protected or managed with high level of nature conservation. In some areas *Picea* trees should be taken away for example through Nature Conservation Agreements (naturvårdsavtal) with forest owners. Deers, elks and wild boars should be held at acceptable levels in order to favour broadleaved trees and pine.



## Per Simonsson wrote his doctor's thesis on the Swedish forest debate 1968–2003

**There has always been an interesting and lively discussion about Swedish forests. In report from the mycological week in Timrå 2014 we wrote on the big goat debate one hundred years ago:**

*"Under 1930-talet livnärde sig 30 procent av nötboskapen i Norrland på skogsbete. Getterna var värst på att äta plantor av gran och tall. En stor getdiskussion utbröt bland annat i riksdagen. Skogschefen Erik Ronge vid Kramforsbolaget påpekade i debatten att landets största förekomst av getter fanns i Ångermanälvens inre dalgång. Han påpekade att bara Turkiet med sin låga levnadsstandard har fler getter per invånare än Västernorrlands län. Dagens diskussion om vildsvin och älg är en stilla västanfläkt mot dåtidens getdebatt".*

During a period 1950–1990 the Swedish forestry was extremely bad for biological diversity with often very large clear cut areas without any left trees, ditching of valuable wet forests, much planting of *Pinus cortorta* and much forest fertilizing and killing of broadleaved trees like aspen with hormoslyr. Swedish bishops defended hormoslyr. The writer and entertainer Tage Danielsson wrote a famous poem: "Män som världens öden styr/dricker gärna hormoslyr/överhetens nya njutning: inre hormoslyrbesprutning/man blir väldigt glad och yr/av en sexa hormoslyr/ skogsbolagens direktörer/steppar som revycharmörer/Värmlands biskop blir vampyr/som vill suga hormoslyr/över hela gröna stiftet/sprider sig det sköna giftet/skog blir papper till broschyr/det är gott med hormoslyr/Sveriges alla träpatroner/dricker stora dagsransoner/vist försynen styr/som fördelar hormoslyr/ så den hamnar rakt i truten/på de män som sprutar ut den." Hormoslyr was forbidden by the state in 1983.

Per Simonsson talked at the seminar at Artdatabanken in September 2018 about the debate concerning forests and nature conservation, see his presentation at homepage above. Per was during many years employed at the county government of Västernorrland and worked with both forests and old meadows. In 1979 Per wrote a report for the county government (report 1979:1) on old, biological valuable forests in Västernorrland. He also wrote a report on forest ditching: "Skogs- och myrdikningens miljökonsekvenser" (Naturvårdsverket rapport 3270) and published an open letter in the press against forest ditching. One year later the forest company SCA employed Per as nature expert. Forest ditching ceased 25 years ago. Today we know that ditching of fens and forests leads to high outlets of carbon dioxide. During the last 25 years Per educated forest workers in nature conservation, participated in creating a method for forest certification (FSC) and carried out detailed ecological landscape plans in the forests of SCA. In November 2016 Per defended at Umeå university his doctor's thesis on the Swedish debate 1968–2003 concerning nature conservation in forests. Anders Dahlberg was one of the opponents. One of Per's conclusions was that red lists have been important for the saving of forest nature in Sweden. Per was in October 2019 promoted to honorary doctor at Mid Sweden University. Per also talked for Medelpads Botaniska Förening in February 2018 and said among others that Mats Karström in Jokkmokk has been very important for better nature conservation in the northern forests of Sweden.



### Hjördis managed the fungi exhibition in the fresh air

We arranged an exhibition in the open air. Fruitbodies of fungi were in a very good condition during evening lessons. Stig Jacobsson said: "My best fungus exhibition". Annemieke, Slavomir, Tero and others talked about interesting *Lactarius* and *Russula* findings every evening at the exhibition tables. Hjördis dried specimens for fungarium UPS. She also took good photos for the report of *Lactarius* and *Russula* species with field form.

### Goals for better nature conservation – a positive drive

Goals for better nature conservation (in Swedish: Målbilder för god miljöhänsyn) with detailed advices for nature conservation in different nature types are now slowly introduced in practical forestry and are good for fungi and other biological diversity. The forest company SCA had in 2018 a forest day in Bodsjö, Jämtland on "målbilder för god miljöhänsyn". See also: <https://www.skogsstyrelsen.se/malbilder>

### Special weather in summer 2018 resulted in a peak for fruiting agarics

The winter 2018–2019 was extreme with much snow in Jämtland and Medelpad until April and then much water and flood during April and May. The summer was dry and hot. Not a drop of rain from mid of April until the end of July and forest fires in July at about 9000 hectares in Ljusdal parish just south of Borgsjö. Lawns shifted from green to yellow. The farmers suffered all over Sweden.

### Groups of big, colourful *Russula* species on the churchyard

We got the first heavy rain ("rotblöta" in Swedish) with about 30 mm during the weekend 21–22 of July. Much rain in August on the hot soil and high temperature, more than + 25 degrees in the air, activated the mycelia down in the soil. On the 29th of July and 4 weeks before the start of the workshop Jan-Olof emptied 3 rain gauges in the excursion area: Getberget 60 mm, Lombäcksheden 52 mm, Sidsjö 54 mm. Then more heavy rain fell every week during August. It was a magical moment of deep happiness for Hjördis and Jan-Olof to show Borgsjö churchyard Sunday afternoon the 26th of August for Herbert, Mieke, Slavo, Tero and other *Russula* fans! There were groups of big, colourful *Russula* fruitbodies all over the lawns! Tero determined fast a vast and beautiful *Russula* group as *R. intermedia*. A wonderful starting point of the *Russulales* workshop! Much winter snow, an extremely hot summer and much rain in August resulted in a peak for *Lactarius* and *Russula* during the workshop. Also a peak for *Boletus edulis*. Elias from Greece and our other friends from countries southwards in Europe came from areas with still extremely



Stig Jacobsson. Photo: Hjördis Lundmark

dry and hot summer weather without mushrooms. They were happy to see fresh beautiful fruitbodies in forests and parks. Unfortunately fungi at old semi-natural grasslands had not started to form so many fruitbodies but Mathias Lüderitz and Kai Reschke still found interesting species on visited meadows.

Then on Sunday night more rain fell over our excursion areas and rain also fell during nights later on. Fog covered the Borgsjö valley every morning and the humidity was high, a perfect mushroom weather. All specimens of *Lactarius* and *Russula* were fresh, big and in a very good condition. Annemieke delivered wonderful *Lactarius* fruitbodies to her painter Omer. We have experienced similar mushroom peaks during two earlier workshops in Borgsjö: Entoloma week in 1985 with Machiel Noordeloos when 47 species of *Entoloma* were found on old semi-natural grasslands and the *Tricholoma* week in 1995 with Gro Gulden when we found 50 species of *Tricholomataceae*, see report: [www.myko.se/wp-content/uploads/2014/06/Borgsjö-rapport-1995.pdf](http://www.myko.se/wp-content/uploads/2014/06/Borgsjö-rapport-1995.pdf)



# The colours grow in the forest







Another reason to make an excursion to the mushroom forest is to collect dyeing mushrooms.

The mushroom-pigment gives all the colours of the rainbow, magic!

About a hundred mushrooms that have been tested contain pigments which give nice colours.

The process is simple. The mushrooms boil in a dye-pot of water about one hour. When the mushrooms are sinking to the bottom the bath is ready for dyeing.

Put in the wool/silk, which has been mordant with Alumn/creme of tartar, and leave it in the bath for at least one hour 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!!

Enjoy all the beautiful colours of the mushrooms.

Hjördis



In the *Russula* group there is no dyeing-mushroom, which I have knowledge of. But within *Lactarius* there is one species I have tested, *Lactarius necator*, Svartriska. Not so colourful mushrooms but gives a light green colour.



*Lactarius necator*, the lower and upper sides of the fungus. Text and photo:Hjördis Lundmark.





Nina Forsberg and Siv Norberg are busy colouring with mushrooms. Photo: Hjördis Lundmark

Below: Advertisement in Ljunganbladet



## Lördag 3 september SVAMPENS DAG

Utställning av matsvampar  
Visning av svampfärgning

**Erikslunds Folkets hus**  
kl. 11.00 - 15.00

*Sundsvalls Mykologiska Sällskap, Svampfärgarsällskapet*

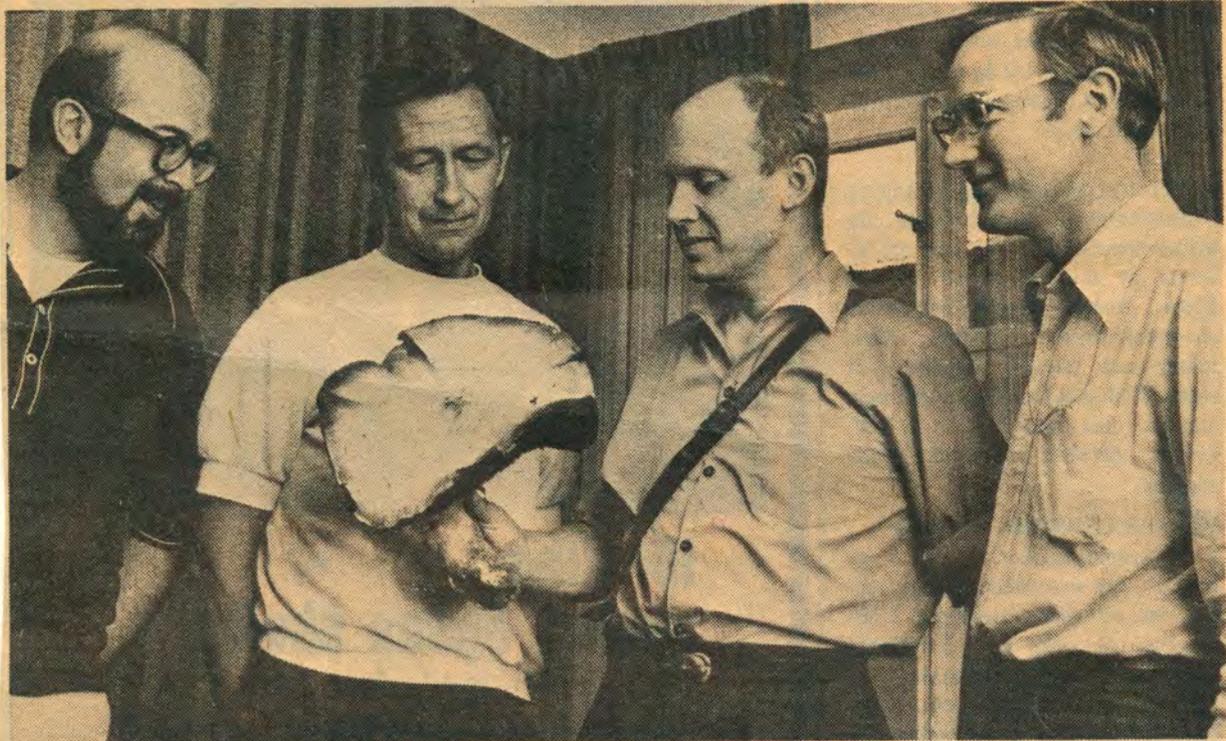




Demonstration of mushroom dyeing and exhibition at Rismyrliden, a folk museum. Photo: Hjördis Lundmark



## Internationellt på svampdag



*Svamputställningen i Sundsvall på söndagen fick ett celebert internationellt besök från andra nordiska mykologiska kongressen i Garpenberg. Ronald Petersen, Tenese University, USA, Erast Parmasto Tallins universitet, Estland, Olle Persson, Skogshögskolan, och Åke Strid, Umeå universitet, studerar en väl utvuxen snöbollschampion.*

Our mushroom exhibition in 1974 at Sundsvalls Museum had fine guests! Together with Ronald Petersen we collected *Ramaria* species in the limerich forests of Alnö island. Sundsvalls Tidning, September 1974.

# Sundsvalls Mykologiska Sällskap (Myko) 1970–2020



Almost every province in Sweden has a mushroom society from Puggehaten in Skåne in the south to Luleå Svampklubb at the upper North of the country. Many local botanical societies also look at fungi. They contribute to important "Citizen science" and improve the knowledge on

Swedish funga in close and good cooperation with professional mycologists like Ellen Larsson at Gothenburg University. Rolf Lidberg, Hjördis Lundmark, Siw Muskos and others started Sundsvalls Mykologiska Sällskap (Myko) in 1970.

We established early contact with national mycologists among others Ove Eriksson, Stig Jacobsson, Lars Erik Kers,

Nils Lundqvist, Olle Persson, Svengunnar Ryman, Åke Strid and Nils Suber. We also invited foreign researchers, like Ronald Petersen and Erast Parmasto in 1974. Lisbeth Kagardt was president of Myko from 1994 to 2009. Since 2009 Jeanette Södermark has been our president. In 2020 Myko will celebrate it's 50 years.

We also have public excursions once a week in the autumn. *Boletus edulis*, *Lactarius deterrimus* and *Russula favrei* are common and popular edible mushrooms. We arrange study circles, just now on *Polyporales*. Myko has also a close collaboration with the local botanical society. At the Facebook groups of "Medelpads Botaniska Förening" and "Myko, Sundsvalls Mykologiska Sällskap & Svampfärgarsällskapet" you can see films, photos and comments from our activities.



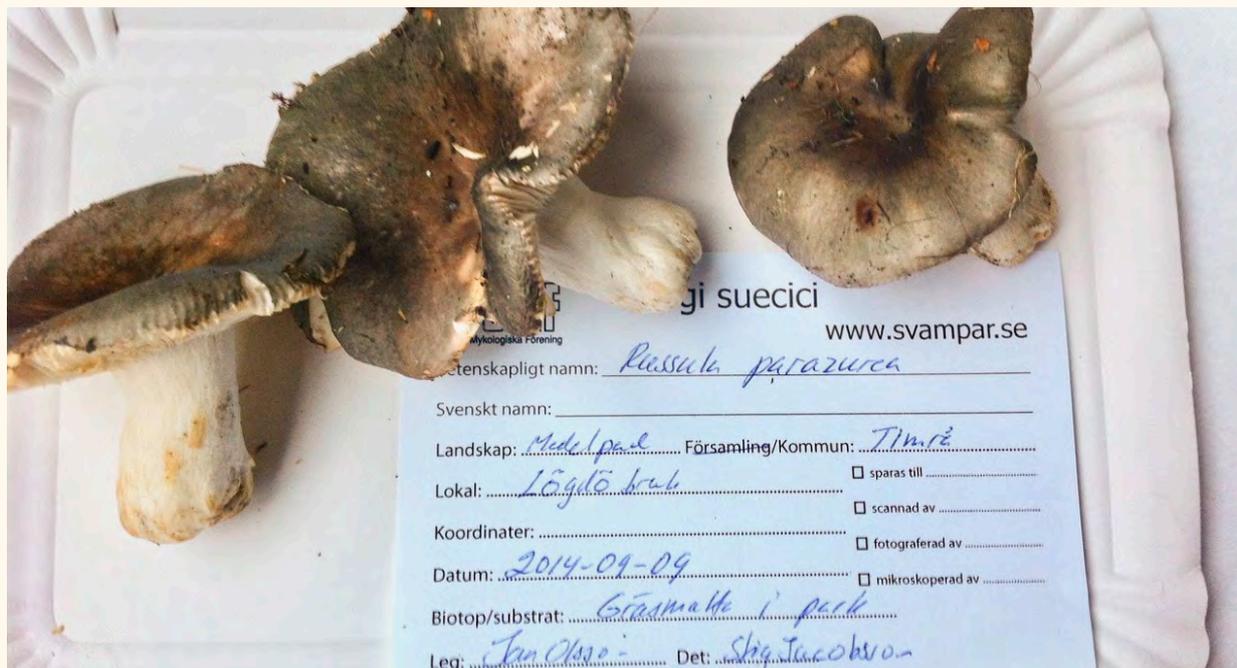
Lisbeth Kagardt, honorary member and president of Sundsvall Mycological Society 1994–2009. Lisbeth led together with Hjördis Lundmark two excursions during the Lactarius workshop 1997 to our popular excursion goal Sidsjö in Bodsjö parish. Photo: Hjördis Lundmark



Jeanette Södermark, president of Sundsvall Mycological Society since 2009 with mushroom coloured scarf. Photo: Hans Andersson



# BORGSJÖ PARISH



*Russula parazurea* from the old park at Lögdö ironworks in Timrå parish. Photo: Hjördis Lundmark

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## 1 Västanå

Excursion guide pp. 52-53

29 Aug. 2018

### Among earlier finds:

*Lactarius spinosulus*.

*Russula aquosa, atrorubens, consobrina, firmula, nitida, paludosa, rhodopoda, versicolor, vinosa, xerampelina*.

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

### List by Cathrin Manz and Felix Hampe

*Hydnellum aurantiacum*  
*Hydnellum caeruleum*  
*Hydnellum ferrugineum*  
*Phellodon niger*  
*Phellodon tomentosus*

### List by Karl Soop

*Amanita flavescens*

*Cortinarius niveotragranus, Betula, Salix (no Populus)*

*Cortinarius subbalaustinus, Betula, Salix*

*Cortinarius subporphyropus*

José Maria Traba-Velay found *Entoloma ameides* in grassland near the working hall

### Comment, site 1, Västanå

Mixed forest with *Betula, Picea, Populus* and *Salix* along path down to the river. A neotype exist for *Tricholoma stans* from this forest, see *Fungi of Northern Europe 4, Tricholoma* (Christensen-Heilmann Clausen 2013, pp. 76 and 209). Felix Hampe and Cathrin Mantz followed the path from the working hall down to the Pine ridge along the river. They returned to the working hall and said "unbelievable amounts of fungi" and showed us beautiful hydneous fungi. Most interesting nature type is the lime influenced gravel ridge with pine along river Ljungan with species of *Tricholoma*. *Stagnicola perplexa* was found here in 1997 by Jacob Heilmann-Clausen, C. See information on this interesting, rare species: Stridvall, L. & A. 1996: Fynd av två för Sverige nya skivlingar *Russula rutila Romagn.* och *Stagnicola perplexa* (Orton) Redhead & Smith, *Jordstjärnan* 17(1): 11--17. Doris Laber and Hans Marklund presented *Stagnicola perplexa* in *Zeitschr. f. Mykol.* 58 (1):53–56 with photo.



Omer van de Kerckhove is painting *Lactarius evosmus* from Lillskogen park, Östersund.  
Photo: Hjördis Lundmark





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

## ***Cortinarius* Flora Photographica (CFP)**

**Plans for a *Cortinarius* project started already in autumn 1981 at the home of Åke Strid near Stockholm. Tor Erik Brandrud, Håkan Lindström and Jan-Olof Tedebrand participated in the meeting.**

The first *Cortinarius* workshop in Borgsjö took place in 1982. *Cortinarius* Flora Photographica (CFP) was published 1989–2018 in five volumes and in four languages by Håkan Lindström, Hans Marklund, Jacques Melot, Siw Muskos and Tor Erik Brandrud. What an idealism! This five heroes and pioneers

should of course have statues outside the head office of the Swedish Forest Agency! They have done a lasting work with describing our most speciesrich ectomycorrhizal genus. Information about CFP: [tor.brandrud@nina.no](mailto:tor.brandrud@nina.no) How to buy CFP, contact Tanja Böhning: [tanja@myko-shop.de](mailto:tanja@myko-shop.de)





This aerial photo from Tynderö parish, Medelpad c. 1940 shows the open agricultural landscape 80 years ago, typical for the region at the time. Grazed open spruce and pine forests surround the arable land. Deciduous trees are only present as small groves or solitary trees. Species dependent on deciduous trees had a rough time. Photo owner: Västernorrlands Museum

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6935635;1505988

## 1 B, Träporten inn, Borgsjö parish, Tanja Böhning

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28 Aug. 2018

*Amanita muscaria* var. *muscaria*  
*Inocybe grammata*



Håkan Lindström, Henri Romagnesi and Jan-Olof Tedebrand at the Russula workshop 1983. Photo: Siw Muskos

## 2 The lake forest of Henri Romagnesi

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28 Aug. 2018

### Selected earlier finds

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

*Russula maculata* (= *dryadicola* 2018), *medullata* (Jan-Ola Wimo-Henri Romagnesi 24 Aug. 1983.

**Also:** *Amanita friabilis*, *Antrodiella serpula* at *Inonotus radiatus*, *Coprinopsis pannuciooides*, *Cortinarius lilacinopusillus*, *uliginosus* (good for wool dyeing), *violaceus*, *Eutypa flavovirens* and *Ombrophila* (*Neobulgaria*) *pura* (Nils Lundqvist), *Gyrodon lividus*, *Mycena corticola*, *Paxillus filamentosus* (Henri Romagnesi and Jan-Olof Tedebrand 24 Aug. 1983, S), *Pluteus cf subbulbosa* (Henning Knudsen-Håkan Lindström 24 Aug. 1984, (UPS).



Photo of lake Borgsjön today from the sandy beach at Erikslund. Top of Borgsjö church can be seen above the belt of broadleaved trees. Photo: Hjördis Lundmark

### Henri Romagnesi found *Amanita friabilis* for the first time in his long life

The famous French mycologist Henri Romagnesi found *Russula medullata* under aspen here in the shore forest 24 Aug. 1983. But Henri was much more delighted when he found the small *Amanita friabilis* for the first time in his long life! *Amanita friabilis* belongs to a special group of fungi and vascular plants in calcareous *Alnus* forests, see article by Jan-Olof and Stefan Grundström (11).

In earlier centuries the shores of the river Ljungan were naturally fertilized by the spring flood and an important part of the agricultural landscape with vaste seminatural grasslands. During spring time lake Borgsjön was one of the biggest depositories of timber in Sweden about 75 years ago. In 1958 more than one million logs ("bitar" in Swedish) covered the lake. Timber was until 1969 transported floating on the river down to saw mills and factories at the Bothnian coast around the city of Sundsvall. Nowadays water power stations are built along the river. *Viburnum opulus* flowers here in the swampy *Alnus* forest at mid summer time. Special mycorrhizal fungi restricted to swampy *Alnus* forests in Medelpad include *Amanita friabilis*, *Cortinarius lilacinus*, *Gyrodon lividus*, *Lactarius*

*lilacinus*, *L. obscuratus* and *Paxillus filamentosus*. *Mycena pelianthina* and *Ombrophila pura* are southern species in *Fagus* forests but they have a northern outpost in calcareous *Alnus-Picea* forests. Myko sometimes has excursions at midsummer time to calcareous *Alnus* forests just for picking *Calocybe gambosa*, a popular edible mushroom. We fry them in butter with some pepper and salt. Delicious!

### Some supposedly alpine *Russula* species appear down to the Bothnian coast

Some alpine species in *Lactarius* and *Russula* are found in fens, forests and meadows down to the Bothnian coast. Henning Knudsen and Håkan Sundin found in 2014 *Russula laccata* under small *Salix triandra* bushes at sandy shorer of Indalsälven in Hässjö parish, Medelpad. *Russula subrubens* is collected by Jan-Olof under *Salix caprea* in Nacksta, the city of Sundsvall, confirmed by Herbert and Slavomir. Hjördis and Ilkka Kytövuori found the alpine *Russula violaceoincarnata* on Borgsjö churchyard. *Russula nana* och *R. oreina* appear on well managed meadows that have similarities with the alpine heath like Gammelbodarna and Julåsen in Borgsjö. Hjördis has *Russula nana* on her old courtyard.





*Cortinarius uliginosus* occurs in *Alnus-Salix* forests along lakes and rivers in Jämtland and Medelpad. It is a popular mushroom for wool dyeing with beautiful yellow and red pigments. Photo: Hjördis Lundmark

### Wet *Alnus-Betula-Salix* thickets

The mycoflora of moist *Alnus-Salix* thickets, lining the lake Borgsjön and the river Ljungan, is special with many interesting species like *Amanita friabilis*, *Gyrodon lividus*, *Hebeloma atrobrunnea*, *Cortinarius uliginosus* and species of *Entoloma*, *Rhodopolia* group. In 2016 Olga Morozova and Tatyana Svetasheda liked the moist *Alnus-Betula-Salix* thickets near the river at Södra Sillre and found *Entoloma lividoalbum*, *nidosum*, *politum*, *rhodopolium* s.l., *sericatum*.

During Russula workshop in Borgsjö 2001 the Belgian mycologist Ruben Walley found the alpine *Lactarius brunneoviolaceus* under *Salix* in a swampy area on the lake shore southwest of the old Saint Olof's inn. Omer van de Kerckhove painted a beautiful watercolour (OVdk 745) and the collection was deposited in the fungarium GENT. There is a good photo and description of *L. brunneoviolaceus* at pp. 52–53 in *Pilze der Schweiz/6*. The Danish book "The genus *Lactarius*" (1998) by Heilmann-Clausen, Verbeken and Vesterholt have information and a photograph of *L. brunneoviolaceus* at pp. 90-91 and text: "With *Salix* in arctic and alpine areas. Known from the Alps, Fennoscandia, Svalbard, the Faroes, Iceland and Greenland". *Funga Nordica* (2012) also gives *Lactarius brunneoviolaceus* as a strictly alpine species. Ruben's collection of *Lactarius brunneoviolaceus* with *Salix* at lake shore of Borgsjön is according to map in Swedish *Dyntaxa* the only finding near the Bothnian coast. Read more about Ruben's interesting find at page 17 in report from the *Russula* workshop 2001: "Ruben fyndade i Borgsjöns strandskogar: *Lactarius brunneoviolaceus*, fjällart i skogslandet":

### Species List by Kristoffer Stighäll

30 Aug. 2018

*Amanita crocea*

*Chlorophyllum olivieri* det. Birgitta Wasstorp

### Nature conservation

*Alnus* forests at calcareous soils in brook valleys and at seashores often have a rich biological diversity. The county government has indicated limerich *Alnus* forests as somewhat special for Västernorrland county and has protected some of the best hot spots like the nature reserve Stornäset at the Bothnian coast.



Henri Romagnesi and Jacques Melot on Borgsjö churchyard 1984. Photo: Siw Muskos





Tero and José Maria study richly coloured and fresh *Russula* collections. Birgitta and Kristoffer in the background. Photo: Annemieke Verbeken

6936535;1505226

### 3 Borgsjö churchyard

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30 aug. 2018

#### Selected earlier records

*Lactarius flexuosus, necator, spinosulus.*

*Russula acrifolia, aeruginea, anatina* (Henning Knudsen 1984, S), *atroglaucua, cremeoavellanea, chloroides, cyanoxantha f. peltareui* (Henning Knudsen-Jan Ola Wimo 1984), *delica, depallens, foetens, font-queri* (Hjördis Lundmark – Birgitta Wasstorp 2010, UPS), *gracillima, intermedia, lutea, medullata, pascua, pubescens, roseipes, scotica* (Herbert Kaufmann 2016), *subfoetens* (Henning Knudsen 1984 (S)), *violacea* (= *pelargonica*), *versicolor* and *violaceoincarnata* (Ilkka Kytövuori-Hjördis Lundmark 1995 under *Betula pendula dalecarlica*).

**Also:** *Albatrellus syringae, Amanita flavescens, Boletus edulis* (much under *Betula* in memorial park some years), *Conocybe sienophylla, Entoloma rusticioides* (Carina Eriksson, Jan Ola Wimo, Machiel Noordeloos), *Helvella crispa, Mycena cyanorrhiza, stylobates* (Læssøe). Also many meadow fungi in the memorial park, see article by Lindström-Nitare-Tedebrand (32), among others *Camarophyllopus foetens* with a strong, unpleasant smell.

#### We thanked our patron saint

Swedish churchyards are often quite spacious with vast grasslands, old trees and a rich biological diversity. Borgsjö church from 1772 is, according to Henrik Cornell, one of the most beautiful and typical rococo churches in Sweden. Old lawns with *Betula*, but also some *Picea* and *Pinus*. Churches have been at this place for 700 years and the meadows west of the church are very old. The present church was inaugurated in 1772. The church verger Conny Olsson guided us, before the social banquet at thursday evening, to the beautiful inner part of the church with old wall paintings and medieval wooden sculpture of Saint Olof. We thanked our patron saint for plenty of fungi during *Russulales*!





Jan-Olof, Berthold Lundmark and Elise Hagberg on Borgsjö churchyard Sunday 25 Aug. 2018. Photo: Hjördis Lundmark





*Russula cremeoavellanea* with field note from birch park on Berglunda churchyard in Timrå parish 2014, leg. Hjärdís, Jan-Olof and Lennart Söderberg. Photo: Hjärdís Lundmark

### Tero identified *Russula intermedia* during an opening show on Borgsjö churchyard

Already on the day of arrival on Sunday 26 Aug. 2018 Slavomir Adamcic, Tero Taipale, Herbert Kaufmann, Annemieke Verbeken and others visited Borgsjö churchyard. They found an amazing amounts of fresh *Russulas* in big groups and in different colours. A fantastic *Russula* peak with unbelievable timing. A group with about 30 fruitbodies of a beautiful, fresh and scarlet red *Russula* under *Betula*, acrid tasting and with cream to ochre gills was rapidly identified by Tero Taipale as *Russula intermedia*. The Swedish name "praktkremla" means "magnificent *Russula*". *Russula intermedia* was described by Karsten from Finland. It is rather rare in the calcareous belt of mid Sweden and always attract attention due to its big and beautiful fruitbodies. It is typically found with *Betula* on rich coniferous slopes with *Hepatica nobilis* but also in slopes with tall herbs like *Aconitum septentrionale*. *R. intermedia* is found from the high alps with mountain birch in western Härjedalen and Jämtland down to the Bothnian coast. Stig Jacobsson recorded *R. intermedia* in rich alpine birch forest in Härjedalen (18). We saw this magnificent *Russula* in the same habitat during the Swedish mycological week in Härjedalen 2006. Lars Lundberg say that *R. intermedia* is rather common

in mountain birch forests in Jämtland. It also appears in churchyards and other parks and is an adornment in old courtyards at farms. Mauri Sarnari collected *R. intermedia* just near the sea at Härnösand, Smitingen 25 Aug. 1997. Many collections of *Russula intermedia* have been deposited in public fungaria for instance: Borgsjö, Granboda, under *Betula* at courtyard, 31 Aug. 1987 Birgitta Wasstorp (UPS). *R. intermedia* is often bigger and have more even red-orange colours than *R. aurantioflammans* which has more flamelike orange-yellow colours and more burning bitter taste. Erhard Ludwig and Mauro Sarnari collected *R. aurantioflammans* on Borgsjö, Lombäcksheden 3 Sept. 1997 (Sarnari). *R. aurantioflammans* is found from the high alps in western Jämtland to the Bothnian coast in Medelpad. Among collections: Jukka Vauras, Renfjället, Jämtland 2001 (TURA) and Mauro Sarnari, Härnösand, Smitingen 1997 (S).

### Henri Romagnesi studied *Russula foetens* at Borgsjö churchyard

At the western part of the churchyard *Russula foetens* is common in big groups under *Betula* in the memorial grove and along the stone wall. Henri Romagnesi forayed at the churchyard in 1983 and studied *Russula foetens*. He



Siw Muskos collected a *Russula* with the preliminary identification "*subterfucata Romagnesi*" under *Tilia* in park on limestone on Alnö churchyard 9 Aug. 2000, det Juhani Ruotsalainen. *R. subterfucata* is described on pp. 323–325 in Sarnaris first book on "*Russula in Europe*" (1998). Photo: Siw Muskos

said in evening talk that he considered *R. foetens* and *R. subfoetens* to be the same species with a broad variation. Henning Knudsen treated them in 1984 as separate species both occurring in Medelpad and Jämtland. The famous Swedish mycologist John Axel Nannfeldt (1904–1985) wrote in his classical paper on *Russula* under *Betula* at his summer place at Tolvfors bruk in Gästrikland that he had investigated about 30 Swedish collections without finding any clear microscopical differences between *R. foetens* and *R. subfoetens* (42). *Funga Nordica* (2012) accepted both species. Slavomir Adamčík say in mail 16 Sept. 2019: "*R. foetens* and *R. subfoetens* are two different species. There are more species in the group that look-alike. Tero Taipale and his friend are just now describing a new species in the group from moist boreal forest." *Russula illota* was found by Siw Muskos, Hans-Gunnar Unger and others on 5 Aug. 1991 under broadleaved trees on limestone at Stornäset nature reserve, Medelpad. Anki Suneson and others found *R. illota* in 1992 under old *Quercus* at Norafors ironworks in Sättna parish.

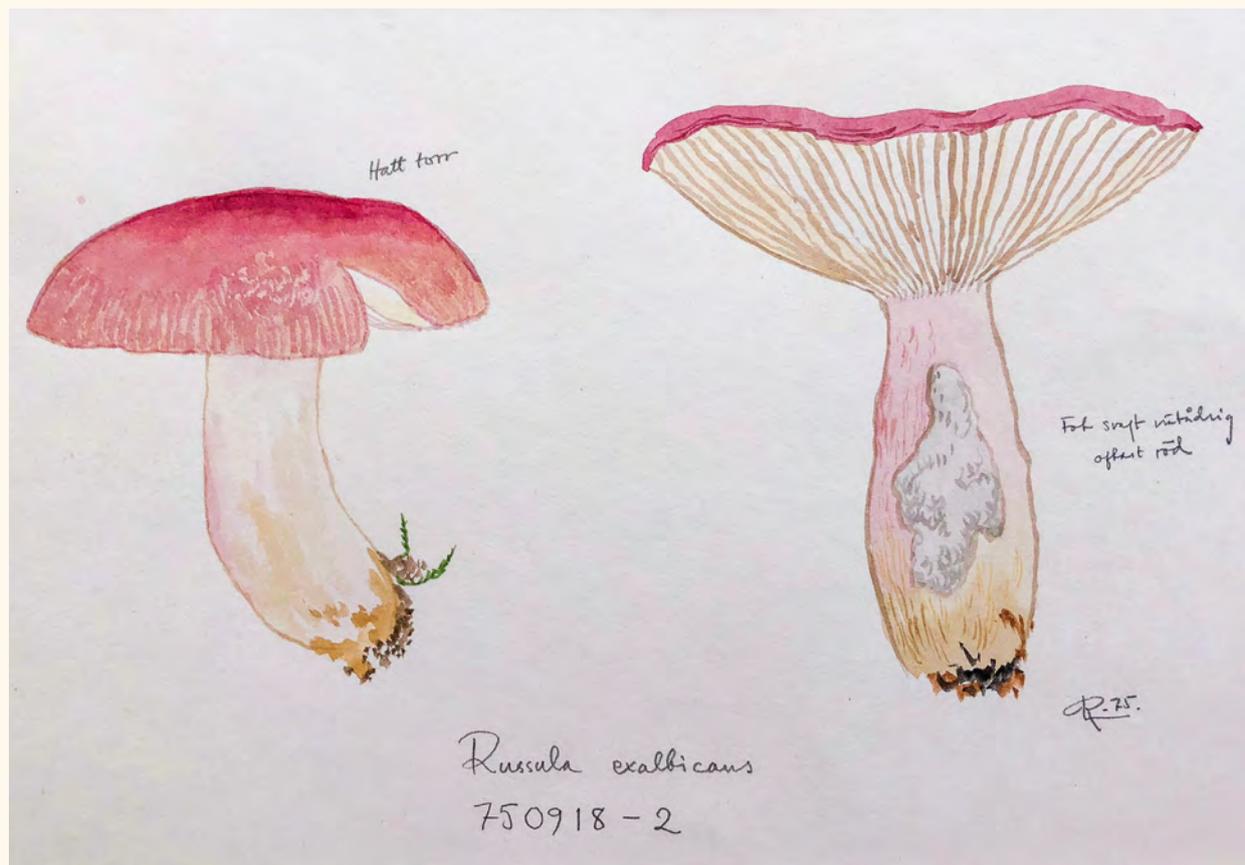
### Sättnakemla

Anki Suneson and Hjördis Lundmark have often found a *Russula* in the *Tilia* avenue outside Sättna church in

Medelpad. We call it sometimes *Russula pectinata* and sometimes *Russula pecinatooides*. Slavomir wrote in mail 31 July 2019: "We have not *R. pectinatooides* in Europe, it is a North American species. There is a study by Melera et al. explaining this also with molecular support. European species that we know under this name are either *R. praetervisa* or *R. recondita* usually. But I have experienced that in parks, there are also species less known, e.g. *R. hortensis* etc. There are molecular studies confirming which species we have in Europe, but there is not a good morphological key explaining differences." Hjördis Lundmark and we others here in Medelpad use to call this *Russula* under *Tilia* for "Sättnakremla" after the rich find in the *Tilia* avenue outside Sättna church.

### *Russula cremeoavellanea*-a typical park *Russula* in Jämtland and Medelpad

John Axel Nannfeldt identified from 1971–1980 in total 1150 fruitbodies of 16 *Russula* species under birch and at an area of just 350 square metres at his summer place at Tolvfors bruk near the city of Gävle: *aeruginea*, cfr *aurantiolutea*, *claroflava*, *cremeoavellanea*, cfr *cuprea*, *delica*, *depallens*, *foetens*, *font-queri*, *gracillima*, cfr *lutea* var. *roseipes*, *pectinata*, *velenovskiyi*, *versicolor*, *vesca*, *xerampelina* var. (41). The most common *Russula* was *R. velenovskiyi*. Later



*Russula exalbicans* (*pulchella*). Painting by Rolf Lidberg

on Jan-Olof and Siw Muskos visited Tolvfors bruk and studied *Russula* species at the famous lawn of John Axel. Siw lived for a time at Tolvfors with her family. Birgitta Wasstorp found *R. cremeoavellanea* 31 Aug. 1987 on Borgsjö churchyard. Stig Jacobsson and Lars Lundberg have also collected *R. cremeoavellanea* in mountain birch forest in Kall parish, western Jämtland. We can now say that *R. cremeoavellanea* is a typical *Russula* under *Betula* in parks on rich soil in Jämtland and Medelpad and also appear in mountain birch forests. In 2018 Slavomir Adamcic, Per Marstad and others found big groups of *R. cremeoavellanea* on limestone in the parks of Lillskogen and Björkbacka in central Östersund.

**Rolf Lidberg: "Russula depallens has a faint smell of young Swedish turnip"**

*Russula depallens* appears already in July under *Betula* in dry grasslands in parks and on old courtyards in Jämtland and Medelpad but sometimes also in forests. Jan-Olof forayed in July 1986 the old village road from Saint Olof's inn to Borgsjö church together with Håkan Lindström, Rolf Lidberg and Lars Ericson. Lars was professor in ecological botany at Umeå University. On that summer day in 1986 we saw *Russula depallens* abundant on lawns and on mossy road side outside Borgsjö church. Some fruitbodies had lost the red colour and were white. Rolf liked to discuss

the smell of fungi. He took one fruitbody of *R. depallens* and said after a long time of smelling: "en svag doft av späda kålrötter" (=a faint smell of young Swedish turnip)! *R. depallens* is common from the Bothnian coast to the alpine mountains in Härjedalen and Jämtland on both calcareous and acid soil. Selected collections: Härjedalen, Flatruet, with *Betula nana*, Stig Jacobsson, coll. 80096 and Hamrafället, 810819, GB; Jämtland, Bodsjö, Sidsjö, "boschetto di betulle in terreno calcareo, 4 Sept. 1997, Mauro Sarnari (fungarium Sarnari); Ångermanland, Härnösand, under björk i Gädeåparken, 1986, Hans Marklund (HM 127-86 + photo).



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





Anki Suneson and Roy Watling at the Finnish settlement Julåsen in 1993. Photo: Kjell Olofsson

### Hjördis and Ilkka found *Russula violaceoincarnata*

In 2016 Herbert Kaufmann found the following *Russula* species on the churchyard: *pascua*, *cremeoavellanea*, *atroglauca*, *scotica*. Jan Ola Wimo found on 19 Aug. 1984 a green form of *Russula cyanoxantha* on the churchyard determined by Henning Knudsen as *R. cyanoxantha* var. *pelteraii*. The green form of *R. cyanoxantha* is described with photo in Sarnaris *Russula* book (1998) and has also been mentioned from the province of Dalarna by Stig Jacobsson, Anita and Leif Stridvall in their paper about Swedish distribution of some *Russulas* (Jordstjärnan 1990/2:2–18). Henning Knudsen and Hjördis found 19 Aug. 1984 groups of *Russula versicolor* under *Betula pendula* f. *dalecarlica* along the path in front of the church. Under the same "Ornäsbjörkar" Hjördis and Ilkka Kytövuori found in 1995 *Russula violaceoincarnata*, described by Knudsen & Borgen from Greenland. Artportalen show only 11 finds of *R. violaceoincarnata*, most dots (7) in Lycksele and Lule Lappmark. Henning Knudsen and Olle Persson found 24 Aug. 1984 *Russula font-queri* on the mossy roadside along the stonewall. We mostly find *R. font-queri* in parks but also in herb-rich forests with *Betula* and *Picea* along forest brooks in Jämtland and Medelpad.

### Alnö churchyard on limestone near the sea—a hot spot for *Russulas* and other fungi

Mats and Tony from Skåne put a fine collection of *Russula*

*anthracina* from Borgsjö churchyard on the exhibition table. We have earlier found *R. anthracina* in the park around Saint Olof's inn and also under *Pinus* at Sidsjö, Jämtland, Ruotsalainen (UPS). Siw Muskos collected a *Russula* with preliminary name "*anthracina* var. *carneifolia*" on limestone under *Pinus* and *Tilia* on Alnö churchyard 9 Aug. 2000, det Juhani Ruotsalainen. Jukka Vauras commented this interesting *Russula* collection in letter to Siw Muskos: "We know this taxon well from Finland, it is reddening after thumbing or cut. The genuine *R. anthracina* is not reddening in that way". On limestone under *Tilia* on Alnö churchyard Henning Knudsen, Thomas Læssøe, Erik Rald, Jan Vesterholt found 25 Aug. 1986 *Russula virescens* (photo: Jens H. Petersen), the only record in Medelpad of this southern *Russula*. They also found *Arrhenia spathulata* (*Leptoglossum muscigenum*) and *Clavaria asperulisporal atrofusca*. The dark and rare beauty *Mycena pseudopicta* grew in big groups in grassland on limestone south of the church. *Mycena pseudopicta* is described on page 215 in FTE. It is mostly found on old limerich grasslands in the provinces of Skåne and Öland.

Hjördis Lundmark habitually collects the delicious *Macrolepota procera* in the park on Alnö churchyard, also a southern species, mostly found on lime stone e.g. Tynnderö parish, Rosböle 16 Oct. 1983, Håkan Lindström, Siw Muskos (UPS). *Bovista aestivalis* (Ivona Kautmanova) and *Inocybe lanatodisca* (Ellen Larsson) are also found on Alnö churchyard.





Autumn in the troll forest. Painting by Rolf Lidberg

### Wonderful *Pinus* park on Berglunda churchyard

During the Swedish mycological week in Timrå 2014 Gunnilla Kärrfelt, Stig Jacobsson, Jan Olsson and others visited the beautiful *Pinus* park at Berglunda churchyard and found interesting fungi, see pp. 49–51 in the report.

The local church planned to cut down some of the old pine trees. We wrote a kind letter to them and to the bishop about the high values of the pine park. We compared with the World Heritage Skogskyrkogården in Stockholm. Still now we can collect *Lactarius deliciosus*, *Russula cessans* and *R. roseipes* under the magnificent high and old pine trees on Berglunda wonderful churchyard.

### List by Jan Olsson on Borgsjö churchyard

*Boletus edulis*  
*Chalciporus piperatus*  
*Clavaria vermicularis*

*Clavariadelphus pistillaris*  
*Clitopilus prunulus*  
*Cortinarius largus*  
*Cortinarius triumphans*  
*Cuphophyllus pratensis*  
*Helvella crispa*  
*Hygrocybe acutoconica*  
*Hygrocybe glutinipes*, Stig Jacobsson  
*Inocybe flocculosa*, Ellen Larsson  
*Inocybe grammata*, Ellen Larsson  
*Inocybe lanatodisca*, Ellen Larsson  
*Inocybe melanopus*, Stig Jacobsson  
*Inocybe rimosa*, Ellen Larsson  
*Leccinum versipelle*  
*Lycoperdon (Apioperdon) pyriforme*  
*Naucoria bohémica*, Jan Olsson  
*Russula lutea*  
*Tricholoma fulvum*



## List by others

*Amanita muscaria*, Jan-Olof Tedebrand  
*Amanita porphyria*, Jan-Olof Tedebrand  
*Lactarius flexuosus*, *Betula*, Gunilla Kärrfelt  
*Lactarius pubescens*, Annemieke Verbeken  
*Russula adusta*, Jan-Olof Tedebrand  
*Russula aeruginea*, Jan-Olof Tedebrand  
*Russula font-queri*, *Betula*, Mats Karlsson, Tony Svensson  
*Russula gracillima*, *Betula*, Mats Karlsson, Tony Svensson  
*Russula subfoetens*, *Betula*, Tero Taipale

## Collections, UPS

*Russula anthracina*, *Betula*, Mats Karlsson, Tony Svensson  
*Russula chloroides*, *Betula*, Tero Taipale  
*Russula foetens*, *Betula*, Mats Karlsson, Tony Svensson  
*Russula intermedia*, *Betula*, Tero Taipale  
*Russula lutea*, *Betula*, Tero Taipale

## Nature conservation

City parks, old churchyards and courtyards are important parts of a green infrastructure. Today there is a broad interest in Sweden to favour biological diversity like butterflies, flowers and fungi on the large areas of city parks by creating meadows on suitable lawns on poor soil. There is also an increasing interest in biological diversity on old churchyards with unfertilized lawns and old park trees. Anita and Leif Stridvall found an interesting lichen flora on churchyards in western Sweden. Grasslands on old churchyards and courtyards in the countryside ought to be more upstaged in today's discussion on "green infrastructure". The archbishop of Sweden has in a publication told his people all around Sweden to preserve the biological diversity on churchyards (6). Lena Sundin Rådström, leader of ArtDatabanken in Uppsala could perhaps have meeting with the Swedish archbishop, also in Uppsala, concerning biological diversity and nature conservation on churchyards and in forests owned by the church. The publication "Kyrkogården-en Noaks art" (6) should be updated, perhaps in cooperation between the church and ArtDatabanken.

### Leif Örstadius: "the best place in Europe for fungi on horse dung"

East of the churchyard and along the village road we have visited a very special nature type: a 40 years old plantation of *Picea* and *Pinus* on an arable field partly covered with horse dung. Leif Örstadius said "the best forest for horse dung fungi in Europe"! Nils Lundqvist made his doctor's thesis on coprophilous pyrenomycetes fungi. Nils visited the famous dung forest, found and described the new species *Cercophora aggregata*. He distributed the new species to ten herbaria all over the world. What an honour for a dung



Wim Dewitte and his daughter Johanna Dewitte.  
 Photo: Hjärdís Lundmark

fungi! During *Conocybe* workshop with Dan Broström, Roy Watling and others in 1993 some other exciting dung fungi were found here. We therefore use to call the site "The Watling forest". Anki Suneson found the rare *Bolbitius variicolor* on horse dung in Sättna parish, confirmed by Roy Watling and new for Sweden. See article by Roy Watling in the review *Jordstjärnan* 1994/3 on records of dung fungi in Borgsjö 1993.

### Evening parties in cottages with delicious *Boletus edulis* dishes

During mycological workshops in Borgsjö we have noticed the high interest by our friends from France, Italy and Spain to collect *Boletus edulis*. In the evenings they sometimes have parties in their cottages and make delicious dishes. *Boletus edulis* is also top ranked in Sweden among mushroom pickers. After the hot summer 2018 there was a remarkable peak of *Boletus edulis* late in August in parks and forests of Borgsjö. *Boletus edulis* was common under *Betula* in the memorial grove in the western part of Borgsjö churchyard. We also found lots of *Boletus pinophilus* on sandy pine heaths.





*Lactarius leonis*, Jämtgaveln nature reserve. Photo: Hjördis Lundmark

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## 4 Borgsjö old historic yard and folk museum/youth hostel (hembygdsgård)

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Almost every parish in Sweden has a local association guarding the memory of old customs. They often have a historic yard, like a small open-air museum. Every building at Borgsjö historic yard tells about older times. The big timber house "Jämtkrogen" was during centuries a local inn, see <https://sv.wikipedia.org/wiki/Jämtkrogen>

### Bread baking

Hjördis Lundmark has been responsible for mycologists living at "Borgsjö hembygdsgård" during many workshops. In 2018 the following mycologists stayed there: the Belgian students Glen, Nathan, Ronny and Stepanie, Anders from Göteborg, Mats and Tony from Skåne, Birgitta and Gunilla from Stockholm, Hjördis and Jeanette from Sundsvalls Myko, Tero from Finland. Hjördis had contact with Ulla-Britt Olsson in Borgsjö hembygdsförening. We have also

a long tradition to show old traditional bread baking of "norrländskt tunnbröd" in a stone oven. We enjoy a taste of fresh bread with butter. Delicious!

### Old courtyards with interesting grassland funga

Many mycologists have stayed at the idyllic youth hostel during the 17 fungal workshops in Borgsjö 1982–2018. They often sat outside the old buildings in warm autumn nights enjoying interesting conversations with friends about fungi and life in general. Also many rare meadow fungi on the calcareous grassy tramped courtyard. During *Hygrocybe* week in Borgsjö 1987 Eef Arnolds, Erik Malm, Johan Nitare and Erik Rald collected and took photos of *Camarophylloopsis (Hodophilus) hymenocephala*, *C. micacea* s.l., *Hygrocybe laeta* f. *pseudopsittacina*, *H. subminutula*, *Ramariopsis crocea*, *Thuemenidium atropurpureum*, *Trichoglossum walteri*. Sigvard Svensson found a rich occurrence of *Hygrocybe phaococcinea*, det. Arnolds and Rald, a species found also on other old courtyards in Borgsjö. At the flowerbed outside "Hedlundska gården" Carina Eriksson and Henning Knudsen in 1984 found *Stropharia magnivelaris* (UPS).



### Erhard Ludwig

The late German mycologist Erhard Ludwig visited several mycological workshops in Borgsjö. During *Lactarius* workshop in 1997 Erhard painted watercolours of fungi on a wooden bench outside "Hedlundska gården" at the youth hostel. Twenty years ago Hjärdís and Jan-Olof arranged a mycological week for Swedish Mycological Society (SMF) to eastern Germany in near collaboration with Erhard and Regine Ludwig. Our mycological adventures together with many German friends are described in the review *Jordstjärnan* 2003/2, pp. 40-55. After *Russulales* workshop 2018 we sent Erhard a piece of *Lactarius resimus* that he had asked for. He was preparing a book on *Lactarius* and *Russula* in his serie of mycological presentations. The rare *Naucoria zonata*, described by Erhard Ludwig and Peter Reil, is found at Haverö, Snöberg and Borgsjö, Julåsen. Now in the beginning of 2019 we got message that our friend Erhard had passed away.

### Maria Gardfjell and a bus with young Swedish field biologists studied old grasslands in 1989

A happy memory is the arrival of a bus in July 1989 with enthusiastic young Swedish nature friends, "fältbiologer", among others Maria Gardfjell, now leading green Swedish politician. They travelled through Sweden, looked at the biological diversity in old cultural landscapes and stayed some days at the youth hostel. We took them to old semi-natural grasslands in western Medelpad and in Jämtland. We have during all years had a good collaboration with Kärstin Leander, Thore Mattsson, Ulla-Britt Olsson, Mats Phanér and others in Borgsjö hembygdsförening. Thore, Karl-Ingvar Ångström and others have during decades edited a yearly publication, "Borgsjöbygden", with interesting facts on daily life and work in older times in the villages of Borgsjö.

### Ruben found 18 *Russula* species on the youth hostel

Herbert Kaufmann found around the youth hostel in 2016: *Russula adusta*, *pelargonica*, *vinosordida*

Ruben Walley wrote in a letter 5 Sept. 2001 after the *Russula* workshop: "The youth hostel was very good for *Russula*. We observed 18 species of *Russula*: *aeruginea*, *betularum*, *cessans*, *chloroides*, *claroflava*, *cremeoavellanea*, *favrei*, *foetens*, *font-queri*, *globispora*, *gracillima*, *grisescens*, *lutea*, *nauseosa*, *postiana*, *rhodopoda*, *roseipes*, *vesca*". Later in autumn 2001 Siw Muskos received another letter from Ruben: "Dear Siw. Attached a list I made at your wonderful workshop with species name, locality, ecology, date, collection number, notes on slides, aquarels. Collection in GENT and some in BR". All Ruben's about 70 interesting collections of mostly *Lactarius* and *Russula* are listed at pp. 20-24 in the report from *Russula* workshop in Borgsjö 2001.



Inga-Lill Phanér from Borgsjö hembygdsförening and mycologist Kill Persson baking "norrländskt tunnbröd" in stone oven during the Borgsjö workshop in 2010. Photo: Kjell Olofsson

### Nature conservation

During fungi workshops in Borgsjö we have visited many old courtyards with interesting meadow fungi in Granboda, Julåsen, Tälje and other villages. Hjärdís herself is the happy owner of such an old courtyard with *Clavaria*, *Entoloma* and *Hygrocybe* species at her old mansion in Ångermanland. The alpine fungi *Russula nana* and *Russula oreina* are found not only on old meadows but also on old courtyards in northern Sweden together with plants like *Botrychium lunaria*. Old courtyards, churchyards and city parks should also be highlighted in today's discussion on "green infrastructure"!

### Collections, UPS

*Russula cessans*, *Pinus*, Mats Karlsson, Tony Svensson,  
*Russula delica*, *Picea*, *Pinus*, Mats Karlsson, Tony  
 Svensson  
*Russula font-queri*, *Betula*, *Pinus*, Mats Karlsson, Tony  
 Svensson

### List by Anders Aronsson, Mats Karlsson and Tony Svensson

*Amanita rubescens*  
*Amanita vaginata* f. *vaginata*  
*Boletus pinophilus*  
*Entoloma sericeum*  
*Infundibulicybe gibba*  
*Hygrocybe conica*  
*Lactarius glyciosmus*  
*Rickenella swartzii*  
*Russula aeruginea*  
*Russula cessans*  
*Russula delica*  
*Russula foetens*  
*Russula font-queri*



Pieceful picture of the late province botanists Anders Delin and Håkan Lindström at the publication of *Medelpads Flora* (Florasläpp) in 2010 at Norra Berget in Sundsvall. Photo: Hjördis Lundmark

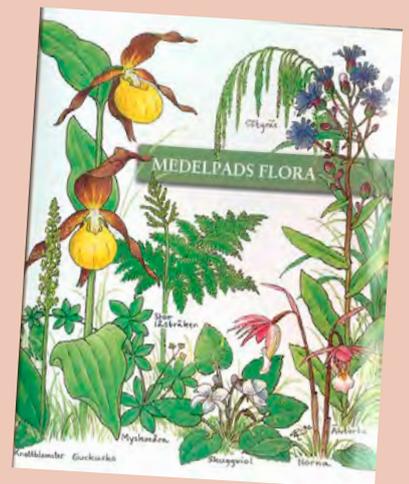
## Province Flora Books Excellent Nature Guides

**Sweden has 25 provinces (landscapes) from Skåne in the south to Lappland in the north. Almost every province has today a botany flora on nature types and vascular plants. They are excellent nature guide books! Sweden is unique in Europe with these local province books with detailed presentations on vascular plants in all provinces.**

Erik Collinder (1848–1920) was a school teacher in the city of Sundsvall. In 1909 he published "*Medelpads Flora*" on the vascular plants of Medelpad. He lived one summer in Magdbyn in Borgsjö together with his family, botanized around the villages and took notes. Thorvald Lange published "*Jämtlands kärlväxtflora*" in 1937. Rolf Lidberg and Håkan Lindström were the main authors of "*Medelpads Flora*" (2010). Thomas Karlsson was our scientific advicer. It is interesting to compare plants and landscape changes when reading the two books from 1909 and 2010. The old agriculture landscape with grasslands in grey dominated by *Nardus stricta* has disappeared and also most of their fungi. Today many grassland fungi are on the Swedish red list. During the latest workshops in Borgsjö we have thanked leaders and invited experts with a gift of *Medelpads Flora* with Rolf Lidberg's beautiful paintings of orchids and other plants. Håkan describe in detail, often one page for each species, the exact ecology in Medelpad for every plant. On pp. 12–52 climate, forests, cultural landscape, vegetation history is presented.

On pp. 634–663 Jan-Olof and Bengt-Gunnar Jonsson present 39 "botanical pearls" in Medelpad. Hjördis Lundmark, Eva Sundin and others organized a memorable happening ("florasläpp" in Swedish) at Norra Stadsberget in Sundsvall with many guests from all over Sweden. Anders Delin worked during decades with "*Hälsingslands Flora*". He died in 2017. Now in May 2019 *Hälsingslands Flora*, authored by Anders Delin, Arnold Larsson and Björn Wannberg, was published. *Ångermanlands Flora* by Jan W. Mascher was published in 1990.

The province flora books are the best way to learn more about local nature types and biological diversity in the different provinces of Sweden. They are also time documents for future comparisons of changes caused by climate change. Please contact Jan-Olof or Eva Sundin if you want to buy *Medelpads Flora*: [jan-olof.tedebrand@telia.com](mailto:jan-olof.tedebrand@telia.com) or [e.sundin@telia.com](mailto:e.sundin@telia.com). Concerning *Hälsingslands Flora*, please contact Maj Johansson, [maj.joh@telia.com](mailto:maj.joh@telia.com)





We mostly find *Russula olivobrunnea*, guckuskokremla, in the richest *Cyripedium* forests in Mid Sweden.  
Photo: Hjördis Lundmark

69552;15829

## 4 B, Näset village, near road cross highway E14 and west of the road to Ånge

Not in the Excursion Guide

(we called the place for "Hermanboda")  
29 Aug. 2018

### Lennart Söderberg, Tero Taipale

Lennart and Tero visited a rich, calcareous, wet forest near the road to Ånge center, about 200 metres from highway

E14. They were excited and described the area as "full of mushrooms and very good for *Russula* species". Rolf Lidberg liked this area with the moss *Rytiladelphus triquetrus* and plants like *Polygonatum verticillatum*. About 50 year old mixed forest of *Alnus*, *Betula*, *Picea* and *Pinus*. Tero found *Lactarius olivinus* and *Russula olivobrunnea* which indicate a high nature value. The area should be protected in some way.

### Collections at exhibition table

*Lactarius obscuratus*, *Alnus*, Tero Taipale  
*Lactarius olivinus*, *Picea*, Tero Taipale  
*Lactarius pubescens*, Tero Taipale  
*Lactarius tuomikoskii*, *Picea*, Tero Taipale  
*Russula aquosa*, *Picea*, Tero Taipale



*Russula nana* on the courtyard of Hjördis och Berthold Lundmark in Mellby, Ångermanland.  
Photo: Hjördis Lundmark

- Russula atrorubens*, *Betula*, *Picea*, Tero Taipale
- Russula clavipes*, Tero Taipale
- Russula depallens*, Tero Taipale
- Russula fennoscandica*, *Picea*, Tero Taipale
- Russula firmula*, *Picea*, Tero Taipale
- Russula globispora*, Tero Taipale
- Russula gracillima*, *Betula*, *Picea*, Tero Taipale
- Russula nitida*, *Betula*, Tero Taipale
- Russula olivobrunnea*, *Picea*, Tero Taipale
- Russula paludosa*, Tero Taipale
- Russula queletii*, *Picea*, Tero Taipale
- Russula rhodopus*, *Picea*, Tero Taipale
- Russula versicolor*, *Betula*, Tero Taipale
- Russula vinosordida*, *Picea*, Tero Taipale

- Russula rhodopoda*, common
- Sarcodon imbricatus*, big ring
- Tricholoma fulvum*
- Tricholoma stiparophyllum*, common

**Jan-Olof Tedebrand visited the same area 2 Sept. 2018**

- Agaricus abruptibulbus*, big fruitbodies
- Amanita muscaria* var. *muscaria*, common
- Hygrophorus pudorinus*, big rings
- Lactarius deterrimus*, big rings more than 10 meter in diameter!
- Lactarius scrobiculatus*, common in big rings
- Lactarius torminosus*
- Russula aeruginea*
- Russula atroglaucua*



Tero Taipale. Photo: Hjördis Lundmark



6937580;1504475

## 5 Pilgrim route with holy spring on the southern slope of mount Bergåsen

Excursion guide pp. 64–66

6937595;1504179

## 6 Lönnån, rich brook ravine

Excursion guide pp. 64–66

30 Aug. 2018

**Guide:** Jan-Olof Tedebrand

**Participants:** Anders Aronsson, Rolf-Göran Carlsson, Stig Jacobsson, Kurt Anders Johansson, Ellen Larsson, Jan Olsson and Anita Stridvall

### Selected earlier records along the pilgrim route and Lönnån

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

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

**Also:** *Amanita friabilis, Ascotremella faginea, Calocybe gangraenosa (Lyophyllum leucophaetum), Clitocybe harperi, Cortinarius aurantiomarginatus, aureopulverulentus, corrosus, detonsus, leucophanes, percomis, uraceus, Geastrum pectinatum, Gyrodon lividus, Haploporus odorus, Helvella oblongispora (Jukka Vauras), Leccinum cyaneobasileucum, Limacella glioderma, Oligoporus chioneus, Psatyrella rostellata, Ramaria botrytis s.l., Rosselinia nectroides (Nils Lundqvist), Telephora penicillata, Tremiscus helvelloides, Tricholoma atosquamosum.*

### Mycologists walked slowly like pieceful pilgrims along the pilgrim route

The old pilgrim route and forests along the brook Lönnån on the southern slope of Bergåsen are normally dry. Plenty

of *Vicia sylvatica* along the route indicated richer soil. Due to heavy rains on the summer warm soil we experienced a remarkable mushroom peak. We slowly walked, like pieceful pilgrims, along the thousand year old route surrounded by old *Pinus* trees and also by calcareous mossy *Picea* forest with some *Betula*. A text on a big stone told us that Saint Olof passed here in 1030 and that the Swedish king Karl XI was here in 1686.

### Lönnån, a hot spot for warm demanding fungi, vascular plants and other biological diversity

We passed the Lönnån bridge, then turned back and walked down about hundred meters along Lönnån with *Alnus, Betula, Prunus,* and *Salix. Ulmus glabra subsp. montana* is common 2 km along the brook, mostly as bushes but also as well formed trees. The nature along Lönnås is presented by Anders Viotti on pp. 184–187 in the book "Natur och kultur längs Ljungans dalgång" (1986). The famous Swedish Nobel prize winner in chemistry, Theodor (The) Svedberg (1884–1971), also a devoted botanist, collected *Ulmus* here in 1942 and placed his specimen in the UPS herbarium. There are plants along the brook like *Circaea alpina, Daphne mezereum, Hepatica nobilis, Viburnum opulus, Viola mirabilis, selkirkii.* The rare *Alchemilla oxyodontha* and the alpine *Saxifraga adscendens* have also been found. Now in 2018 we saw big groups of *Amanita muscaria var. muscaria* and *Russula acrifolia* near the brook. After a good foray we enjoyed our lunch at the holy spring.

### Microclimate and fungi differs very much in a forested landscape

There are many different factors that affect the microclimate and the composition of fungi across a landscape. Not least the trees. In the summer it seems like variation in maximum temperature is mainly driven by the density of the forest. However, during the autumn topographic factors seems to dominate as drivers of variation in maximum temperatures across a forested landscape. Such factors are altitude and variation in insolation between south and north-facing slopes. Read more in: Greiser, C., Meineri, E., Luoto, M., Ehrlén, J. & Hylander, K., 2018. Monthly microclimate models in a managed boreal forest landscape. *Agricultural and Forest Meteorology*: 250–251, 147–158.

### Many different nature types important for biological diversity in a landscape

The landscape botanist Håkan Lindström used to say that biological diversity means many different nature types in a landscape. Vast monocultures are not good for biological diversity. The book "Danmarks Svampeatlas" (15) has a detailed presentation of different "Danske Svampesamfund" and their funga. In the province of Medelpad high mountains and deep valleys result in many interesting





SiwMuskos -83

*Mycena oregonensis*. Painting by Siw Muskos

nature types with different biological diversity. Cold and moist *Picea* forests north of high mountains are such a fascinating biotope, sometimes with lichens as *Usnea longissima*, earlier found here north of Bergåsen. In the autumn 1991 the biologist JanOlof Hermansson made inventories of the lichen *Usnea longissima* north of high mountains in southern part of Medelpad. He also noted rare *Polyporales* fungi. The report is available at the county government. We also arranged a seminar on 9 November 1991 with JanOlof Hermansson, Roland Moberg and other leading lichen researchers and talked on protecting old sites for *Usnea longissima* as here north of Bergåsen.

#### Cold and moist microclimate north of Bergåsen

During the first mycological workshop in Borgsjö 1982 Birgitta Wasstorp and Inga-Britt Vesterberg found the rare *Dendrocollybia racemosa* growing on mummified remnants of a *Lactarius* species in calcareous swampy *Picea* forest north of Bergåsen, see photo from the site at pp. 317 in the book "Svampar" by Ryman-Holmåsén. Birgitta said in the forest: "such fungi don't exist". Tor Erik Brandrud answered: "they exist and their name is *Collybia racemosa*". Håkan Lindström found the remarkable species in a similar rich forest with *Cypripedium calceolus* north of Sticksjön in Kålarne parish.

#### *Mycena oregonensis* and *Epipogium aphyllum* (Ghost orchid)

During *Mycena* workshop in Borgsjö 1991 we visited the same swampy *Picea* forest north of Bergåsen together with



Thomas Læssøe and the truffle hound Lello at the mycological week in Timrå 2014.  
Photo: Hjärdís Lundmark.



Jessica Andersson tells about edible mushrooms during one of Myko's popular, weekly autumn excursions. Photo: Håkan Sundin



Jessica Andersson, happy birthday child. Photo: Hjördis Lundmark

## Jessica and Ronny like wandering Good for the Body and the Soul

**An increasing number of people from all over Europe walk the 580 km long pilgrim route from Selånger at the Bothnian coast in Sweden to Trondheim at the Atlantic ocean in Norway. More information about the popular pilgrim route: [www.stolavsleden.com](http://www.stolavsleden.com)**

Jessica Andersson is member of the board in Myko. In 2018 she started a group at Facebook: "Vandringsleder i Sverige" (hiking routes in Sweden). Now the group has almost 40 000 followers. Jessica sometimes publishes films and photos from our local nature at the Facebook group of Medelpads Botaniska Förening. There you can see her photos and films of flowers, fungi, from the enormous fireplace at Ljusdalsbrännan (9 June 2019) and from the *Nigritella* meadow at Nästmyren (29 June 2019). In summertime 2019 Jessica participated in meeting in Härjedalen with the organization Protect The Forest.

Jessica had her birthday at the end of June 2019. She celebrated her birthday together with many friends on the *Nigritella* meadow Nästmyren in Marieby parish, Jämtland. Then we continued to celebrate Jessica in the evening at the excellent Chinese restaurant in Brunflo, see photo below of the birthday child and our local ray of sunshine. Ronny Sundin also like walking. He is school teacher in Ånge, interested in local culture and nature, organizer of the annual walk around the lake Borgsjön and manage the Wooden Museum (Slöjdmuseet) in the village Västana together with his brother Roger.





Jan-Olof in action as truffle dog in old hazel groves on limestone in the village Vränsta on the island Alnö during the Swedish mycological week in 2014. Mycologist Mikael Jeppson and John Granbo from the county government are looking with a smile. Photo: Ellen Larsson

Ingemar and Irene Andersson, Carina Eriksson and Jan Ola Wimo, Rudolf Geesteranus, Thomas Læssøe and others. We found *Mycena oregonensis* among flowering *Epipogium aphyllum*. A strong nature experience. Then Rudolf Maas Geesteranus, Rolf Lidberg and we others had lunch at the top of Bergåsen with a wonderful view over Ljungan valley and the forest landscape of western Medelpad. Rolf and Rudolf were both interested in geology and studied rocks of diabase at the top plate.

### **Fjalar Harald invented biological rich swampy forests, sometimes called "Swedish rainforests"**

Norway publish redlists on nature types among others "Norsk rödliste for naturtyper 2018-Våtmark" with authors Anders Lyngstad, Tor Erik Brandrud, Asbjörn Moen och Dag-Inge Öien. In 1990-1998 the Swedish Forest Agency invented swampy forests. Leader for the inventories in Medelpad was Fjalar Harald, a charming person and friend of the mycologist group. Fjalar had his summer house at Ammerån near the summerhouse of Gulli and Örjan Emanuelsson, members of Myko. Jan-Olof, Rolf Lidberg and others were invited by Fjalar to participate in his inventories from the swampy areas near the sea with *Alnus glutinosa* to orchid fens in western part of Medelpad. Sometimes Lars Bengtsson participated, a leading nature expert at the Swedish Forest Agency. We informed on the special flora

and funga in the wet forests. Janolof Hermansson studied in 1991 lichens in ten swampy forests in the county of Västernorrland by order of e.g. the Swedish Forest Agency.

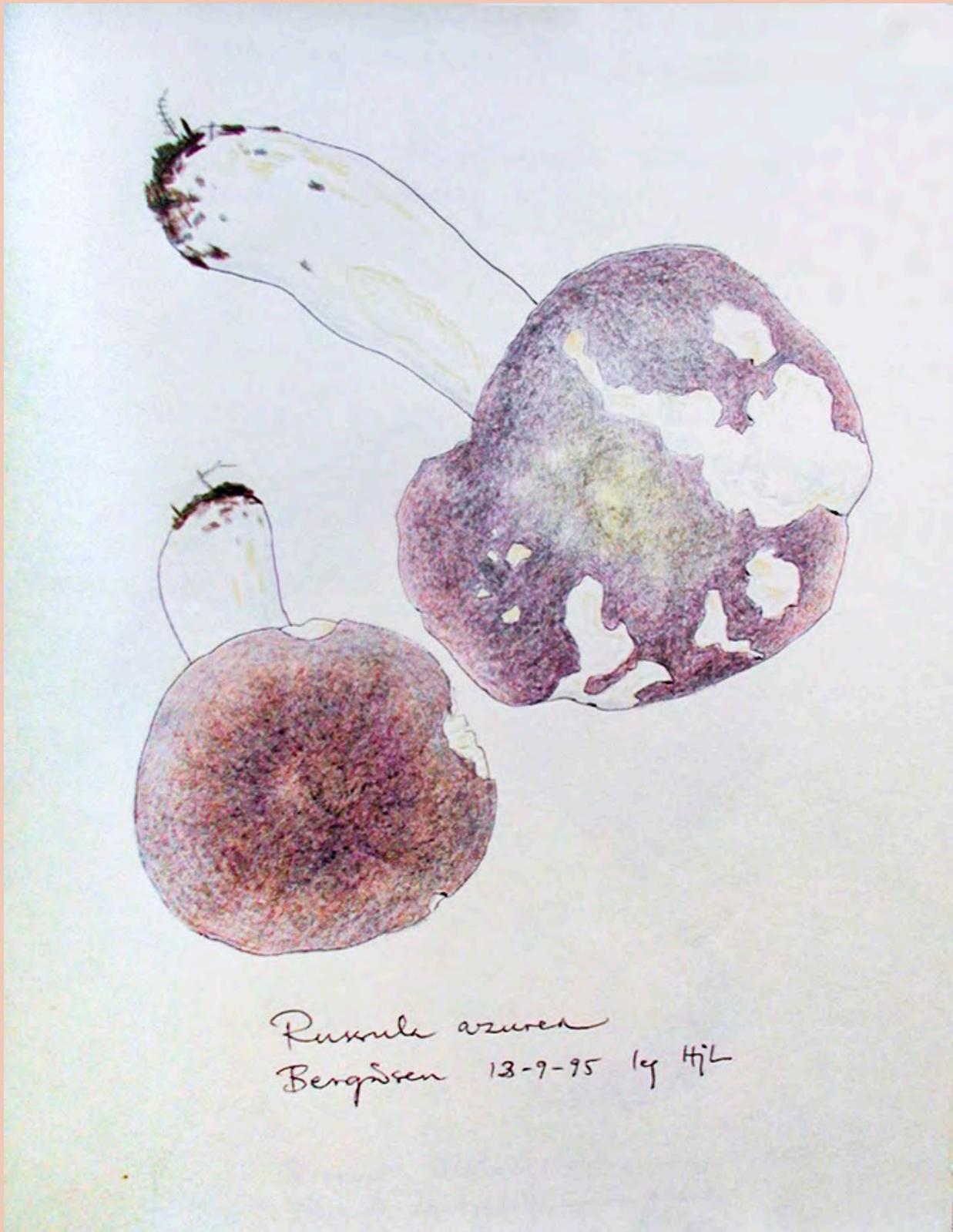
### **Southern mountain slopes catches the warmth from the sun like a sun panel**

At some sun exposed slopes in Medelpad and Ångermanland southern species like *Corylus avellana* and *Tilia cordata* and their special funga have survived since the last warm period 5000-3000 BCE. They have attracted botanists during centuries. Here we sometimes find the most northern European sites for rare truffles like *Hydnobolites cerebriformis*. Today when there are no forest fires and no forest grazing *Picea* is more and more dominating in the unique, most northern European *Corylus* and *Tilia* areas situated in the county of Västernorrland.

### **Johan Nitare and the Forest Swedish Agency will favour *Corylus* and *Tilia***

Johan Nitare is nature expert at the Swedish Forest Agency. He has published informative books (2000 and 2019) on indicator species for biological valuable forests. Johan visited in 2015 the southern slopes of Siljeberget in Selånger parish during a course on nature conservation for employed at the Swedish Forest Agency. There were total understanding that *Picea* should be taken away in the most northern sites in Europe for *Corylus* and *Tilia* in the





*Russula azurea*, Bergåsen, old *Picea* forest, 13 Sept. 1995, leg. Hjärdís Lundmark. Painting by Rolf Lidberg





Inga Lill Häggberg, vice president of Myko and Hjördis cashier of Myko. Photo: Anni-Maria Lokka

provinces of Medelpad and Ångermanland. Per Sander at the county government initiated some years ago felling of *Picea* trees at Siljeberget. We had also a wonderful night at Siljeberget together with Per and the butterfly expert Östen Gardfjell. We saw, by the help of spotlights on white sheets, beautiful night butterflies. The big owl *Strix aluco* shouted from the high mountain slopes. A magical night at a unique nature type.

The Swedish Forest Agency and the Swedish Environmental Protection Agency should formulate an action plan in order to remove *Picea* and favour *Corylus*, *Tilia* at their most northern sites in Europe.

#### **The unique southern slope with *Tilia* at Tvärberget in Stöde parish**

At the rich slopes at Tvärberget in Stöde parish there are a rich occurrence of *Tilia*. During a meeting in 1990 at

Tvärberget Rolf Lidberg, Håkan Lindström, forest owners, the county government and the Swedish Forest Agency agreed that the slope should be protected and managed as a pure *Tilia* forest. Ten years later most *Tilia* were cut down, but has today returned from rootsockers. *Tilia* has been at Tvärberget since the warm period 7000 years ago. A unique *Tilia* forest should of course be formed in the warm slopes north of lake Stöde. In Norway mycologists as Tor Erik Brandrud loves *Tilia forests* ("lindskogar")!

#### **Gunnar Selling - a pushing civil servant**

Warm and dry southern mountain slopes in the county of Västernorrland were earlier so called "lövbrännor", areas that often burnt and were dominated by broadleaved trees like aspen, birch and willow. Gunnar Selling at the Swedish Forest Agency (Skogsstyrelsen) is a man of action with high social capacity. In 2006 Gunnar made Nature Conservation



Agreements (naturvårdsavtal) with many forest owners of hazel areas on the southern, warm slopes at Vattjomåsen in Tuna parish. *Picea* was taken away. Today hazel, broad-leaved trees, plants like *Hepatica nobilis* and *Viola collina* and truffles feel happy at the sunny slopes of Vattjomåsen! Gunnar Selling is now pensioner. Mikael Gudrunsson is today responsible for nature conservation at the Swedish Forest Agency in the district of Västernorrland. Mikael led recently a meeting on Polyporales in old coniferous forests, see photos by Jessica Andersson on the Facebook page of Medelpads Botaniska Förening 15 Oct. 2019.

### Anne Molia and her truffle hound Lello

During the Swedish mycological week in Timrå 2014 the truffle expert Anne Molia and her truffle dog Lello, a Lagotto Romagnolo, visited Vattjomåsen together with Anders Dahlberg, Karen Hansen, Jan Olsson, Stig Jacobsson, Tommy Knutsson and Thomas Læssøe. They found e.g. *Elaphomyces striatosporus* under old *Corylus*. In 2014 Inga-Lill Häggberg, vice chairman of Myko also guided Magnus Andersson, Anne Molia and her dog to a sandy calcareous, conifer slope with *Hepatica nobilis* at Stordalen, near the living place of Inga Lill. Anne and Lello found 5 different truffle species among others *Elaphomyces anthracinus* and *Gauthieria cf otthii*. They also found *Stereopsis vitellina* in a hole made by field-mouses!

### Michael Krikorev found *Artomyces cristatus*-a fungus in the Russulales

In 1983 Mauri Korhonen collected *Lactarius aurioilla* in the rich *Picea* forest near Saint Olof's spring, see Mauri's photo at pp. 113 in "The genus *Lactarius*" (1998). During *Russula* workshop with Henri Romagnesi in 1983 Mauri also collected the southern *Russula aurea* on the slope of Bergåsen. In 2001 Michael Krikorev found *Artomyces cristatus* on old barkless, rotten *Picea* log at Bergåsen (12), a rare clavarioid fungus in the *Russulales* with few Swedish finds.

### Siw Muskos picked baskets full of *Cortinarius venetus* for wool dyeing

Lönnån was already in 1972 suggested as nature reserve by Lars Guvå (14). The high culture and nature values of this area ought to attract more attention. Here is a favourable microclimate with flooding water in calcareous, sunexposed, warm groves ("lundar" in Swedish) with fertile brown soil. Very unlike normal taiga forests. Siw Muskos used to visit Lönnån near highway E14 and collected full baskets of *Cortinarius venetus*, a mushroom good for wool dyeing. Hjärdís Lundmark collected the southern *Russula azurea* 13 Sept. 1995 at Bergåsen, see painting by Rolf Lidberg. At the *Russulales* workshop in 2018 Pavel Nedelev also found *Russula azurea* in the same area. Jukka Vauras collected *Helvella oblongispora* along Lönnån, a species described by Harmaja in *Karstenia* 19:33–45. Photo and description

of *H. oblongispora* also on page 83 in the Finnish book "Sienet ja metsien luontoarvot" about fungi that are good indicator species for valuable nature in Finland (2). We received this book about fungi and nature conservation as a present from Ilkka Kytövuori. *H. oblongispora* has only two records in Sweden, the other site is in Uppland. Johan Nitare and Sigvard Svensson found 30 Aug. 1989 *Geastrum pectinatum* and *Gyrodon lividus* along Lönnån. Anita Stridvall and Stig Jacobsson now found the southern *Russula densifolia* in the limerich, warm groves.

### Remarkable findings at Lönnån in 1995 by Kurt-Anders and his skilful group from Västergötland

The *Tricholoma* workshop in Borgsjö in the middle of September 1995 was a peak period for fruting Agarics after a warm and rainy autumn. Our invited *Tricholoma* expert Gro Gulden summarized: "The week has been very successful. This area is good for rare Agaricales. We have seen 50 species in *Tricholomataceae*, 25 species in the genus *Tricholoma*. Many species are rare. We saw a completely new black *Tricholoma*, near *terreum*, at Julåsen." Rolf-Göran Carlsson, Kurt-Anders Johansson and Börje Fagerlind talked with Siw Muskos about an evening trip. Siw proposed a visit to Lönnån. Our friends from west Sweden made a fantastic list during that single evening trip to the warm groves of Lönnån. This area is formed by land use of people in the church village Borgsjöbyn, centre for Borgsjö parish, during one thousand year. They found 234 fungi species at an area of about 4 hectares from the pilgrim route down to highway E 14: 50 *Cortinarius* species, 15 *Lactarius* species, 11 *Hygrophorus* species, 11 *Russula* species and 10 *Mycena* species! See all records of Rolf-Göran, Kurt-Anders and Börje along Lönnån and also old maps at pp. 38–44 in the report from the workshop 1995.

### List by Mats Karlsson and Tony Svensson on the exhibiton table

*Agaricus sylvaticus*, *Alnus*, *Betula*, *Picea*  
*Cortinarius balaustinus*, *Betula*  
*Cortinarius callisteus*, *Betula*, *Picea*, *Pinus*  
*Cortinarius cyanites*, *Betula*, *Picea*, *Pinus*  
*Cortinarius infractus*, *Betula*, *Picea*, *Pinus*  
*Cortinarius norrlandicus*, *Picea*  
*Hypsizygus ulmarius*, *Alnus*  
*Lactarius aurioilla*, *Betula*, *Picea*  
*Lactarius cf leonis*  
*Lactarius olivinus*, *Alnus*, *Betula*, *Picea*  
*Lepiota clypeolaria*, *Alnus*, *Betula*, *Picea*  
*Limacella glioderma*, *Alnus*, *Betula*, *Picea*  
*Melanoleuca strictipes*, *Betula*, *Picea*  
*Russula clavipes*, *Picea*, *Pinus*  
*Russula queletii*, *Betula*, *Picea*





Mauri Korhonen had exhibition of *Russula* paintings at the Nordic Mycological Congress in Karelen, Finland in 1996.  
Photo: Hjördis Lundmark

**List by Anders Aronsson, Mats Karlsson and Tony Svensson**

*Agaricus sylvaticus*

*Amanita muscaria* var. *muscaria*

*Amanita muscaria* var. *regalis*

*Amanita vaginata* f. *vaginata*

*Amanita porphyria*

*Boletus edulis*

*Chalciporus piperatus*

*Chondrostereum purpureum*

*Chroogomphus rutilus* s.l.

*Clavariadelphus ligula*

*Clavulina cristata*

*Clitocybe odora*

*Clitopilus prunulus*

*Collybia tuberosa*

*Cortinarius albobviolaceus*

*Cortinarius armillatus*

*Cortinarius balaustinus*

*Cortinarius callisteus*

*Cortinarius collinitus*

*Cortinarius infractus*

*Cortinarius malicorius*

*Cortinarius porphyropus*

*Fomitopsis pinicola*

*Gomphidius glutinosus*

*Gymnopilus picreus*

*Gymnopus (Connopus) acervatus*

*Gymnopus dryophilus*

*Gyrodon lividus*

*Hebeloma mesophaeum*

*Hydnellum ferrugineum*

*Hydnellum peckii*

*Hygrophoropsis aurantiaca*

*Hygrophorus pudorinus*

*Hypomyces luteovirens*

*Hypsizyguis ulmarius*

*Infundibulicybe gibba*

*Inocybe cincinnata*

*Kuehneromyces mutabilis*

*Laccaria laccata*

*Lactarius auriolla*

*Lactarius deterrimus*

*Lactarius glyciosmus*

*Lactarius leonis*

*Lactarius necator*

*Lactarius olivinus*

*Lactarius pubescens*

*Lactarius rufus*

*Lactarius scrobiculatus*

*Lactarius torminosus*



# RUSSULALES BORGSJÖ 2018 FORM FOR EXHIBITION

Species ... *RUSSULA EXALBICANS* .....  
 Locus ... HELIMANBODA .....  
 Biotop Picea Pinus  
 Alia.....  
 28.18.....



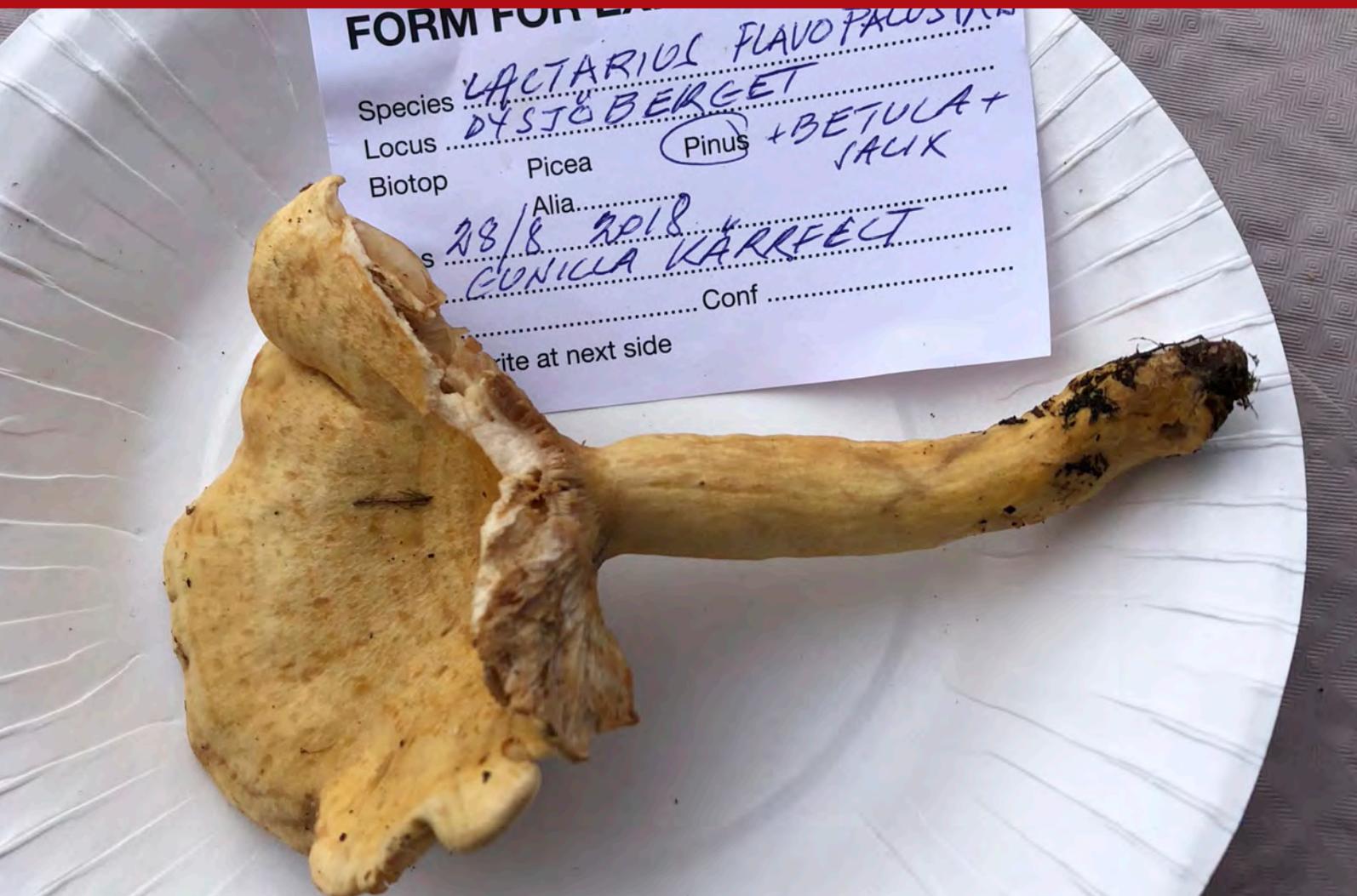
*Russula exalbicans (depallens)*, 29.Aug.2018. Tero Taipale. Photo: Hjördis Lundmark

*Leccinum scabrum*  
*Lepiota clypeolaria*  
*Limacella glioderma*  
*Lycoperdon pyriforme*  
*Marasmius oreades*  
*Melanoleuca strictipes*  
*Mycena haemotopus*  
*Mycena pura*  
*Paxillus filamentosus*  
*Paxillus involutus*  
*Phellinus laevigatus*  
*Phellodon connatus*  
*Phellodon tomentosus*  
*Piptoporus betulinus*  
*Ramaria apiculata*  
*Russula adusta*  
*Russula aeruginea*  
*Russula betularum*  
*Russula clavipes*  
*Russula delica*  
*Russula emetica*  
*Russula favrei*  
*Russula puellaris*  
*Russula rhodopus*  
*Russula sanguinea*

*Sarcodon imbricatus s. str.*  
*Suillus luteus*  
*Suillus variegatus*  
*Tricholoma saponaceum*  
*Tricholoma fulvum*  
*Xerocomus subtomentosus s.l.*

## List by Jan Olsson

*Chroogomphus rutilus s.l.*  
*Cortinarius armeniacus*  
*Cortinarius delibutus*  
*Cortinarius gentilis*  
*Cortinarius illuminus*, Stig Jacobsson  
*Cortinarius infractus*, Picea  
*Cortinarius porphyropus*  
*Crepidotus variabilis*, Jan Olsson  
*Entoloma politum*, on pilgrim route, det. Kai Reschke,  
 KaiR1294  
*Gymnopilus penetrans*  
*Hebeloma theobrominum*, Stig Jacobsson  
*Hohenbuhelia fluxilis*, Jan Olsson  
*Hygrophoropsis aurantiaca*  
*Hygrophorus agathosmus*  
*Inocybe leptophylla*, Ellen Larsson



*Lactarius flavopalustris* in the wonderful broadleaved forest (lövbränna in Swedish) at Dysjöberget nature reserve.  
Photo: Hjördis Lundmark

## Returning after 17 years, by Jorinde Nuytinck

**Borgsjö is a very special place for me. It is the exact place where my career in mycology started many years ago.**

I was a fresh PhD student in 2001, and I had no clue yet on how to identify and describe mushrooms. It was my first mycological foray ever, and I was very impressed. The season was exceptionally good and the mushrooms were big! I was able to make many milkcap collections that later turned out to be essential to finish my PhD. I also found myself surrounded with *Cortinarius* experts that week in August 2001. After attending several presentations with 50+ slides of seemingly the same little brown *Cortinarius* species but with a different name, I truly realized how clueless I was.

Returning to the same place 17 years later was a true delight. The mushrooms of Borgsjö are still as big and plentiful as I remembered! The lush forests full of lichens resemble a fairytale! Compared to last time, my knowledge of mil-

kcaps has increased a lot. But there was still one species missing on my list: *Lactarius flavopalustris*. This species has been bugging me for the past 4 years; since I set as a goal to myself to delimit all European milkcaps using DNA characters. *Lactarius flavopalustris* was described in 2009 by Illka Kytövuori and it is a large, yellow coloured species with latex that turns purple, a true beauty. The tricky thing is that this boreal species is very closely related to its three arctic-alpine counterparts: *Lactarius flavoaspideus*, *L. salicis-herbacea* and *L. salicis-reticulatae*. For a long time our specimen sampling in the group was insufficient to delimit this four sister species. In Borgsjö now in 2018, I was finally able to see *L. flavopalustris* in real life. More importantly, we also think we have figured out the molecular delimitation of the species and I feel a little less clueless by now.





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

*Inocybe umbratica*, Ellen Larsson  
*Inonotus radiatus*  
*Leccinum versipelle*  
*Lepiota clypeolaria*  
*Limacella glioderma*, Stig Jacobsson  
*Lyophyllum tylicolor*, in rich soil near the house at Saint Olof spring  
*Marasmius androsaceus*  
*Megacollybia platyphylla*  
*Micromphale perforans*  
*Mycena citrinomarginata*  
*Mycena epipterygia*  
*Mycena rubromarginata*  
*Phellinus punctatus*  
*Rhodocollybia prolixa var. distorta*  
*Russula clavipes*  
*Russula ochroleuca*  
*Sarcodon imbricatum*  
*Spathularia rufa*  
*Tricholoma stiparophyllum*  
*Tricholoma terreum*  
*Tricholomopsis rutilans*  
*Xerocomus ferrugineus*  
*Xeromphalina caudicinalis*

### List by Jan-Olof Tedebrand

*Albatrellus ovinus*  
*Amanita muscaria*  
*Amanita rubescens*  
*Auriscalpium vulgare*  
*Boletus edulis*  
*Byssomerulius corium*  
*Calocybe chrysenteron*  
*Cheimonophyllum candidissimum*  
*Clavulina cristata*  
*Clitopilus prunulus*  
*Clitocybe odora*  
*Collybia cookie*  
*Collybia confluens*  
*Cortinarius alboviolaceus*  
*Cortinarius armillatus*  
*Cortinarius brunneus*  
*Cortinarius collinitus*  
*Cortinarius laniger*  
*Cortinarius pholideus*  
*Cortinarius porphyropus*  
*Cortinarius raphanoides*



Exhibition table out in the fresh air. Photo: Hjärdis Lundmark



*Cortinarius renidens*, Jan Olsson  
*Cortinarius septentrionalis*  
*Cortinarius trivialis*  
*Entoloma nidorosum*  
*Fomitopsis pinicola*  
*Fuligo septica*  
*Gymnopus dryophilus*  
*Hebeloma mesophaeum*  
*Hydnellum ferrugineum*  
*Hygrocybe conica*  
*Hygrocybe psittacina*  
*Hygrophorus pudorinus*  
*Infundibulicybe gibba*  
*Inocybe cincinnata*  
*Inocybe flocculosa*, Ellen Larsson  
*Inocybe geophylla*, Ellen Larsson  
*Inocybe grammata*, common along Lönnån, beautiful  
 fruitbodies, Ellen Larsson  
*Inocybe lanatodisca*, Stig Jacobsson  
*Inocybe mixtilis*, Ellen Larsson  
*Inocybe nitidiuscula*, Ellen Larsson  
*Inocybe proximella*, Stig Jacobsson, Ellen Larsson  
*Inonotus radiatus* (*Mensularia radiata*)  
*Lactarius glyciosmus*  
*Lactarius necator*  
*Lactarius obscuratus*  
*Lactarius rufus*, common  
*Lactarius scrobiculatus*  
*Lactarius torminosus*  
*Lactarius vietus*  
*Leccinum variicolor*  
*Leotia lubrica*  
*Marasmius oreades*  
*Mycena flavoalba*  
*Mycena galericulata*  
*Mycena laevigata*  
*Mycena pura* s.l.  
*Mycena sanguinolenta*  
*Paxillus involutus*  
*Phellinus nigricans*  
*Phellinus punctatus* (*Fomitoporia punctata*)  
*Phellodon melaleucus*  
*Phellodon tomentosus*  
*Pleurotus ostreatus*  
*Polyporus varius* (*Ceriporus varius*)  
*Rhodocollybia maculata*  
*Russula acrifolia*  
*Russula adusta*  
*Russula aeruginosa*  
*Russula chloroides*  
*Russula decolorans*  
*Russula densifolia*  
*Russula gracillima*

*Russula integra*  
*Russula lutea*  
*Russula paludosa*  
*Russula puellaris*  
*Russula roseipes*  
*Russula sanguinea*  
*Russula vesca*  
*Russula vinosa*  
*Russula vinososordida*  
*Schizopora paradoxa* (*Xylodon paradoxa*)  
*Spathularia rufa*  
*Stereum sanguinolentum*  
*Stereum subtomentosum*  
*Suillus luteus*, common  
*Suillus variegatus*  
*Trichaptum abietinum*  
*Tricholoma fulvum*  
*Tricholoma stiparophyllum*  
*Tricholoma saponaceum*  
*Xeromphalina caudicinalis*

### List by Lars G. Ljungberg

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*Clavariadelphus ligula*, *Picea*  
*Melastiza cornubiensis*  
*Spathularia rufa*, *Picea*

### Comment, site 5 and 6, Pilgrimsleden-Lönnån

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This southern slope with unique culture and nature should be better known. It is an uncut diamond!

***Cortinarius norrlandicus*** Brandrud was a sensational record by Mats and Tony in moist, rich *Picea* forest along Lönnån and near the pilgrim route. Type locality for this rare and high redlisted *Cortinarius* with just about ten findings in Sweden is in a classical home forest of Hans Marklund in Häggdånger parish south of Härnösand, Ångermanland.

***Lactarius necator*** was often found during the workshop and seemed to have been favoured by hot summer and heavy rain in August. Stefanie De Schrijver said at the evening talk at the exhibition table that her research indicates that *L. necator* should be split in two species. Stefanie published in 2019 her Master Dissertation on: "Unravelling cryptic diversity in European milkcaps: will the real *Lactarius glyciosmus*, *necator*, *evosmus* and *stephensii* please stand up?" Promotor was Annemieke Verbeken. Jorinde Nuytinck is Co-promotor.

***Lactarius auriolla***, *leonis*, *olivinus* are three rare and demanding *Lactarius* species. They indicate rich forest along the brook Lönnån.



6953333;1503582

# 10 Jämtgaveln, Svarttjärn

Excursion guide page 74

30 aug. 2018

**Guide:** Bengt Larsson

**Participants:** Anders Aronson, Miroslav Cabon, Eske De Crop, Wim Dewitte, Ursula Eberhardt, Sona Jancovicova, Herbert Kaufmann, Ruben De Lange, Lars G. Ljungberg, Jorinde Nuytinck, Nathan Schoutteten, Stefanie de Schrijver, Kristoffer Stighäll, Birgitta Wasstorp, Annemieke Verbeke

## Selected earlier records

*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, paludosa, queletii, rhodopoda, tuomikoskii, vinosa.*

**Also:** *Armillaria ectypa, Boletopsis leucomelanea, Clavaria fumosa, Cortinarius caesiocinctus, rusticus, Entoloma majaloides, Hebeloma syrjense, Hydnellum suaveolens, Hygrophorus inocybiformis, Lentinellus vulpinus, Mycena pseudocorticola, Ramaria primulina, Sarcodon fennicus, Sowerbyella cf. requisii, Spathularia rufa, Trichoderma nybergianum, Tricholoma dulciolens.*

## One silvery pine in Helvetesbrännan Nature Reserve from 1080 BCE

There are two large nature reserves in Borgsjö parish: Helvetesbrännan (3400 hectares, partly in Jämtland) and Jämtgaveln at 3000 hectares, with much of old, earlier burnt pine forests. In Helvetesbrännan also vaste areas with old aspen and birch ("lövbrännor" in Swedish). One silvery pine in Helvetesbrännan started to grow 1080 BCE. A truly fascinating perspective! We visited Helvetesbrännan in 1986 together with Leif Ryvarden and found *Pseudomerulius aureus* on pine log and *Hohenbuhelia mastrucata* on standing dead birch. Johan Uebel from the county government led excursion to Helvetesbrännan during the Borgsjö workshop in 2001, see pp. 36–38 in the report: [www.myko.se/wp-content/uploads/2014/06/2001-Borgsjöveckan.pdf](http://www.myko.se/wp-content/uploads/2014/06/2001-Borgsjöveckan.pdf)

About 30 years ago Mats Karström, Roy Ottosson and Jan-Olof made an inventory of another fascinating forest with silvery pines in Åsen, Liden parish, Medelpad, now the nature reserve "Åsens naturskog". We found among others *Diplomitoporus crustulinus*. *Fomitopsis rosea* grew on *Betula* logs.

## Crown Princess Viktoria visited the Jämtgaveln nature reserve in 2019

There is much written about the forest and cultural history of Jämtgaveln by forest researchers like Lars Kardell. We have visited Jämtgaveln during many mycological workshops in Borgsjö. Bengt Larsson and Gunnar Selling have been our excellent local guides. They have told us about nature and old culture such as the iron production from brooks and lakes more than 1000 years ago. The popular Swedish Crown Princess Viktoria hiked in Jämtgaveln in May 2019 followed by media and many fellow citizens. She is interested in biological diversity and highest protector of the Swedish Species Project. See the Swedish Crown Princess hiking in Jämtgaveln on the Facebook group of Medelpads Botaniska Förening.

## Ilkka found *Ramaria primulina* and *Tricholoma colossus* at Vårsjöåsen in Jämtgaveln

Jämtgaveln nature reserve is formed by forest fires. There are many old pine trees and stumps with so called fire scars. There are also standing or fallen giants of "silver pines". They started to grow in medieval age. Pine is dominating in the reserve but there are also rich fens and moist calcareous *Picea* wood. *Agrocybe elatella* is typical in rich fens like Vårsjömyran. Ilkka Kytövuori found *Tricholoma colossus* ("jättemusseron" in Swedish) on the gravel ridge Vårsjöåsen, the only find in Medelpad. Bengt Larsson and Ilkka Kytövuori also found the rare *Ramaria primulina* on Vårsjöåsen (not in Artportalen). Many *Ramaria* species indicate valuable calcareous forests, see information and photos in the book "Skyddsvärd skog" (44) pp. 254–263. During the Swedish mycological week in Timrå 2014 Ilkka identified three rare *Ramaria* species on diabase in Häggberget nature reserve: *Ramaria fennica*, aff. *flavoides*, *lutea*. More information at pp. 88–90 in the report.

## *Russula helodes*-a rare member of the genus *Russula*

*Russula helodes* ("myrkremla" in Swedish) with red cap is a rare *Russula* found in swampy *Picea* forest at Svarttjärn in Jämtgaveln. Henning Knudsen found *R. helodes* in a similar wet *Picea* forest at Julåsen during *Russula* workshop 1984 (S). Håkan Lindström collected *R. helodes* at Annamyran in Håsjö parish, Jämtland on 1 Sept. 2012 (UME). There are few findings of *R. helodes* in Artportalen. Elsa Bohus Jensen reported *Russula helodes* from Småland, Växjö, Fyllerydsskogen in an excellent article in the review *Jordstjärnan* 1999 (3): 3–8 with photo on the frontpage. *R. helodes* is redlisted in Finland (DD) and in Denmark (EN). Mauro Sarnari presented *R. helodes* in his first *Russula* volume at pp. 626–629 and wrote: "specie molto rara".



***Russula suecica*, the "Swedish *Russula*", found by Ilkka in Säbrå parish, Ångermanland**

Many *Russula* species with red hat, like *R. helodes*, are difficult to determine in field. The newly described red *Russula suecica* (not in Artportalen), was found by Ilkka Kytövuori on 27 Aug. 1997 at Håltjärnberget, Säbrå parish, Ångermanland (KUO). See description of *Russula suecica* by Vauras, Ruotsalainen and Liimatainen in the Finnish review *Karstenia* 56:5, 1–1 (2016) pp. 5–12. The authors discuss in the article similar red species as *R. helodes* and *R. renidens*.

**Karen Hansen is studying an exciting *Sowerbyella* sp. found at burnt area in Jämtgaveln**

*Sowerbyella cf. requisii* was found in 2016 by Mohan Rolf on a burnt area in Jämtgaveln, see description and photo on pp. 54–55 in report from Borgsjö workshop 2016:

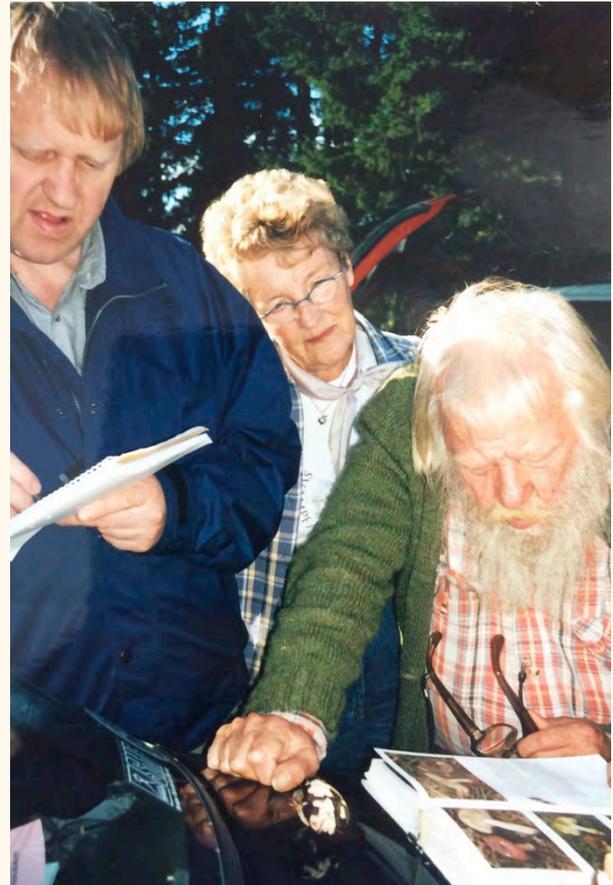
Jukka Vauras has photo and description of *S. requisii* on pp. 95 in the Finnish book on fungi that are indicators for valuable nature (2). Mohan wrote "*Sowerbyella rhenana*" on the field form. This interesting *Sowerbyella* collection from Jämtgaveln is now with Karen Hansen at Naturhistoriska Riksmuseet in Stockholm for DNA-study.

**Collections on exhibition table**

*Bankera fuligineoalba*, *Pinus*, Anders Aronsson  
*Cortinarius pholideus*, *Betula*, *Pinus*, Anders Aronsson  
*Cortinarius scaurus*, *Pinus*, Anders Aronsson  
*Hydnellum peckii*, *Pinus*, Anders Aronsson  
*Lactarius helvus*, *Picea*, Annemieke Verbeken  
*Lactarius leonis*, *Picea*, Anders Aronsson  
*Phellodon tomentosus*, *Pinus*, Anders Aronsson  
*Ramaria (Phaeoclavulina) eumorpha*, *Picea*, Anders Aronsson

**List by Kristoffer Stighäll (KS) and Birgitta Wasstorp (BW)**

*Bankera fuligineoalba*, KS  
*Coltricia perennis*, BW  
*Cortinarius armillatus*, KS  
*Cortinarius balteatus*, BW  
*Cortinarius integerrimus*, BW  
*Cortinarius limonius*, BW  
*Cortinarius mucosus*, BW  
*Cortinarius pholideus*, BW  
*Cortinarius trivialis*, *Picea*, KS  
*Gomphidius glutinosus*, BW  
*Gomphidius roseus*, BW  
*Hydnellum ferrugineum*, KS  
*Lactarius leonis*, BW, det. Annemieke Verbeken  
*Lactarius rufus*, BW

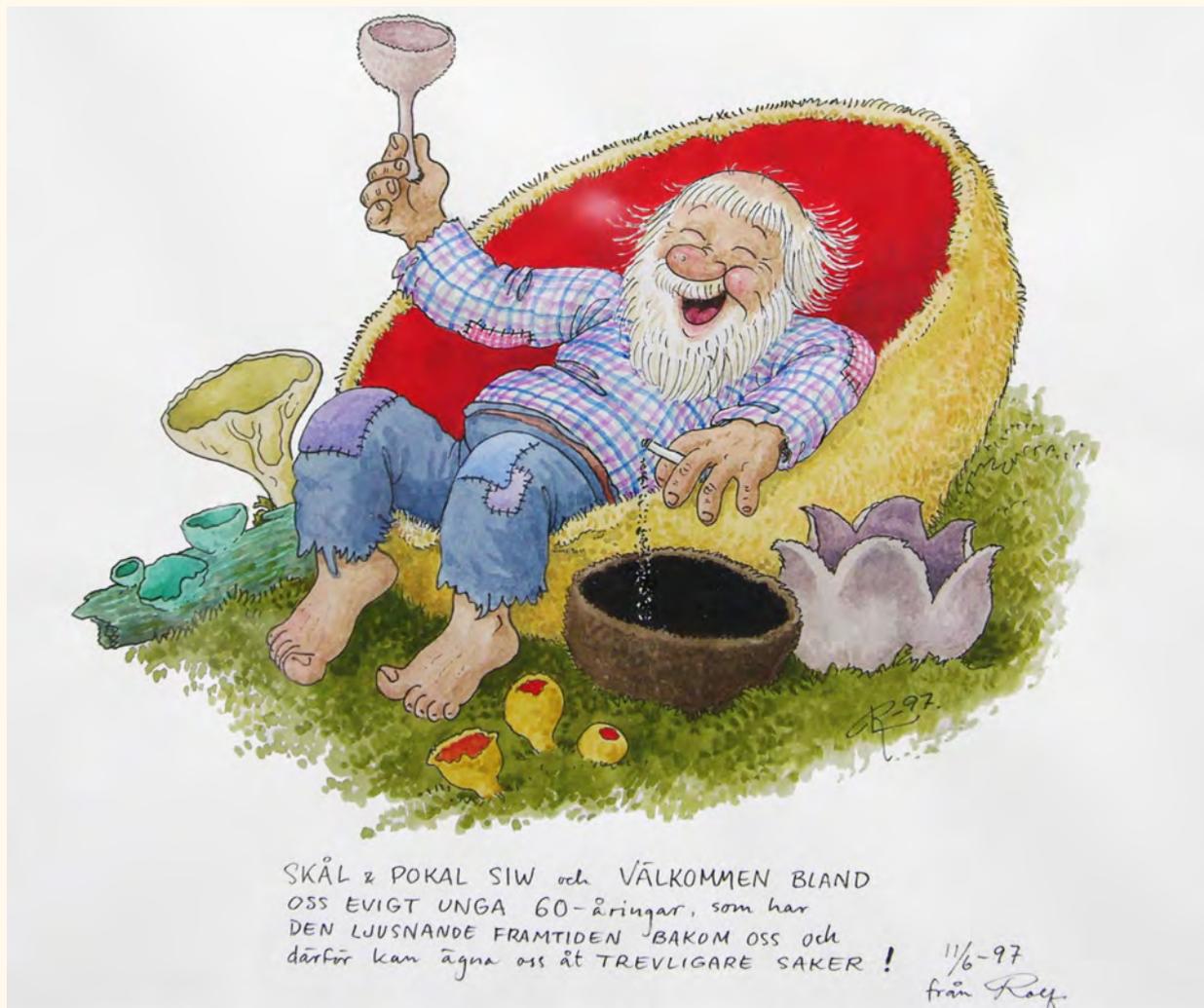


Jan-Olof together with Lisbeth Kagart and Rolf Lidberg. Photo: Hjärdis Lundmark

*Lactarius trivialis*, BW  
*Leccinum scabrum*, BW  
*Leccinum versipelle*, BW  
*Leccinum vulpinum*, BW  
*Pholiota mixta*, BW  
*Russula decolorans*, BW  
*Russula paludosa*, BW  
*Russula vinosa*, BW  
*Russula vinososordida*, BW  
*Sarcodon pseudoglaucopus*, KS  
*Suillus bovinus*, BW  
*Suillus variegatus*, BW  
*Tricholoma focale*, BW, *Pinus*

**List by Annemieke Verbeken**

*Cortinarius caperatus*  
*Lactarius helvus*  
*Lactarius mammosus*  
*Lactarius rufus*  
*Lactarius torminosus*  
*Lactarius vietus*  
*Lyophyllum decastes s.l.*  
*Russula decolorans*  
*Russula paludosa*  
*Russula vinosa*



Rolf Lidberg, founder of Sundsvalls Mykologiska Sällskap (Myko), used to congratulate his friends with paintings and special written songs at their birthdays. Siw Muskos received this painting of cup fungi at her 60th birthday.

6948164;1506536

## 10 Jämtgaveln, Fettjorna

Excursion guide pp. 74

*Tricholoma matsutake*, *Pinus*, Kristoffer Stighäll

### Comment, site 10, Jämtgaveln

The area around Svarttjärn should be protected (today outside the nature reserve). It is a calcareous, coniferous, mossy old forest with much of dead wood like big fallen broadleaved trees.

*Sarcodon pseudoglaucopus* was an interesting record by Kristoffer Stighäll, a rare species bound to old calcareous pine forest. Also found 2003 by Johan Nitare at Lombäcksheden in Borgsjö. Sweden has an action plan ("ätgårdsprogram" in Swedish) for *Sarcodon* species.

### John Granbo at the county government initiates forest fires

From 1364 to 1894 more than 60 forest fires occurred in Jämtgaveln. Burnt standing silvery pines and fallen burnt pine logs are fascinating. John Granbo at the county government initiate almost every year forest fires in Jämtgaveln.

### Niclas Bergius tells us about EU Life Taiga project

In summer time 2014 forests at 14000 hectares burnt in the province of Västmanland! In the hot summer 2018 more than 21 000 hectares of forests burnt at many places in northern Sweden. The largest area, 9000 hectares, burnt in Ljusdal parish just south of Borgsjö parish. A group of botanists and mycologists from Medelpad visited the enormous burnt areas in Ljusdal on 9 June 2019, see commented photos and films 10-11 June at the Face Book group of Medelpads Botaniska Förening. Niclas Bergius at the county government in Västmanland is leader of EU Life Taiga project in order to burn forests in northern Sweden. Niclas wrote in Svensk Mykologisk Tidskrift 2014/2: *Prescribed burning- a first aid to fungi in forest ecosystems. One*



Tomas Rydkvist, today retired nature expert at the forest company SCA, and his co-workers are setting fire to an old, stony pine forest (hällmarkstallskog in Swedish) near the sea at the opening ceremony in 2014 of the forest ecopark "SCA Njurunda Mångfaldspark" south of Sundsvall. Photo: Hjördis Lundmark

## Tomas Rydkvist is burning for forest fires

**Burning is good for many species in the SCA Njurunda Mångfaldspark such as the bird *Caprimulgus europaeus*, many insects, wood fungi and also ectomycorrhizal fungi like *Tricholoma matsutake*.**

The southern *Sparassis crispa* is found here on old *Pinus*. See also damaged pine trees on the photo. In Swedish "kata" is the technical word for this method to engender damage to a tree's growth rings, so called fire-scars ("brandljud"). There are plans to cut, burn and damage more pine trees in the ecopark in order to favour insects, rare wood fungi and other biological diversity. Tomas Rydkvist has also, together with members of Medelpads Botaniska Förening, burnt one of the two sites in Medelpad for the rare plant *Pulsatilla vernalis*. He also cooperates with leading Swedish forest fire researchers like Anders Granström. The forest ecopark is surrounded by the nature reserve Bremön and two coast and marine nature reserves initiated by Lotta Nygård, skilful

marine biologist at the county government. Jan-Olof represents Myko in a committee for creative nature conservation in the SCA Njurunda Mångfaldspark. Lage Sandgren represents Medelpads Botaniska Förening. They have, together with Caroline Wågberg at the Swedish Forest Agency and Misan Lindqvist at SCA, made a forest path in the ecopark with local culture and nature information on boards along the path. Galtström old ironworks in the southern part of the ecopark is a popular place in summertime. Siw Norberg and the Mushroom Dyeing Society (Svampfärgarsällskapet) use to demonstrate mushroom dyeing at the big summer festival at Galtström.





Anita Stridvall and Ellen Larsson enjoy delicate local cheeses together with dutch mycologist friends, Borgsjö 2010. Photo: Hjördis Lundmark

of the more dramatic changes during the last century is the decrease of forest fires. In 1850 more or less 1 percent of the forested area in Sweden was effected by fires every year. In recent years this area has decreased to less than 0.016 percent. As a consequence, thick layers of lichen, mosses and dense shrubby vegetation spread in the forests and the fructification of several fungi is impeded. A Life Taiga project has been initiated by 15 Swedish county governments (länsstyrelser). The 5-year project began in 2015 and a total of 2200 hectares of Pinus-dominated forests will be subject to prescribed burning. The project that is intended to favour the biodiversity of forest ecosystems is funded by EU commission, the Swedish Environmental Protection Agency and the local county governments. The total budget exceeds 100 million SEK”.

6943786; 1505023

## 10 Jämtgaveln, Bringmyrbäcken

Excursion guide pp. 74

30 Aug. 2018

**Participants:** Annemieke Verbeken, students of Annemieke, Kristoffer Stighäll, Birgitta Wasstorp and others.

### Species List

*Amanita crocea*, KS  
*Amanita vaginata*, KS  
*Cortinarius infractus* s.l., BW  
*Cortinarius trivialis*, BW  
*Inocybe bongardii*, BW, det. Ellen Larsson  
*Lactarius resimus*, BW  
*Russula dryadicola*, BW

6948138; 1506556

## Jämtgaveln nature reserve, Fettjorna

Excursion guide pp. 74

30 Aug. 2018

Kristoffer Stighäll (KS), Birgitta Wasstorp (BW)  
*Bankera violacens*, KS  
*Hydnellum peckii*, KS  
*Sarcodon pseudoglaucopus*, KS  
*Tricholoma matsutake*, KS, det. BW



Nathan Schoutteten, Annemieke Verbeken and Andreas Lindström (son of Håkan Lindström).  
Photo: Hjördis Lundmark

### Delicate local cheeses from Strömmens gårdsmejeri in Borgsjö at the birthday of Annemieke Verbeken

Andreas Lindström, son of Håkan Lindström, is a leading Swedish finance analyser. He often talks on trends today: globalization, urbanization, digitalization and also on the importance of openness for fast changes. More of local organic (ecological) food is another trend today in Sweden and part of a growing culture and food tourism. On thursday evening Annemieke Verbeken had her birthday. Hjördis and her friends prepared a small evening party with Boltjärn Bleu, Ranklöv, Snödskalle and other delicious cheeses from our local creamery in Boltjärn. You can find pictures from Strömmens gårdsmejeri at the link below and also contact adress to the owners Caroline Nielsen and Christoffer Lindahl who have left well-paid jobs in the city of Sundsvall and instead chosen a life on their farm with sheeps at the countryside in Borgsjö: <https://www.strommensgardsmjeri.se/bilder/>



Sheeps at Strömmens gårdsmejeri in the village Boltjärn.  
Photo:Hjördis Lundmark



6933532;1507593

# 11 Rankleven nature reserve

Excursion guide pp. 75-77

31 Aug. 2018

**Guide:** Gunnar Selling

**Participants:** Gunnel Avehag, Hjärdis Böhning, Tanja Böhning, Rolf-Göran Carlsson, Lynn Delgat, Robin Dost, Ursula Eberhardt, Inga-Lill Franzén, Jochen Girwert, Kurt Anders Johansson, Ruben de Lange, Ellen Larsson, Jorinde Nuytinck, Jan Olsson, Elias Polemis, Kari Reschke, Stefanie de Schrijver, Anita Stridvall, Lennart Söderberg, Tero Taipale, José Maria Traba-Velay and Birgitta Wasstorp.

A famous botanical mountain since centuries with high dives of diabase at northeast. Southern plants like *Galium triflorum*, *Lathyrus vernus* and *Viola selkirkii*. Also alpine plants like *Asplenium viride* and *Saxifraga adscendens*. Rich oceanic lichen flora. Interesting fungi like *Russula citrinochlora*, *Sowerbyella densireticulata* and *Verpa conica*. In 1980 a popular TV-program with Rolf Lidberg was filmed at Rankleven: "En man och hans blommor". During the Cortinarius week in Borgsjö 2016 Michael Krikorev and Per Sander guided to Rankleven, see pp. 60-64 in the report:

## Selected earlier records

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

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

**Also:** *Amanita battarrae*, *Bryoglossum rhemii*, *Camarops microspora*, *Cortinarius alborufescens*, *aureofulvus*, *dolabratus*, *malicorius*, *sanguineus*, *uliginosus*, *uraceus*, *Cystoderma adnatifolia*, *Heyderia abietis*, *Lentaria byssiseda*, *Lentinellus castoreus*, *Leucogyrophana sororia*, *Leucopaxillus giganteus*, *Limacella guttata*, *Ossicaulis lignatilis*, *Phlebia centrifuga*, *Pholiota subochracea*, *Russula aurea*, *Sowerbyella densireticulata* (leg Birgitta Wasstorp, det Nils Lundqvist), *Trichoderma*



Gunnar Selling. Photo: Anki Selling

*nybergianum*, *Tricholoma fucatum*, *Verpa conica*.

## Collections on the exhibition table

*Russula aeruginea*, *Betula*, Tero Taipale  
*Russula clavipes*, *Betula*, *Pinus*, Tero Taipale  
*Russula intermedia*, *Betula*, Tero Taipale  
*Russula pubescens*, *Betula*, Tero Taipale  
*Russula versicolor*, *Betula*, Tero Taipale  
*Russula violaceoincarnata*, Tero Taipale

## Gunnar Selling

Gunnar Selling is a culture personality in Borgsjö. He was popular guide to Rankleven and Södra Sillre during Russulales workshop. Gunnar lives in the village of Södra Sillre in Borgsjö together with his wife Anki. Gunnar was for many years employed by the Swedish Forest Agency (Skogsstyrelsen) at their local office in Ånge. His love to his native home in Ånge led to contacts with Rolf Lidberg, Håkan Lindström, Siw Muskos and Jan-Olof Tedebrand on protection of hot spots for vascular plants and fungi. Gunnar has educated forest owners in nature conservation. We have together with Gunnar talked with landowners resulting in Habitat Protection Areas ("biotopskydd" in Swedish) and Nature Conservation Agreements ("naturvårdsavtal" in Swedish) in areas like the slopes with *Tricholoma borgsjoeensis* at Julåsen. Gunnar also created Habitat Protection Area on part of Lombäcksheden with many rare fungi on the limerich, poor and sandy pine heath. In 2018 a group visited the rich brook valley at Långberget in Torp parish, also protected by Gunnar. He has also removed *Picea* at Vattjomåsen in Tuna parish, Medelpad with waste hazel areas and signed quite a number of Nature Conservation Agreements (naturvårdsavtal) with forest owners. See



Lisbeth and Kjell Kagardt. Photo: Hjördis Lundmark

information about Nature Conservation Agreements at the homeside of the Swedish Forest Agency: [www.skogsstyrelsen.se/aga-skog/skydda-skog/naturvardsavtal/](http://www.skogsstyrelsen.se/aga-skog/skydda-skog/naturvardsavtal/)

### Exciting discussion at Ensillre kalkbarrskog about nature conservation

During *Cortinarius* workshop in Borgsjö 2003 Gunnar Selling led a special excursion on nature conservation in calcareous forests to a place near the old mountain farm Ensillrebodarna. Among participants were Hjalmar Croneborg, Anders Dahlberg (mycorrhiza researcher), Johan Nitare (The Swedish Forest Agency), landscape botanist Håkan Lindström, Per Simonsson, ecologist at the forest company SCA. Gunnar showed us a wet, limerich coniferous forest where he had signed a Nature Conservation Agreement with the forest owner. Naturvårdsavtal and biotopskydd are two methods for the Swedish Forest Agency to protect smaller areas, often under 20 hectares and very suitable for hot spots with rare fungi. Gunnar stressed that "naturvårdsavtal" often is cheaper for the state than "biotopskydd" and for that reason larger areas can receive suitable management and protection. He said that trees every 20-30 years will be taken out from the area. The result will be a continuity in tree cover and also a more open and light forest with more broadleaved trees like in older days.

We had an interesting discussion that autumn day in 2003 about continuity forestry in some of the most valuable

calcareous forests here in mid Sweden. We also talked about disadvantages with continuity forestry like soil damages by forest machines during mild winters, fewer dead large logs when the biggest trees are taken away. We emphasized the importance of smaller clear-cut areas and leaving groups of trees so that ectomycorrhiza fungi could spread their spores to new areas. Anders Dahlberg has published several studies on continuity forestry that is now slowly growing in Sweden. The Swedish Forest Agency arrange today courses for forest owners in "advantages with mixed forests" and in "forestry without clearings".

### Exciting drive on Alnö lime district

At The Swedish Forest Agency in Sundvall the civil servants Åsa Michold and Stig Åke Sundström have protected many small areas with a valuable funga e.g. Åssjöskogen at Alnö island, our best site for *Phlegmacium* species, "Ankis taggvampsskog" in Sättna parish with 16 species of hydneaceous fungi and Slädabäcken at Alnö limestone area with species like *Mycena sudorella*. Myko has also for a long time taken active part in different projects for nature conservation together with civil servants like Helena Brus, Daniel Jazek, Hans Aspund, Ronnie Nordström at the municipality of Sundsvall. An exciting drive is now planned for cultural and natural values on Alnö island with forests and grasslands on limestone. Perhaps important also to include the limestone areas in Timrå municipality.





The river delta of Indalsälven. Painting by Rolf Lidberg

## 12 Södra Sillre

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Excursion guide pp. 78-79

31 Aug. 2018

**Guide:** Gunnar Selling

The wet areas with *Betula* and *Salix* spp. near the river Ljungan at the village Södra Sillre are typical sites for *Russula renidens*. Juhani Ruotsalainen and Jukka Vauras said in 2001 that *R. renidens* was common in moist *Betula* forests in the Borgsjö region. Lisbeth Kagardt led a group in 1997

to this *Betula* forest at abandoned arable land. They found lots of *Boletus edulis*, typical after a hot summer. In 2010 Anne Molia and Jeanette Södermark found here *Cordyceps longisegmentis* on *Elaphomyces muricatus*. Anita Stridvall tasted a dark red *Russula* under *Pinus* in the swamp area and found it to be mild. But ten seconds later Anita said: "very sharp: *Russula badia*"! *Russula clavipes* is a popular edible mushroom, common under pine at Ljunganåsen gravel ridge. Siw Muskos have picked baskets full of delicious *R. clavipes* here at Ljunganåsen during good mushroom years. Felix, Annemieke, Slavomir, Ursula and others have written articles on the "*Russula clavipes* complex". Nils Lundqvist collected many small fungi here like *Eutypa flavovirens* and *Plasmophaera pusilla*.



## Enormous flooding in summertime 2000

Because of heavy rains the river Ljungan was flooded in the year 2000. Ljungan resembled the Amazon river! Small forest brooks were transformed to rivers and big trees fall like matches! Siw Muskos lives near Ljungan river in Matfors and took many photos of the fascinating nature scenery. Farmers, forest owners and society suffered much of all that water in 2000. At the same time nature disturbances like fires, floods and storms are, to a certain extent, normal and good for biological diversity.

## Selected earlier records

*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 s.l.*

**Also** *Acanthophyllum lividoaeruleum* (det. K-H. Larsson), *Blasiphalia pseudogrisella*, *Cortinarius bolaris*, *Hygrophorus persicolor*, *Inocybe ambigua* (Ellen Larsson-Kjell Olofsson), *Lappomyces muricatus*, *Ramaria apiculata*, *Tolypocladium longisegmentum*.

## Collections on the exhibition table with field form

**E**=eksiccatum, **D**=digital photo,  
**MB**=determination with microscope

*Cortinarius lucorum*, Lynn Delgat  
*Cortinarius porphyropus*, *Betula*, Jan Olsson  
*Lactarius representaneus*, *Betula*, *Picea*, Robin Dost  
*Lactarius trivialis*, *Betula*, *Picea*, *Pinus*, Lynn Delgat  
*Pluteus nanus*, Jan Olsson  
*Ramaria apiculata*, det. Lennart Söderberg  
*Russula clavipes*, Lynn Delgat

## Stop 1, writers: Tanja Böhning (TB) and Mathias Lüderitz (ML)

More or less open area with gravel pit, meadow etc. The locality seems to be a hot spot for the CHEGD species, especially *Clavariaceae*. CHEGD means *Clavariaceae-Hygrocybe-Entoloma-Geoglossaceae-Dermoloma*. The CHEGD-system is an international system for classification of valuable, old meadows and woods in nature conservation.  
*Calocybe fallax*, TB, det. TB and Ellen Larsson, D, E, MB  
*Clavaria spec. 1*, ML, B, D, E, MB, will be sequenced in 2019.

*Clavaria spec. 2*, ML, B, D, E, MB, striking taxon with big clusters of gloeocystidia in the context, provisional name: *Clavaria gloeocystidiata* ad. int., will be sequenced in 2019

*Clavulinopsis dimorphica nom. prov.*, ML, B, D, E, MB, MZ, Z, with characteristic dimorphic spores, hitherto in Germany, Denmark

*Clavulinopsis aff. laeticolor*, ML, D, E, MB, MZ, interesting taxon, clearly deviating taxa with spores only up to 5.5 µm, fruitbody with a greyish-brownish tomentum, will be sequenced in 2019

*Cortinarius cf. purpurascens*, TB, D, MB, MZ

*Geopora aff. arenosa*, TB, D, E, MB

*Glioporus (Hygrocybe) laetus*, TB, D

*Entoloma undatum*, ML, D, E, MB

*Geastrum fimbriatum*, TB

*Helvella lacunosa*, TB

*Hygrocybe conica var. conica*, TB, D

*Hygrocybe insipida*, ML, E

*Hygrocybe miniata*, ML, E

*Inocybe* sp., TB & Ellen Larsson, undescribed taxon or in the *I. leiocephala* complex

*Lactarius spinosulus*, TB, D, E, MB

*Lactarius picinus*, TB, D, E, MB

*Marasmiellus tricolor*, TB, D, E, MB

*Mycena diosma*, TB

*Naucoria bohémica*, TB, MB

*Ramaria apiculata*, TB, E, MB

*Ramariopsis aff. minutula*, ML, D, E, MB, MZ, among

*Dactylis glomerata*

*Rickenella swartzii*, TB

## List by Jan Olsson

*Entoloma lividoalbum*  
*Galerina vittiformis*  
*Lactarius deterrimus*  
*Mycena citrinomarginata*  
*Rhodocollybia maculata*  
*Roridomyces rorida*  
*Russula adusta*  
*Russula vinososordida*  
*Tricholoma equestre*

## Collections from Södra Sillre, determined by Kai Reschke

*Clitopilus prunulus*, KaiR1296  
*Entoloma sericatum*, J. Traba, KaiR1297  
*Entoloma majaloides*, Jochen Girwert, KaiR1298, 1301  
*Lyophyllum deliberatum*, KaiR1302  
*Tricholoma raripes*, KaiR129





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

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## 14 Ormberget northwest, classical forest slope visited in 1983 by Henri Romagnesi

Excursion guide pp. 82–84

29 Aug. 2018

**Guide:** Håkan Sundin

**Participants:** Anders Aronsson, Tanja Böhning, Rolf-Göran Carlsson, Inga-Lill Franzén, Stig Jacobsson, Kurt-Anders Johansson, Mats Karlsson, Ellen Larsson, Jan Olsson, Karl Soop, Tony Svensson and Anita Stridvall.

A long slope in the north with first dry *Pinus*, then *Picea* of blueberry type and further down areas with *sphagnum*, *Alnus* and *Salix* along a brook. Håkan Lindström and Stig Jacobsson found *Amanita friabilis* on 20 Aug. 1984 in swampy *Alnus* place (UPS). Henning Knudsen found *Lactarius olivinus* during the same excursion.

### *Russula heterophylla* in limerich old *Picea* forests

Henri Romagnesi was here on 22 Aug. 1983 together with Herbert Kaufmann, Erik Malm, Jacques Melot, Jan-Olof and others, see photo. Henri became especially delighted to find *Lycopodium annotinum*. Erik Malm and Henri discussed together a *Lactarius* species with white milk, turning lilac, which was identified as *L. flavidus* Boud. We called it for many years *Lacarius flavidus* sensu Korhonen. In 2009 Ilkka Kytövuori described the new species *L. flavo-palustris*, a northern species under *Betula* in calcareous swampy forest and common in the Borgsjö area. Henri Romagnesi also determined *Russula heterophylla* at the slopes of Ormberget. It is a southern species mostly bound to *Quercus* but we find *R. heterophylla* under *Picea* in the lime district of mid Sweden: Medelpad, Julåsen 1984 Håkan Lindström, det. Henning Knudsen. Lars Lundberg has also found "gaffelkremla" on several sites in Jämtland. We saw *R. heterophylla* at the fungus hot spot Andersön during the Nordic Mycological Congress in 1982. Anki Suneson and Gertrud Molund found *R. heterophylla* in 1988 in the old oak park at Norafors ironworks in Medelpad, Sättna parish.



### Håkan was happy with his group

Håkan Sundin said after the excursion to Ormberget: "Very easy task for me to guide the fantastic group during this mushroom peak with plenty of fresh fungi. I just showed the parking place, said some words about the northern *Picea* slope and gave them a time for return". Anita Stridvall is our Swedish champion when it comes to write interesting and long species lists in a pregnant and beautiful writing style. Anita noted 109 fungi species on the northern slope of Ormberget!

### Collections at the exhibition table

*Clavariadelphus ligula*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Clitocybe phyllophila*, Rolf-Göran Carlsson  
*Cortinarius chrysolithus (huronensis)*, *Sphagnum* and *Betula nana*, Karl Soop  
*Cortinarius cinnamomeus*, *Picea*, Karl Soop  
*Cortinarius malachius*, *Picea*, Karl Soop  
*Cortinarius duracinus*, *Betula*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Cortinarius flos-paludis*, *Picea*, *Sphagnum*, Stig Jacobsson  
*Cortinarius microspermus*, *Picea*, Karl Soop, conf. Stig Jacobsson  
*Cortinarius rusticus*, Rolf-Göran Carlsson  
*Cortinarius sphagnophilus*, fen with *Sphagnum*, *Betula nana*, *Vaccinium oxycoccus*  
*Cortinarius traganus*, Inga-Lill Franzén  
*Cortinarius venustus*, Rolf-Göran Carlsson  
*Cortinarius spilomeus*, *Picea*, Karl Soop  
*Galerina cephalotricha*, Jan Olsson  
*Gymnopilus picreus*, Jan Olsson  
*Hebeloma incarnatulum*, Karl Soop  
*Hypholoma (Phaeonematoloma) elongatum*, damp soil, *Betula nana*, Karl Soop, conf. Stig Jacobsson  
*Hypholoma myosotis*, *sphagnum*, Karl Soop  
*Melanoleuca poliioleuca*, sandy soil at road side, Jan Olsson  
*Oligoporus fragilis*, Rolf-Göran Carlsson  
*Pholiota lubrica*, Rolf-Göran Carlsson, det. Stig Jacobsson  
*Rhodocollybia prolixa var. distorta*, Jan Olsson  
*Russula clavipes*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Russula fragilis*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Russula mustelina*, Jan Olsson, det. Slavomir Adamčík  
*Schizopora paradoxa*, Rolf-Göran Carlsson  
*Tephrocybe (Lyophyllum) murinum*, Rolf-Göran Carlsson, det. Jan Olsson

### List by Anders Aronsson, Mats Karlsson, Tony Svensson

*Albatrellus ovinus*  
*Amanita muscaria var. muscaria*  
*Ampulloclitocybe clavipes*  
*Boletus edulis*  
*Chalciporus piperatus*  
*Chroogomphus rutilus* s.l.  
*Clavariadelphus ligula*  
*Clitocybe odora*  
*Clitopilus prunulus*  
*Cortinarius armillatus*  
*Cortinarius brunneus*  
*Cortinarius callisteus*  
*Cortinarius collinitus*  
*Cortinarius duracinus*  
*Cortinarius laniger*  
*Cortinarius mucosus*  
*Cortinarius multififormis*  
*Cortinarius pholideus*  
*Cortinarius porphyropus*  
*Cortinarius rusticus*  
*Cortinarius sanguineus* s.l.  
*Cortinarius scaurus* s.l.  
*Cortinarius semisanguineus*  
*Cortinarius subbalaustinus*  
*Cortinarius talus*  
*Cortinarius traganus*  
*Cortinarius vibratilis*  
*Fomitopsis pinicola*  
*Gastrum pectinatum*  
*Gomphidius glutinosus*  
*Gymnopus (Connopus) acervatus*  
*Gymnopus dryophilus*  
*Hebeloma incarnatulum*  
*Hebeloma laterinum*  
*Hydnum repandum*  
*Hygrophoropsis aurantiaca*  
*Hygrophorus piceae*  
*Hypomyces luteovirens*  
*Lactarius fuliginosus*  
*Lactarius mammosus*  
*Lactarius rufus*  
*Lactarius torminosus*  
*Lactarius trivialis*  
*Lactarius vietus*  
*Leccinum scabrum*  
*Leccinum variicolor*  
*Leccinum versipelle*  
*Marasmiellus perforans*  
*Mycena galopus*  
*Mycena laevigata*  
*Rhodocollybia fodiens*



*Russula adusta*  
*Russula aeruginea*  
*Russula claroflava*  
*Russula clavipes*  
*Russula decolorans*  
*Russula fragilis*  
*Russula gracillima*  
*Russula paludosa*  
*Russula rhodopus*  
*Russula vinosa*  
*Spathularia rufa*  
*Suillus luteus*  
*Tricholoma inamoenum*  
*Tricholoma fulvum*  
*Tricholoma saponaceum*  
*Xeromphalina caudicinalis*

### List by Francesco Bellu

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*Albatrellus ovinus*  
*Amanita regalis*  
*Boletus pinophilus*  
*Chroogomphus rutilus*  
*Cortinarius atrocaeruleus*  
*Cortinarius cinnamomeus*  
*Cortinarius anisatus*  
*Cortinarius anomalus*  
*Cortinarius armillatus*  
*Cortinarius caninus*  
*Cortinarius collinitus*  
*Cortinarius claricolor*  
*Cortinarius lepidopus*  
*Cortinarius rusticus*  
*Cortinarius traganus*  
*Cortinarius venustus*  
*Gomphidius glutinosus*  
*Hebeloma incarnatum*  
*Hebeloma mesophaeum*  
*Hygrophoropsis aurantiaca*  
*Hygrophorus erubescens*  
*Hygrophorus exiguus*  
*Infundibulicybe squamulosa*  
*Inocybe cincinnata*  
*Lactarius badiusanguineus*  
*Lactarius deterrimus*  
*Lactarius mammosus*  
*Lactarius rufus*  
*Lactarius tabidus*  
*Lactarius torminosus*  
*Lactarius trivialis*  
*Lactarius zonarioides*  
*Leccinum scabrum*  
*Leccinum versipelle*  
*Pholiota flammans*

*Russula adusta*  
*Russula aeruginea*  
*Russula atrorubens*  
*Russula gracillima*  
*Russula paludosa*  
*Russula rhodopoda*  
*Suillus bovinus*  
*Suillus luteus*  
*Suillus variegatus*  
*Tricholoma inamoenum*

### List by Mauro Belluci, Bruno Brizzi, Umberto Pera

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*Amanita porphyria*  
*Boletus pinophilus*  
*Calocera viscosa*  
*Cortinarius pholideus*  
*Cortinarius sanguineus*  
*Cortinarius traganus*  
*Ganoderma applanatum*  
*Hygrophoropsis aurantiaca*  
*Hygrophoropsis (Aphroditiola) olida*  
*Hygrophorus piceae*  
*Lactarius deterrimus*  
*Lactarius fennoscandicus*  
*Lactarius necator s.l.*  
*Lactarius rufus*  
*Lactarius scrobiculatus*  
*Leccinum holopus (niveum)*  
*Rhodocollybia bytyracea*  
*Russula acrifolia*  
*Russula aeruginea*  
*Russula atroglaucula*  
*Russula betularum*  
*Russula cessans*  
*Russula claroflava*  
*Russula clavipes*  
*Russula paludosa*  
*Russula sanguinea*

### List by Tanja Böhning

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**E**=eksiccatum, **D**=digital photo,  
**MB**=determination with microscope

*Clavariadelphus ligula*  
*Collybia cirrhata*  
*Cortinarius craticius*, D, E, MB, conf. Karl Soop  
*Cortinarius vibratilis*, D, E, MB  
*Hygrophorus exiguus* with *Tricholoma inamoenum*, Ellen Larsson, D,  
*Inocybe geophylla*, D  
*Lactarius fennoscandicus*, D, E, MB, conf. A. Verbeke





*Torrubiella albolanata* on mumified spider, new to Sweden. Photo: Mathias Lüderitz

*Lactarius picinus*, D  
*Lactarius representaneus*, D  
*Lactarius scoticus*, D,E, MB  
*Lactarius tuomikoskii*, A. Verbeken, D, E, MB  
*Mycena laevigata*, D  
*Russula claroflava*  
*Torrubiella albolanata*, Mathias Lüderitz, D, E, MB, on  
mumified spider  
*Tricholoma inamoenum*, D

**List by Anita Stridvall. Anita Listed 109  
fungi species, 11 *Lactarius* species.**

*Albatrellus ovinus*  
*Amanita muscaria*  
*Amanita regalis*  
*Amanita porphyria*  
*Amanita vaginata*  
*Atheniella (Mycena) flavoalba*

*Auriscalpium vulgare*  
*Boletus edulis*  
*Calocera viscosa*  
*Chalciporus piperatus*  
*Chroogomphus rutilus*  
*Clitocybe (infundibulicybe) costata*  
*Clitocybe dryophila*  
*Clitocybe phyllophila*  
*Clitocybe squamulosa*  
*Coltricia perennis*  
*Cortinarius anomalus*  
*Cortinarius armillatus*  
*Cortinarius brunneus*  
*Cortinarius calopus*  
*Cortinarius camphoratus*  
*Cortinarius canabarda*  
*Cortinarius caperatus*  
*Cortinarius claricolor*  
*Cortinarius collinitus*



*Cortinarius depressus*, Stig Jacobsson  
*Cortinarius illuminus*, Stig Jacobsson  
*Cortinarius laniger*  
*Cortinarius lepidopus*, Jan Olsson  
*Cortinarius multiformis*  
*Cortinarius sanguineus*  
*Cortinarius saturatus*, Stig Jacobsson  
*Cortinarius semisanguineus*  
*Cortinarius testaceofolius*  
*Cortinarius vibratilis*  
*Entoloma lividoalbum*  
*Entoloma turbidum*, Jan Olsson  
*Fomitopsis pinicola*  
*Galerina cephalotricha*, Jan Olsson  
*Gomhidius glutinosus*  
*Gymnopilus penetrans*  
*Gymnopilus picreus*  
*Gymnopus androsaceus*  
*Hebeloma mesophaeum*  
*Hygrophoropsis aurantiaca*  
*Hygrophorus exiguus*, Ellen Larsson  
*Hygrophorus korhonenii*, Kurt-Anders Johansson  
*Hygrophorus piceae*  
*Hygrophorus pudorinus*  
*Hypoxylon (Jackrogenerella) multiforme*, Rolf-Göran Carlsson  
*Inocybe flocculosa*  
*Inocybe geophylla*  
*Inocybe sindonia*  
*Kuehneromyces mutabilis*  
*Laccaria laccata*  
*Lactarius deterrimus*  
*Lactarius necator*  
*Lactarius mammosus*  
*Lactarius olivinus*  
*Lactarius rufus*  
*Lactarius scrobiculatus*  
*Lactarius tabidus*  
*Lactarius torminosus*  
*Lactarius trivialis*  
*Lactarius vietus*  
*Lactarius zonarioides*  
*Leccinum scabrum*  
*Leccinum vulpinum*  
*Lentinus substrictus (Polyporus ciliatus)*  
*Leotia lubrica*  
*Lycoperdon perlatum*  
*Lycoperdon umbrinum* s.l.  
*Lyophyllum (Tephroclybe) murinum*, Jan Olsson  
*Marsmiellus (Micromphale) perforans*  
*Megacollybia platyphylla*  
*Melanoleuca melaleuca* s.l.  
*Mycena haematopus*  
*Mycena laevigata*

*Mycena pura*  
*Mycena rubromarginata*  
*Mycena stipata*  
*Oligoporus cerifluus*  
*Oligoporus fragilis*  
*Paxillus filamentosus*  
*Pholiota flammans*  
*Pholiota lubrica*  
*Pholiota mixta*  
*Pholiota tuberculosa*, Jan Olsson  
*Pluteus cervinus*  
*Puccinia areolatum*  
*Rhodocollybia prolixa var. distorta*, Jan Olsson  
*Russula adusta*  
*Russula atrorubens*  
*Russula clavipes*  
*Russula decolorans*  
*Russula nitida*  
*Russula paludosa*  
*Russula rhodopoda*  
*Russula sanguinea*  
*Russula vinosa*  
*Schizopora (Xylodon) paradoxa*, Rolf-Göran Carlsson  
*Skeletocutis amorpha*  
*Suillus luteus*  
*Suillus variegatus*  
*Thelephora caryophyllea*  
*Tricholoma inamoenum*  
*Tubaria confragosa*  
*Tubaria conspersa*

### Comment, site 14, Ormberget northwest

*Chalciporus piperatus* is mycoparasitic, associated with *Amanita muscaria*, common in Jämtland and Medelpad.

*Cortinarius chrysolithus* is according to Karl Soop synonym of *C. huronensis*, now the correct name for this species. The name in Swedish is "grönskivig kanelspindling", a good species for dyeing wool and typical for rich fens in Jämtland and Medelpad.

*Cortinarius flos-paludis* was described by Jacques Melot who unfortunately missed our workshop due to health problem.

***Leccinum scabrum*.** The *Leccinum* workshop in Borgsjö 1993 was led by Roy Watling from the Royal Botanic Garden in Edinburgh. Roy, Rolf Lidberg, Mauri Korhonen, Machiel Noordeloos and others had discussions on the correct name for this common species. At last we agreed to name it *L. pulchrum*. One evening Roy gave us a presentation: "Two or one hundred and two species—the perplexing genus *Leccinum*". Nowadays there is consensus about the name *Leccinum scabrum*, see writing by Machiel Noordeloos and Henk den Bakker on pp. 173 in FAN7. The current concept of *L.*





Mathias Lüderitz, Kai Reschke, José Maria Traba-Velay and Francesco Bellu discuss a collection.  
Photo: Hjördis Lundmark

*scabrum* includes *L. roseofractum*. We find *Leccinum scabrum* under *Betula* in lawns already in June in the provinces of Jämtland and Medelpad. *Leccinum rotundifoliae* with *Betula nana* is alike but differs from *L. scabrum* by more narrow spores. We find *L. rotundifoliae* both in alpine areas but also in fens with *Betula nana* down to the sea in Medelpad. Håkan Lindström collected *L. rotundifoliae* in July 1984 at the fen Storflon in Haverö parish (UME). Mauri Korhonen initiated a "Small *Leccinum* workshop" in Borgsjö 20-27 Aug. 1999 with Henk den Bakker, Gilbert and Therese Lannoy, Ruben Walley, Machiel Noordeloos, Eine and Mauri Korhonen. See article by Mauri in the Finnish review Sieni Lehti 1999/4 and Swedish translation by Jukka Vauras in the Borgsjö report 1999, pp. 8–9. The group enjoyed the week in Borgsjö and had many interesting discussions. Mauri write among others: "I *Boletus edulis*-gruppen gick våra åsikter rakt i tvärs. De åtta taxon som jag känner till från Norden av *Boletus edulis* ville de andra inte alls acceptera. Våra åsikter var ööverstigliga".

*Russula atrorubens* is common in moist forest in the excursion area. It seems close to *R. olivaceoviolascens*, the most frequent *Russula* during the workshop with Henning Knudsen in 1984. At last we just called it "Ove"! In 1983

Henri Romagnesi named the same species as *Russula fragilis* var. *knauthii*, among collections: Torp parish, north of Getberget Aug. 1983, Stig Jacobson, det Henri Romagnesi (S). Stig wrote on this collection (17): "Sporerna var försedda med ribbor och stämmer bra med *fragilis* men Singer som beskrivit *Knauthii* som egen art uppger att den ska ha kraftiga utskott på sporerna likt *R. emetica* och mest växa i bokskog".

*Torrubiella (Gibellula) albolanata* on mummified spider is new to Sweden. It was recorded in 2015 as new to Denmark, see Læssøe, T. 2015: Edderknoppe-Snyltekölle (*Torrubiella albolanata*)-en överraskelse fra de jyske sumpe", Svampe 71: 23–27, 37. Nils Lundqvist wrote in *Jordstjärnan* 1998/1 pp. 15–18 on "Gibellula -hoppspindlarnas fiende" and mention some Swedish finds of *Gibellula leiopus*. Mathias Lüderitz wrote in mail 11 Maj 2019: "This species is fascinating. The species *Gibellula pulchra* is very common in wet meadows, but *T. albolanata* is uncommon. It is new to Sweden. The spider with the fungus was situated on a twig, which was still hanging on a living tree" In 2014 Thomas Læssøe collected another spider monster, *Gibellula pulchra*, at Vattjomåsen, Medelpad. A fascinating photo by Jens H. Petersen showing *Gibellula pulchra* can be found on page 214 in report from the Swedish Mycological Society week in Timrå 2014.



6940150;1499550

# 15 Orråberget North, forest north of the pilgrim route, Husmyrbäcken

Excursion guide pp. 84–86

Rich Picea forest.  
30 Aug. 2018

**Guide:** Håkan Sundin

**Participants:** Francesco Bellu, Robin Dost, Karl Soop, Kristoffer Stighäll, Birgitta Wasstorp and others.

## Selected previous records

*Lactarius aquizonatus*, *badiosanguineus*, *deterimus*, *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* (*Gloeocystidiellum*) *convolvens*, *Hapalopilus nidulans*, *Hygrophorus hyacinthinus* (listed in 2010 by Anita Stridvall and Birgitta Wasstorp), *karstenii*, *Limacella guttata*, *Mycena oregonensis*, *Peniophorella guttulifera*, *Trichoderma nybergianum*, *Tricholoma olivaceotinctum*.

## Collections on the exhibition table

*Cortinarius alboviolaceus*, *Betula*, Herbert Kaufmann, Lars G Ljungberg, det. Karl Soop  
*Cortinarius balaustinus*, *Betula*, Francesco Bellu  
*Cortinarius depressus*, *Picea*, *Pinus*, Francesco Bellu  
*Cortinarius ionosmus*, *Picea*, Francesco Bellu, "smell of *Viola odorata*"  
*Cortinarius malicorius*, *Picea*, *Pinus*, Birgitta Wasstorp  
*Cortinarius rubellus*, *Picea*, Kristoffer Stighäll, det. Birgitta Wasstorp  
*Cortinarius solis-occasus*, *Picea*, *Pinus*, Birgitta Wasstorp  
*Cortinarius venetus*, *Picea*, Birgitta Wasstorp  
*Hygrophorus pudorinus*, *Picea*, Kristoffer Stighäll  
*Inocybe proximella*, *Picea*, *Pinus*, Francesco Bellu  
*Inocybe terrigena*, Lars G Ljungberg

*Lactarius aquizonatus*, *Betula*, *Picea*, *Pinus*, Robin Dost  
*Lactarius olivinus*, *Picea*, Tero Taipale  
*Lactarius resimus*, *Betula*, *Picea*, *Pinus*, Robin Dost  
*Lactarius uvidus*, *Betula*, *Picea*, Tero Taipale  
*Lactarius zonarioides*, *Picea*, Tero Taipale  
*Lactarius zonarioides*, *Picea*, pale specimens, Birgitta Wasstorp  
*Lepiota oreadiformis*, *Betula*, *Picea*, *Pinus*, Lars G Ljungberg  
*Limacella glioderma*, *Picea*, *Pinus*, Birgitta Wasstorp  
*Pholiota lubrica*, *Picea*, Birgitta Wasstorp  
*Rugosomyces carneus*, *Picea*, *Pinus*, Birgitta Wasstorp  
*Russula atroglaucata*, *Betula*, *Picea*, Tero Taipale  
*Russula atroglaucata*, *Betula*, *Picea*, Kristoffer Stighäll, det. Birgitta Wasstorp  
*Russula favrei*, *Picea*, Tero Taipale  
*Russula fennoscandica*, *Picea*, Tero Taipale  
*Russula firmula*, *Picea*, Tero Taipale  
*Russula gracillima*, *Betula*, *Picea*, Tero Taipale  
*Russula nauseosa*, *Picea*, Tero Taipale  
*Russula nitida*, *Betula*, *Picea*, Tero Taipale  
*Russula olivina*, *Betula*, *Picea*, *Salix*, Birgitta Wasstorp  
*Russula olivobrunnea*, *Picea*, Tero Taipale  
*Russula olivobrunnea*, *Picea*, Kristoffer Stighäll  
*Russula pubescens*, *Betula*, Tero Taipale  
*Russula roseipes*, *Picea*, *Pinus*, Birgitta Wasstorp  
*Russula vinososordida*, *Picea*, Tero Taipale  
*Tricholoma stiparophyllum*, *Betula*, *Picea*, Robin Dost

## List of Francesco Bellu

*Agaricus sylvicola*  
*Amanita muscaria*  
*Amanita porphyria*  
*Bolbitius titubans*  
*Boletus edulis*  
*Clitocybe odora*  
*Cortinarius armillatus*  
*Cortinarius balaustinus*, *Betula*  
*Cortinarius collinitus*  
*Cortinarius decipiens* var. *atrocaeruleus*  
*Cortinarius depressus*  
*Cortinarius fervidus*  
*Cortinarius flexipes* var. *inolens*  
*Cortinarius ionosmus*  
*Cortinarius laniger*  
*Cortinarius multififormis*  
*Cortinarius pholideus*  
*Cortinarius rusticus*  
*Cortinarius sanguineus*  
*Cortinarius solis-occasus*  
*Cortinarius talus*, *Betula*  
*Cortinarius uraceus*  
*Entoloma juncinum*





Eske De Crop, Little Johanna, Wim Dewitte, Jan-Olof and Lennart Söderberg enjoy lunch picnic at the mountain farm Kullbodarna. Photo: Annemieke Verbeken



*Fomitopsis pinicola*  
*Gomphidius glutinosus*  
*Gymnopus aquosus*  
*Gymnopus perforans*  
*Hebeloma aanenii*  
*Hebeloma geminatum*  
*Hygrophorus erubescens*  
*Hygrophorus olivaceoalbus*  
*Hygrophorus piceae*  
*Infundibulicybe gibba*  
*Inocybe leiocephala*  
*Inocybe posterula*  
*Inocybe proximella* (=striata Bres.)  
*Inocybe rimosa*  
*Lactarius deterrimus*  
*Lactarius pubescens*  
*Lactarius rufus*  
*Lactarius scrobiculatus*  
*Lactarius torminosus*  
*Lactarius trivialis*  
*Lactarius vietus*  
*Leccinum holopus*  
*Lactarius zonarioides*  
*Leccinum melaneum*  
*Leccinum scabrum*  
*Lepiota clypeolaria*  
*Lepiota magnispora* (ventriosospora)  
*Limacella glioderma*  
*Lycoperon pyriforme*  
*Mycena laevigata*  
*Mycena pura*  
*Paxillus involutus*  
*Rhodocollybia filamentosa*  
*Ripartites tricholoma*  
*Russula decolorans*  
*Russula emetica*  
*Russula favrei*  
*Russula gracillima*  
*Russula nauseosa*  
*Russula nitida*  
*Russula queletii*  
*Russula sanguinea*  
*Russula vinosa*

### Collections, UPS

*Hebeloma aanenii*, *Picea*, *Pinus*, Francesco Bellu  
*Hebeloma geminatum*, *Picea*, Francesco Bellu  
*Lactarius resimus*, *Betula*, *Picea*, *Pinus*, Robin Dost  
*Lactarius zonarioides*, *Picea*, *Pinus*, Birgitta Wasstorp

### Comment, site 15, Orråsberget north

Rich old, moist *Picea-Pinus-Betula* forest of

*Cyripedium* type along the old and increasingly popular pilgrim route. Erik Collinder reports in "Medelpads Flora" (1909) a 3–6 decimeter thick layer of loose chalk (kalkbleke) from springs near Orråsen and along the former national road to Jämtland. The visited area is part of a zone with rich fens and forests from Vammen-Ensillre kalkbarrskog-Halmmyran-Husmyran-Balbodbäcken. Husmyra is a rich fen with *Carex appropinquata* and *Salix myrsinites*. Of cultural interest are also ditches and small field in open fens hinting at a harder, earlier life for the local population. See more information in Excursion guide pp. 84–86. *Hebeloma geminatum* is not mentioned in Artportalen. It was described by Eberhardt-Beker-Vesteholt in Persoonia 2015: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4713102/>

***Leccinum melaneum***. FAN7, pp. 173–174 says: "Leccinum melaneum does not differ much morphologically from *L. scabrum*, except for the fact that the stipe surface generally is coloured greyish or blackish in this species, opposed to whitish to brownish in *L. scabrum*. Furthermore, the basidiocarps usually are sturdier with clavate stipe and often a slightly malformed pileus. Some authors include *L. melaneum* in their concept on *L. scabrum*."

***Lepiota oreadiformis*** is according to Artportalen not recorded north of Uppland, redlisted as VU in Norway, see also Ryman-Holmåsén pp. 415.

***Rhodocollybia filamentosa*** is according to Funga Nordica (2012) very rare in temporal-boreal region. Less than 10 records in Artportalen.

***Russula atroglauca*** is a species in a difficult group with often dark green hat (sometimes black at centre), greenish dots at foot base, the same brownish dots as in *R. aeruginea* and less common under *Betula* in calcareous forest. Selected collections: Medelpad, Borgsjö, Lombäcken, under *Betula* and together with *R. intermedia*, 3 Sept. 1997 Mauro Sarnari (Sarnari). Medelpad, Tuna parish, Torkarlsberget, *Betula* park, 28 Aug. 2001, P. Larsen, det J. Ruotsalainen (GB), (UPS)

***Russula olivina*** is northern, olive-green, typical for calcareous, damp *Picea* forests, often at border of rich fens in Jämtland and western parts of Medelpad and Ångermanland. Selected fungarium collections: Jämtland, Brunflo, Lundkälén, 1991, S. Jacobsson & L. Lundberg (GB); Medelpad, Borgsjö, North of Bergåsen, 23 Aug. 1984, H.Kaufmann, conf J.Vauras (Kaufmann); Ångermanland, Säbrå, Furuhultån, H. Marklund (HM 352–98 + foto).

***Russula olivobrunnea*** has local name "guckuskokremla" (lady's slipper *Russula*) because we often find this beauty together with *Cyripedium*. Swedish finding dots of *Russula olivobrunnea* at Dyntaxa are from the calcareous area in Jämtland and adjacent parts of





*Lactarius fennoscandicus* is an edible lookalike to *Lactarius deterrimus* and common in north Sweden.  
Photo: Hjördis Lundmark

western Medelpad and Ångermanland! About 90 % of all Swedish records of *R. olivobrunnea* are from Jämtland and Medelpad. In the same habitat we often find *Russula firmula*, *nauseosa*, *olivina*, *postiana*, *queletii*. Selected fungarium collections: Jämtland, Ås, Åskott, 1989, Ilkka Kytövuori (H); Jämtland, Offerdal, Västerberg, 1982, Esteri Ohenoja (Oulu); Medelpad, Haverö, Snöberg, 27 Aug. 2001, Jaap Wiisman (UPS).

*Russula pubescens* is a double of *R. vinosa*, often yellow cap center, bound to *Betula*, more common than *R. vinosa* in

alpine birch forest, but also rather common under *Betula pubescens* and *B. nana* down to the Bothnian coast. Hjördis Lundmark have *R. pubescens* under *Betula* on her courtyard in Mellby, Ångermanland (S, det Herbert Kaufmann). Ilkka Kytövuori found *R. pubescens* in the nature reserve Sundsjöåsen, Medelpad. Selected collections: Jämtland, Kall, Älgtjärn, old mountain pasture, 18 Aug. 1997, Stig Jacobsson (GB). Photo and micro characters in Ruotsalainen & Vauras 1991 (53).





Common review of today's findings. Photo: Hjördis Lundmark

6939896;1500228

## 15 B, Husmyrbäcken where the brook is crossing the forest road

Not in the Excursion Guide

Old coniferous forest, *Betula*  
29 Aug. 2018

**Guide:** Bengt Larsson

**Participants:** Margareta Byström, Jochen Girwert, Felix Hampe, Gunilla Kärrfelt, Cathrin Manz, Karl Soop, Kristoffer Stighäll and Birgitta Wasstorp

### List of Bengt Larsson

*Amanita muscaria* var. *regalis*  
*Chalciporus piperatus*  
*Clavariadelphus ligula*  
*Collybia tuberosa*

*Cortinarius bivelus*, Karl Soop  
*Cortinarius collinitus*  
*Cortinarius delibutus*, Karl Soop  
*Cortinarius hercynicus*  
*Cortinarius laniger*  
*Cortinarius malicorius*  
*Cortinarius rusticus*, Karl Soop  
*Cortinarius sanguineus*  
*Cortinarius septentrionalis*  
*Cortinarius traganus*  
*Hygrophorus piceae*  
*Lactarius scrobiculatus*  
*Russula fennoscandica*  
*Russula gracillima*  
*Russula grisescens*  
*Russula nauseosa*  
*Russula olivina*  
*Russula paludosa*  
*Russula pulchella*  
*Russula rhodopoda*  
*Russula versicolor*  
*Russula vinososordida*  
*Spathularia rufa*  
*Tricholoma fulvum*



6939104;1500433

# 15 C, 3-400 meters north-northeast of Orråsen slakteri (abattoir)

Not in the Excursion Guide

Kristoffer Stighäll, Birgitta Wasstorp  
29 Aug. 2018

*Albatrellus ovinus*, KS  
*Chroogomphus rutilus* s.l., KS  
*Cortinarius caninus*, BW  
*Cortinarius delibutus*, BW  
*Cortinarius laniger*, BW  
*Cortinarius malicorius*, BW  
*Cortinarius multiformis*, BW  
*Cortinarius rubellus*, BW  
*Cortinarius solis-occasus*, BW  
*Cortinarius traganus*, BW  
*Cortinarius venustus*, BW  
*Gomphidius glutinosus*, KS  
*Hydnum repandum*, BW  
*Hygrophorus pudorinus*, BW  
*Lactarius aquizonatus*, BW  
*Lactarius deterrimus*, BW  
*Lactarius mammosus*, BW

*Lactarius necator*, BW  
*Lactarius scrobiculatus*, BW  
*Lactarius zonarioides*, BW  
*Leccinum variicolor*, BW  
*Limacella glioderma*, BW  
*Megacollybia platyphylla*, BW  
*Mycena pura*, BW  
*Pholiota lubrica*, BW  
*Ramaria apiculata*, KS, det. Lennart Söderberg  
*Rugosomyces carneus*, BW  
*Russula atroglauca*, BW  
*Russula atrorubens*, BW  
*Russula favrei*, BW  
*Russula firmula*, BW  
*Russula gracillima*, BW  
*Russula olivina*, BW  
*Russula olivobrunnea*, BW  
*Russula rhodopoda*, BW  
*Russula roseipes*, BW  
*Sarcodon imbricatus*, KS  
*Thelephora palmata*, KS  
*Tricholoma saponaceum*, BW

## Comment, site 15 C, Husmyrbäcken

*Lactarius necator* s.l. is common all over Sweden. According to FAN 7 page 248 there are two look-alikes of *L. necator* s.l. in Europe. One of them is conspecific with the North-American species *L. sordidus* Peck. Morphological and ecological characters to distinguish the two species are under research (Nuytinck et al., in prep.). Many collections of *L. necator* were also taken during the workshop for wool dyeing, see pp. 90-91 in the book by Hjördis Lundmark and Hans Marklund about wool dyeing with fungi. See also text by Annemieke on *Lactarius necator* in the report.



*Russula atroglauca*, Orråsen. Photo: Hjördis Lundmark





*Entoloma "judithae"*. Granboda 1993. Photo: Nils Jansson

1496760;6939615

## 17 Granboda, Skarpbäcken, Habitat Protection Area

Excursion guide pp. 88–89

**Rich brook valley with *Cypripedium calceolus*, *Gymnadenia conopsea*, *Listera ovata*, *Saussurea alpina*.  
31 Aug. 2018**

**Participants:** Rolf-Göran Carlsson, Kurt-Anders Johansson, Anita Stridvall

### Among earlier records

*Lactarius aquizonatus*, *pilatii*, *pubescens*, *scoticus* (in rich fen, Olle Persson 30 Aug. 1985), *trivialis*, *tuomikoskii*, *zonarioides*.

*Russula adusta*, *atrorubens*, *cessans*, *clavipes*, *decolorans*,

*emetica*, *favrei*, *fennoscandica*, *font-queri*, *globispora* group, *grisescens* (Jan-Ola Wimo 20 Aug. 1983, det. Henri Romagnesi), *mustelina* (Carina Eriksson 20 Aug. 1983, det. Henri Romagnesi), *gracillima*, *nitida*, *paludosa*, *roseipes*, *vinososordia*.

**Also:** *Bankera violascens*, *Calocybe cerina*, *Cantharellopsis prescottii*, *Clitocybe amarescens* (courtyard), *Cortinarius alboglobosus*, *venustus*, *Gastrum pecitatum*, *Gyrodon lividus*, *Hydnellum suaveolens*, *Hygrophorus inocybiformis*, *Inocybe terrigena*, *Limacella guttata*, *Sarcodon fennicus*, *Tremiscus helvelloides*.

### Rolf Lidberg showed pollination of *Cypripedium calceolus*

The forest and the culture landscape around the village Granboda has for a long time attracted people interested in butterflies, flowers, fungi, gastropods and other biological diversity. Bengt Larsson, Rolf Lidberg and Margareta Byström have led many popular excursions to Skarpbäcken with sometimes more than 50 participants from Swedish Society for Nature Conservation to rich fens along Skarp-



bäcken. In 1979 Bengt and Margareta found the alpine plant *Thalictrum alpinum* here. Rolf Lidberg was fascinated by orchids. He demonstrated for us in detail here at Skarpbäcken how insects pollinated the orchid *Cypripedium calceolus*. Bengt Larsson still leads popular botanical excursions every summer to Borgsjö for the Botanical Society in Medelpad and for the Swedish Society for Nature Conservation. At the Facebook group of Medelpads Botaniska Förening 29 June 2019 you can see Jessica Anderssons' excellent photos from the latest excursion with comments by Jan-Olof.

### Judith became a TV star!

We have also experienced traditional bread baking in older way and studied grassland fungi at the courtyard of Axel and Judith Jonsson in Granboda. Machiel Noordeloos found a big *Entoloma species* with green foot that we for a long time called "Entoloma judithae", named after Judith. She proudly said in Swedish Television that name for the new species must be "judithae"! Now Judith and Axel have left us. *Entoloma "judithae"* is reduced by Machiel Noordeloos to a variant of *Entoloma araneosum*. Another exciting find on the courtyard in Granboda is *Bolbitius reticulatus* (Erik Rald, Roy Watling) on wood and sawdust.

### Forest grazing around villages in Borgsjö

Earlier land use has formed today's nature. Forests around the villages in Borgsjö were earlier burnt in order to improve grazing for cattle. In connection with the land consolidation, "Laga skifte", about 180 years ago such burns were forbidden. At that time forest began to be valuable for the growing saw mill industry. The priest told his people about the prohibition in Borgsjö church. The wet forest along the brook Skarpbäcken is formed by earlier forest grazing that was common until 75–100 years ago around all villages in the provinces of Jämtland and Medelpad.

### Carina found *Russula mustelina* at Skarpbäcken, determined by Henri Romagnesi

Hjalmar Croneborg and Johan Nitare found in 2003 *Sarcodon fennicus* on an ant hill near the brook. Olle Persson collected *Lactarius scoticus* here 30 Aug. 1985. Carina Eriksson (now Jutbo), active organizer of the earliest fungal workshops in Borgsjö, found the rare *Russula mustelina* along the brook 20 Aug. 1983, determined by Henri Romagnesi. Anita and Leif Stridvall together with Stig Jacobsson discuss the western occurrence of *R. mustelina* in Sweden on page 12 in their article "Den svenska utbredningen av några kremlearter", *Jordstjärnan* 1990 (2): 2–18.

### Collections at exhibition table

*Cortinarius percomis*, *Picea*, Anita Stridvall, Kurt-Anders Johansson, Rolf-Göran Carlsson

*Onnia (Phylloporus) leporina*, *Picea* wood, Rolf-Göran Carlsson

*Ramaria testaceoflava*, Rolf-Göran Carlsson, det. Lennart Söderberg

*Russula aquosa*, *Betula*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson

*Russula clavipes*, *Picea*, *Pinus*, Anders Aronsson, Mats Karlsson, Tony Svensson

*Tricholoma olivaceotinctum*, *Picea*, Anita Stridvall, Kurt-Anders Johansson, Rolf-Göran Carlsson

### List by Rolf-Göran Carlsson, Kurt-Anders Johansson, Anita Stridvall

*Agaricus sylvaticus*

*Agaricus sylvicola*

*Amanita vaginata*

*Chroogomphus rutilus* s.l.

*Clavariadelphus ligula*

*Climacocystis borealis*

*Cortinarius alboviolaceus*

*Cortinarius betulinus*

*Cortinarius collinitus*

*Cortinarius lucorum*

*Cortinarius percomis*

*Cortinarius rusticus*

*Cortinarius trivialis*

*Cortinarius venustus*

*Cystolepiota seminuda*

*Fomes fomentarius*

*Fomitopsis rosea*

*Hygrophorus erubescens*

*Hygrophorus olivaceoalbus*

*Hygrophorus piceae*

*Hygrophorus pudorinus*

*Lactarius auriolla*

*Lactarius scoticus*

*Laetiporus sulphureus* s.l.

*Leccinum variicolor*

*Lepiota cortinarius*

*Limacella glioderma*

*Lycoperdon perlatum*

*Lycoperdon pyriforme*

*Lycoperdon umbrinum*

*Melanomma pulvispyrius*

*Phellinus tremulae*

*Phylloporus (Onnia) leporina*

*Plicatura nivea*

*Postia guttulata*

*Ramaria testaceoflava*

*Sarcodon imbricatus*

*Russula aquosa*

*Russula integra*

*Russula queletii*





Wool dyeing at the beautiful old mansion of Hjärdís and Berthold. Photo: Berthold Lundmark

*Russula vitellina*  
*Schizopora paradoxa*  
*Tricholoma olivaceotinctum*  
*Tricholomopsis rutilans*

### Comments, site 17, Skarpbäcken

The forest triangle between highway E14 and the old road is known for rich fens and forests. Remarkable finds along Skarpbäcken of the southern *Laetiporus sulphureus* s.l. and also of the rare *Lepiota cortinarius* and *Postia guttulata*.

*Laetiporus sulphureus* s.l. was a sensational finding. It is mostly found on *Quercus* in southern Sweden but also known from *Alnus* and *Salix*. We have never earlier found *L. sulphureus* in Medelpad. It is possible that more than one species of *Laetiporus* occurs in Scandinavia. *Lepiota cortinarius* was another sensational finding

of Anita and her friends from Västergötland at Skarpbäcken. According to Artportalen there are two earlier findings from Dalarna, now one finding in Medelpad and one finding at Haraudden in Jokkmokk during the Swedish mycological week in 2011. It is a rare fungus that seems bound to real hot spots. It is redlisted as VU in Norway and as CR in Denmark.

*Postia guttulata* is a southern species with few records along the Bothnian coast in the north of Sweden. It has recently spread all over Denmark.

*Russula aquosa* is common in moist *Picea* forest, often in slopes with flowing water, marshlands and along forest brooks. It is common in the lime area of mid Sweden but also occurs in more acid forest types. Selected collections: Jämtland, Undersåker, Renfjället, dump forest with *Picea*, *Betula* and *Salix*, 25 Aug. 2001, Jukka Vauras (TURA); Jämtland, Oviken, Borgen, 2 Sept. 1997, Mauro Sarnari (Sarnari).





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

## The Swedish Taxonomy Initiative – an Exciting, Globally Unique Project

**The Swedish Species Information Centre (ArtDatabanken) at the Swedish University of Agricultural Sciences (SLU) in Uppsala accumulates, analyses and disseminates information concerning biological diversity and nature habitats in Sweden. At the home page, <http://artportalen.se>, you find information concerning the known distribution of fungi in Sweden.**

The Swedish Species Information Centre was approved by the Swedish Parliament in 2002 with the task to map all Swedish approximately 60 000 multicellular animals, fungi and plants. A globally unique project. See article by Gärdenfors, Ingelög and Ronquist: "Nu skall Sveriges svampar, växter och djur beskrivas". (Jordstjärnan 2001 (2): 31–37. Since the project started, over 3,000 new species for Sweden have been found, mostly insects and marine species. In the coming years books and digital keys of some less known fungus groups will be published.

Studies will be carried out all over Sweden from the beech forests in Skåne to the alpine heaths of Lapland. The mycologist Elisabet Ottosson is employed at the Swedish Species Information Centre. Other mycologists at the centre are Michael Krikorev and Tommy Knutsson (part time). In April 2018 Elisabet together with Jan-Olof organized an interesting visit to ArtDatabanken for a group of botanists/mycologists from Medelpad, see photo. We also visited The Museum of Evolution in Uppsala, see photo, where Åsa Kryus



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

and Mats Hjertsson met us. Some of our collections from Russulales workshop are deposited in the fungarium UPS: [www.evolutionsmuseet.uu.se/indexeng.html](http://www.evolutionsmuseet.uu.se/indexeng.html)





A troll admires the orchid *Calypso bulbosa*. Sometimes we guide orchid fans from other countries at the beginning of June so they, once in their lifetime, can fall on their knees before this northern beauty at Ensilre kalkbarrskog. Jan-Olof and Bengt Larsson guided the Scottish botanist Mark Tully to flowering *Calypso* a bright midsummer night! Painting and self portrait by Rolf Lidberg

6940825;1496599

## 19 Ensilre kalkbarrskog, nature reserve

Excursion guide pp. 90-91

The finest botanical locality in  
Medelpad, see detailed information  
in Excursion guide pp. 90-91:  
31 Aug. 2018

**Participants:** Rolf-Göran Carlsson, Kurt-Anders Johansson, Kristoffer Stighäll, Anita Stridvall, Birgitta Wasstorp

### Selected earlier records

*Lactarius aquizonatus*, *bertillonii*, *deterrimus*, *glyciosmus*, *mamosus*, *musteus*, *necator*, *olivinus*, *pilatii*, *rufus*, *scrobiculatus*, *torminosus*, *trivialis*, *vietus*.

*Russula aeruginea*, *amethystina*, *aquosa*, *atrorubens*,

*consobrina*, *decolorans*, *emetica*, *favrei*, *griseascens*, *olivascens*, *olivobrunnea*, *paludosa*, *puellaris*, *queletii*, *rhodopoda*, *vinosa*, *vinososordia*, *xerampelina* s.l.

**Also:** *Cantharellopsis prescotii*, *Cortinarius bovinus*, *hercynicus*, *oulankensis*, *suboenochelis*, *Cystodermella adnatifolia*, *Gyromitra longipes*, *Gyromitra sphaerospora*, *Inocybe terrigena*, *Ossicaulis lignatilis*, *Pholiota lubrica*, *Tremiscus helvelloides*, *Tricholoma scalpturatum*, *viridilutescens*, *Verpa conica*.

### Collections on exhibition table with field form (fältblankett)

*Cortinarius corrosus*, *Picea*, Anita Stridvall, Kurt-Anders Johansson, Rolf-Göran Carlsson

*Cortinarius ochrophyllus*, *Picea*, *Pinus*, Birgitta Wasstorp

*Cortinarius venustus*, Ellen Larsson, RT 90:

6940078;1496743

*Ramaria eosanguinea*, *Picea*, *Pinus*, Ellen Larsson, det.

Lennart Söderberg, 6940632;1496788

*Russula olivobrunnea*, *Picea*, Birgitta Wasstorp





The rare morel *Gyromitra longipes* grows on decayed wood among *Calypso bulbosa* at Ensillre kalkbarrskog.  
Photo: Bengt Larsson

### List by Rolf-Göran Carlsson, Kurt-Anders Johansson, Anita Stridvall

*Cortinarius corrosus*  
*Fomitopsis pinicola*  
*Fomitopsis rosea*  
*Phellinus chrysoloma*  
*Phellinus viticola*  
*Phlebia centrifuga*  
*Postia caesia*  
*Postia fragilis*  
*Postia stiptica*  
*Stereum sanguinolentum*  
*Trichaptum fuscoviolaceum*

### List of Jan Olsson

*Ampulloclitocybe clavipes*  
*Cortinarius armeniacus*

*Cortinarius callisteus*  
*Cortinarius caperatus*  
*Cortinarius gentilis*  
*Cortinarius rubellus*  
*Cortinarius semisanguineus*  
*Cortinarius venustus*  
*Fomitopsis rosea*  
*Hebeloma incarnatum*  
*Hygrophorus piceae*  
*Lactarius trivialis*  
*Ramaria eosanguinea*, det. Lennart Söderberg  
*Russula decolorans*  
*Russula rhodopoda*  
*Russula vinosa*  
*Suillus variegatus*  
*Trichaptum abietinum*  
 Kristoffer Stighäll found *Cortinarius ochrophyllus*, det. Stig Jacobsson



# Anders Arnell, A Fan of Borgsjö

Anders Arnell lives in Uppsala with his family and teach nature guiding at the Swedish University of Agricultural Sciences (SLU). Anders was during some years employed at the county government of Västernorrland. He initiated the nature reserve Ensillre kalkbarrskog, arranged a memorable seminar about nature conservation at Saint Olof's Inn together with Britt-Marie Lindström and walked with

Jan-Olof and Rolf Lidberg in the orchid forests of Borgsjö. He also made a memorable speech at the banquet evening during the Tricholoma workshop in Borgsjö 1995 where his friend Olle Persson played George Formby songs. Read the banquet speech of Anders at pp. 4–5 and some words about Olle Persson at pp. 9 in the report at [www.myko.se](http://www.myko.se).

## Comment, site 19, Ensillre kalkbarrskog

A hot spot for rare fungi and vascular plants. During early summer 2019 Magnus Andersson, Peter Ståhl and local botanists admired three rare morels here: *Gyromitra longipes*, *Gyromitra sphaerospora* and *Verpa conica*. *Gyromitra longipes* and *Verpa conica* are described on pp. 82–83 in the book "Svampar i Sverige" (2013) with Bo Mossberg's paintings and text by Mats Karström. *Calypto bulbosa*, *Cypridium calceolus*, *Lactarius olivinus* and *Russula olivobrunnea* are top indicators for the finest "kalkbarrskogar" in the lime belt of Mid Sweden. Irene Andersson and Leif Andersson found 4 Sept. 1991 the earth tongue *Geoglossum sphagnophilum* at the rich fen Halmmyran near Ensillre kalkbarrskog. We have visited Halmmyran together with Rolf Lidberg and Håkan Lindström in order to study the orchid *Dactylorhiza majalis subsp. lapponica*. The rich fen Halmmyran with surrounding swampy forests have now become a nature reserve. Good for fungi, vascular plants and other biological diversity.

*Lactifluus bertillonii* is recorded here, a southern species that occurs north to the southern boreal zone in Finland and Sweden. Mauri Korhonen and Ilkka Kytövuori wrote in the review *Jordstjärnan* 1987 (2) pp. 45–48 on "Två arter av luden vittriska i Norden-*Lactarius vellereus* (Fr.)Fr. och *L. bertillonii*".

### Nature conservation

During earlier centuries cattle from the Ensillre mountain farm grazed here. Farmers in Ensillre village also cut trees and produced charcoal here. Burnt stumps tells us about forest fires. Storms in 2011 and 2013 put down many *Picea* trees and left light clearings. Most of *Calypto bulbosa*

occur in an old "kolbotten" (old coal mine). Peter Ståhl, writer of *Gästriklands Flora* (2016), found in 1988 the rare moonwort *Botrychium virginianum* at Ensillre kalkbarrskog.



Siv Norberg och Margareta Byström at the exhibition. Photo: Gunilla Kärrfelt





Felix Hampe tells us about a green *Russula*. Photo: Gunilla Kärrfelt

6943080;1499541

## 21 Balbodbäcken, west of Nedertjärn

Excursion guide pp. 93

29 Aug. 2018

**Guide:** Bengt Larsson

**Participants:** Margareta Byström, Jochen Girwert, Felix-Hampe, Gunilla Kärrfelt, Cathrin Manz, Karl Soop, Kristoffer Stighäll and Birgitta Wasstorp.

### Collections on exhibition table with field form

*Cortinarius herpeticus*, Birgitta Wasstorp  
*Cortinarius pholideus*, *Betula*, *Picea*, Birgitta Wasstorp  
*Cortinarius subtortus*, Birgitta Wasstorp

*Cudonia confusa*, *Picea*, *Pinus*, Birgitta Wasstorp  
*Lactarius olivinus*, Margareta Byström  
*Russula aquosa*, Bengt Larsson, det. Tero Taipale  
*Suillus flavidus*, *Pinus*, border of fen, Margareta Byström  
*Xeromphalina caucinalis*, *Picea*, *Pinus*, Birgitta Wasstorp

### List by Kristoffer Stighäll (KS) and Birgitta Wasstorp (BW)

*Apioperdon (Lycoperdon) pyriforme*, BW  
*Boletus pinophilus*, BW  
*Collybia tuberosa*, BW  
*Connopus (Gymnopus) acervatus*, BW  
*Cortinarius armillatus*, BW  
*Cortinarius brunneus*, BW  
*Cortinarius caperatus*, BW  
*Cortinarius collinitus*, BW  
*Cortinarius herpeticus*, BW  
*Cortinarius laniger*, BW  
*Cortinarius malicorius*, BW  
*Cortinarius rusticus*, BW



*Cortinarius sanguineus*, BW  
*Cortinarius scaurus*, BW  
*Cortinarius septentrionalis*, BW  
*Cortinarius subtortus*, BW  
*Craterellus lutescens*, KS  
*Cudonia confusa*, BW  
*Gomphidius glutinosus*, KS  
*Hydnellum ferrugineum*, BW  
*Hydnum repandum s.l.*, KS  
*Hydnum rufescens s.l.*, KS  
*Hygrophorus camarophyllus*, BW  
*Hygrophorus karstenii*, BW  
*Hygrophorus piceae*, KS  
*Laccaria laccata*, BW  
*Lactarius deterrimus*, BW  
*Lactarius mammosus*, BW  
*Lactarius olivinus*, BW, det. Annemieke Verbeken  
*Lactarius pubescens*, BW  
*Lactarius rufus*, BW  
*Lactarius scrobiculatus*, BW  
*Lactarius torminosus*, BW  
*Lactarius uvidus*, BW  
*Lactarius vietus*, BW  
*Lactarius zonarioides*, BW  
*Leccinum holopus*, BW  
*Leccinum versipelle*, BW  
*Paxillus involutus*, BW  
*Phellinus conchatus*, KS  
*Phellinus igniarius*, KS  
*Pholiota scamba*, BW  
*Pholiota spumosa*, BW  
*Pluteus cervinus*, BW  
*Ramaria eosanguinea*, KS, det. Lennart Söderberg  
*Russula atrorubens*, BW  
*Russula aquosa*, BW  
*Russula decolorans*, BW  
*Russula fennoscandica*, BW  
*Russula gracillima*, BW  
*Russula grisescens*, BW  
*Russula paludosa*, BW  
*Russula vinosa*, BW  
*Suillus luteus*, BW  
*Suillus flavidus*, BW  
*Suillus variegatus*, KS  
*Tricholoma virgatum*, BW  
*Tricholomopsis decora*, BW  
*Xeromphalina caudicinalis*, BW

### List by Bengt Larsson

*Amanita muscaria*  
*Boletus pinophilus*  
*Calocera cornea*  
*Cortinarius pholideus*



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

*Cortinarius sanguineus*  
*Lactarius mammosus*  
*Lactarius rufus*  
*Lactarius uvidus*  
*Phellodon (Bankera) violascens*  
*Russula aeruginea*  
*Russula atrorubens*  
*Russula paludosa*  
*Russula pubescens*, det. Tero Taipale  
*Russula taigarum*, det. Per Marstad  
*Suillus variegatus*  
*Thelephora terrestris*  
 Ursula Eberhardt found *Russula pyriodora*, new to Sweden,  
 see below.

### Comment, site 21, Balbodbäcken

In the old days the calcareous, fertile, herbrich slopes near the brook were used for grazing and belonged to villages down in the Ljungan valley. Bengt Larsson has guided botanists to the surroundings of Balbodbäcken and demonstrated the rich fungi, lichen and moss flora.

# Ursula found *Russula pyriodora* – new to Sweden

**Ursula Eberhardt lived in Uppsala about 15 years ago and made DNA research on *Lactarius* and *Russula* (8,9). She presented her *Russulales* research at the spring conference with Swedish Mycological Society in March 2004 and said that knowledge was good concerning the approximately 90 species of *Lactarius* in Sweden. She also pointed out that modern och good literature about *Lactarius* is available.**

But concerning the approximately 150 species of *Russula* in Sweden our knowledge was much worse. Ursula also told us in Gothenberg 2004 that Nordic and Mid European mycologists often have different names for the same species of *Russula*. For instance our *Russula queletii* is named *R. fuscorubroides* in France. Ursula also displayed some phylogenies. She said that *Lactarius torminosus* and *L. torminosulus* had the same sequences but differs in ecology and distribution. One or two species? The ultimate goal for Ursula was to create a reference database after having sequenced species of *Lactarius* and *Russula*. Then it will be possible to identify species in forest soils without using fruitbodies. After her visit to Sweden Ursula has continued to study *Russulaceae*. She is now doing mycological research at Staatliche Museum für Naturkunde in Stuttgart.

Our friends among bird watchers become highly exalted and immediately send messages to friends if they have seen a bird new to Sweden. Then many bird watchers leave their jobs and families and gather to see the bird. We mycologists, like Ursula, are of a quieter disposition. Ursula sent a delayed Christmas present in following mail of the 27 Dec. 2018:

*"It was great to see you all back in August in Sweden. Stupidly, at the time I was a bit distressed that Sweden had changed from more than 10 years ago when I moved away. What was I expecting! In retrospective, the 10 days I spent in Sweden, the workshop and also the few days I had after the workshop further down south, have acquired a magic quality and I can only agree with Mieke that they were among the best memories I have from 2018.*

*Mieke's email reminded me that I had one *Russula* collection that did not receive a name during the workshop, see photo.*

*I found it in the vicinity of lake Nedertjärnen close to a little brook when I was not with one of the official excursions. The fruitbodies were in a very bad shape, practically already falling apart when I found them, so I placed them in the dryer. I noticed that they had a very peculiar smell but was not sure whether that was on account of their bad state. So I did not really dare to hope that they would be what is now confirmed: they are *Russula pyriodora*! Jukka Vauras was so kind to send me a collection of that species from Finland so the name is supported by ITS data. Actually, the Swedish collection site seems to be very similar to the type locality (see photos; photos are geo-referenced).*

*I have not been able to find out whether the species is already known from Sweden. If it was the first collection of this species for Sweden, I would of course separate the little that there is left and give a part of the collection to the fungarium in Uppsala."*

The new Swedish species *Russula pyriodora* is described in Karstenia by Juhani Ruotsalainen and Jukka Vauras: [www.funga.fi/Karstenia/Karstenia\\_51-1\\_2011-3.pdf](http://www.funga.fi/Karstenia/Karstenia_51-1_2011-3.pdf)

According to Juhani and Jukka *Russula pyriodora* is similar to *R. betularum*, see photo in their paper, but differs in smell, taste and in microscopical details. The site along Balbodbäcken in Borgsjö is just like the two known localities in Finland: calcareous brook ravine. Juhani and Jukka also mention other species that may co-occur with *R. pyriodora* e.g. *Lactarius olivinus* which is typical for moist, rich sites in the silurian forests in Jämtland and western Medelpad. Typical vascular plants in this botanical rich forests are the orchid *Cypripedium calceolus* and the often more than two meter high *Aconitum septentrionale*.





*Russula pyriodora*, Borgsjö, close to Balbodbäcken near lake Nedertjärnen, 29 Aug. 2018. Photo: Ursula Eberhardt

6940846;1500005

**Participants:** Kristoffer Stighäll, Birgitta Wasstorp

**21** B, about 3 km south  
of Nedertjärnen  
southern point

Excursion guide pp. 93

Pine forest along the road with  
*Cladonia*  
29 Aug. 2018

- Albatrellus confluens*, KS
- Amanita muscaria* var. *muscaria*, KS
- Boletus pinophilus*, BW
- Laccaria laccata*, KS
- Lactarius pubescens*, BW
- Lyophyllum fumosum*, BW, det. Ellen Larsson
- Paxillus involutus*, BW
- Russula depallens*, BW
- Suillus variegatus*, KS
- Tricholoma saponaceum*, BW



# *Boletus pinophilus*, favoured by forest fires

*Boletus pinophilus* is according to FAN7 page 99 considered extinct but recently rediscovered in sandy dunes in the Netherlands. It is a popular mushroom for eating in Sweden, common at sandy Pine heaths with *Cladonia* and favoured by forest fires. During the Swedish mycology society week in Timrå 2014 a group led by Hans Andersson and SCA nature expert Tomas Rydkvist visited an area at Hornsjömon in Viksjö parish, Ångermanland. Near the parking place they found big amounts of "tallkalle" (popular Swedish name

for *Boletus pinophilus*) under pine trees at an area of 2.6 hectares burnt in 2012 and consisting just of sand. All litter was burnt away. So *Boletus pinophilus* may have a fruting top two years after a forest fire. During the extremely hot summer 2018 vaste pine heaths in mid and northern Sweden burnt. We shall thus look for *Boletus pinophilus* on our burnt sandy Pine heaths in 2020! See pp. 78–82 in the report from the Swedish mycology week 2014 on excursion to the burnt sandy forests at Hornsjömon in Ångermanland.

6940846;1500005

## 21 C, Täljehällorna, Nedertjärn, along the road

Excursion guide pp. 93

29 Aug. 2018

Guide and list editor: Bengt Larsson

*Albatrellus confluens*  
*Albatrellus ovinus*  
*Amanita muscaria*  
*Amanita regalis*  
*Boletus pinophilus*  
*Clavariadelphus ligula*  
*Cortinarius collinitus*  
*Cortinarius subtortus*, Karl Soop  
*Hygrophoropsis aurantiaca*  
*Laccaria laccata*  
*Paxillus involutus*  
*Russula depallens*  
*Spathularia rufa*  
*Suillus variegatus*  
*Tricholoma saponaceum*  
*Xerocomus ferrugineus*  
*Xeromphalina campanella*



*Gomphus clavatus* along Kullbäcken. Photo: Siv Norberg





Mathias found a big group of *Alloclavaria purpurea* along the forest road at Lombäcksheden. Ellen Larsson and Karl-Henrik Larsson wrote on the taxonomy of this beautiful fungus in *Svensk Mykologisk Tidskrift* 2010/3. Photo: Mathias Lüderitz

6993071;1493024

## 23 Lombäcksheden and Harrån, partly Habitat Protection Area

Excursion guide pp. 94–96

**Pine heath and brook valley on calcareous soil, well inventoried, see Excursion guide pp. 94–96. 27 Aug. 2018**

**Guide:** Håkan Sundin

**Participants:** Anders Aronsson, Gunnel Avehag, Tanja Böhning, Inga-Lill Franzén, Mats Karlsson, Mathias Lüderitz, Per Marstad, Kazako Shimono, Youshito Shimono, Hiroatso Sato, Maki Sato, Kristoffer Stighäll, Tony Svensson, Maj-Britt Sâthe and Birgitta Wasstorp.

### Selected earlier records at Lombäcksheden-Harrån

*Lactarius aquizonatus, deliciosus, deterrimus, fennoscandicus, glyciosmus, leonis, lilacinus, musteus, obscuratus, pilatii, pubescens, resimus, rufus, scrobiculatus, subcircellatus, torminosus, torminosulus, vietus, zonarioides.*

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

**Also:** *Albatrellus subrubescens, Amantia friabilis, Boletopsis grisea, Calocybe (Rugosomyces) onychina, cerina, Cortinarius arenatus, aureofulvus, crassipes* (type locality), *diosmus, leucophanes, napus, phoeniceus, phrygianus, pinigaudis, Entoloma sericatum, venosum,*



*Galerina subclavata* (1995, Eef Arnolds, Gro Gulden), *Gomphus clavatus* (along Harrån at Jämtkrogen), *Gymnopilus odini*, *Gyrodon lividus*, *Haploporus odoros*, *Hebeloma circinans*, *Hohenbuhelia unguicularis*, *Hydnellum auratile*, *Hygrophorus calophyllus* (roadside), *chrysodon s.l.*, *subviscifer*, *Inocybe melanopus*, *Mycena urania* (Robich 1997), *Mythicomycetes corneipes*, *Ramaria flavescens*, *safraniolens* (leg. Siw Muskos, det. Lennart Söderberg 2009), *Sarcodon pseudoglaucopus*, *Trichoderma nybergianum*. *Tricholoma dulciolens* (type locality), *focale*, *matsutake*, *sudum*.

### Fascinating old culture and rich nature

During the last 40 years mycologists have travelled the old pilgrim route and passed the old settling Lombäcken with beautiful old timber houses. Here is also a cottage for pilgrims (and mycologists) who want to stay overnight. Then the forest road passes over a sandy heath with tall pine trees, smaller spruce trees and broadleaved trees along the river Harrån. Brooks and forests around the village Lombäcken and along the forest river Harrån was already in 1972 pointed out by Lars Guvå as "one of the most valuable botanical areas in Medelpad" in a report from the county government (13). Gunnar Selling at The Swedish Forest Agency has protected part of Lombäcksheden as a Habitat Protection Area. 39 fungi species at the Swedish redlist 2015 are found at Lombäcken-Harrån. A detailed report with summary about fungi found the latest 40 years on the calcareous, sandy Pine heath Lombäcksheden and in the rich brook valley along Harrån was published in 2010 (15). The report was financed by the county government: [www.myko.se/wp-content/uploads/2014/09/Harrån-JOT-April-2010-Rapport-svamp-Harrann-11.pdf](http://www.myko.se/wp-content/uploads/2014/09/Harrån-JOT-April-2010-Rapport-svamp-Harrann-11.pdf)

### The Swedish Forest Agency invited to forest meeting about sandy pine heaths

Rolf Lidberg, founder of Sundsvall Mycological Society loved the sandy pine heath at Lombäcken. He said: "Fungi at the calcareous, nitrogen poor, sandy delta land at the Pine heath at Lombäcken is the most exclusive nature type we can show our friends from southern countries in Europe". Karl Soop also appreciated the special funga at Lombäcken pine heath with many rare *Cortinarius* fungi such as *Cortinarius pinophilus*. Siw Muskos used to visit Lombäcksheden every autumn in order to collect edible mushrooms like *Lactarius deliciosus* and *Tricholoma matsutake* and also mushrooms for wool dyeing like *Boletopsis grisea* and species of *Hydnellum* and *Sarcodon*. Niclas Wallin at the Swedish Forest Agency invited to an interesting discussion at Vivstaheden in Timrå parish about the nature values of sandy pine heaths on 29 Sept. 2015. Among participants were Niclas Bergius and Stefan Grundström, see pp. 221–128 in the report from the mycological week in Timrå.

### Type locality for *Cortinarius crassipes* and *Tricholoma dulciolens*

Lombäcksheden is type locality for *Cortinarius crassipes* and *Tricholoma dulciolens*. On 22 Aug. 1984 Herbert Kaufmann found *Tricholoma dulciolens*, later described by Ilkka Kytövuori in article on *T. caligatum* group in the Finnish review *Karstenia* 1988 (H, isotypus in K). Nils Jansson was engineer at the forest company SCA and active in Sundsvall Mycological Society. During the *Tricholoma* workshop in Borgsjö 1995 Nils took a fine collection of *T. dulciolens* together with Ilkka and Morten Christensen (MC 95–107). Machiel Noordeloos collected *Entoloma venosum* at Lombäcksheden 31 Aug. 1993 (S), still the only finding in Sweden. *Entoloma venosum* seems to be rare in all Europe.

### Håkan Lindström found the southern *Hygrophorus chrysodon* along Harrån

*Hygrophorus chrysodon* is, according to Ellen Larsson, a complex of several species bound to different trees. Håkan Lindström found *H. chrysodon* in moist forest with *Alnus* and *Picea* along Harrån in august 1977 (UPS). Since then we have found *H. chrysodon* at about 20 sites in Medelpad in the lime district of Alnö island, in the lime influenced home forests of Siw Muskos in Tuna parish and also here at Harrån.

### Rare mycorrhiza fungi appear like a string of pearls along the forest road

Mycorrhiza researcher Anders Dahlberg and others have studied the gradient of open sandy soil near the forest road and more than 0.3 meter thick layers of moss and needles one hundred metres from the road. Farmers like Anders Westling earlier scraped off the forest road sides with tractor and a heavy iron tool so that totally open limesand covered the road sides. A kind of nature conservation that favoured ectomycorrhizal fungi. Here along the open calcareous, sandy road sides we found, after Anders' scraping, thousands of fruitbodies of interesting and rare fungi, like a string of pearls, such as *Lactarius aquizonatus*, *deliciosus*, *musteus*, *Hebeloma circinans*, *Hydnellum auratile*, *Hygrophorus calophyllus*, *Inocybe dulcamara*, *jacobi*, *leucoblema*, *Rugosomyces onychinus*, *Russula roseipes*, *Suillus granulatus* and *Tricholoma focale*.

### Siw Muskos found the rare *Hygrophorus calophyllus* on limerich, poor, sandy road-side

*Hygrophorus calophyllus* is one of the rarest ectomycorrhizal fungi in the Nordic countries (extinct in Finland according to Finnish redlist 2019) and is now fighting to survive here at the only site in Medelpad. *Hygrophorus calophyllus* is a good representative for many fungi, vascular plants and other biological diversity that will disappear when *Picea*





Botanists, experts on butterflies and people from Trafikverket discuss at "flygrakan" along highway E14 in Borgsjö how to manage speciesrich roadsides in summertime 2011. See also article by Grundström-Tedebrand (12).

are taking over. Here in Medelpad one of two sites for the flower *Pulsatilla vernalis* has been burnt and also a site for *Astragalus penduliflorus*. Part of the limerich Lombäcken heath with the only site for *Hygrophyllus calophyllus* in Medelpad should also be burnt. In western part of Lombäcksheden there is an old, vaste gravel pit. Members of the motorcycle club in Ånge love to drive in the sandy areas. Perfect disturbance and good nature conservation!

### Growing threats against poor forests in Sweden

Old nutrient poor pine heaths are for every decade more and more transformed into *Picea abies* forests because there are no disturbances by fires or by grazing and because *Picea* is planted today also on poor soils. The biological diversity in our protected areas is also suffering when earlier disturbance by fires and grazing is gone. The ecologist Torbjörn Tyler at Lund University and others describe acidification and thick layers of leaves in southern *Fagus* forests. Torbjörn also recently described a pine forest near Kristianstad in the province of Skåne which is invaded by about 100 different species of invasive bushes. He points

out a warmer climate as one important factor when poor sandy forests in recent years have been occupied by invasive species." Tyler, T. 2019. Åhus invaderade sandtallskogar – ett Mecka för vedväxtintresserade botanister eller en mardröm för naturvårdare? [The sandy pine forests of Åhus – a paradise for botanists focussed on woody plants or a nightmare for conservationists?"] Bot. Notiser 152(1): 1–11.

### The importance of wild animals grazing down the ground

During decaces we have seen thicker and thicker moss and needle layers at Lombäcksheden. The same deveopement can be seen today all over Sweden when forest fires and grazing by reindeers and cattles are gone. Among others Rebecka Le Moine, green member of the Swedish parliament and a pushing fighter for biological diversity proposes that visent (European bison) and wild forest reindeer should be reintroduced in some parts of Sweden. They graze grass and herbs down to the ground and opens up the soil for seeds and spores. Rebecka has also introduced 22 May every year as the day in Sweden for biodiversity (biologiska mångfaldens dag).



### Disturbance by wild boars

There is also today in Sweden a lively debate about the effects of wild boars on forests and on biological diversity. Wild boars are expanding rapidly and are today common north to the province of Gästrikland. Single wild boars already appear in Borgsjö. Bengt and Lena Larsson had wild boars at their lawn last year. At the popular Swedish Facebook group Svampklapp there is a discussion going on about the impact of wild boars on mycelia. Some people mean that the rummage of wild boars are bad for fungi, others mean that fungi are favoured by the rummage. But there are too much of wild boars at some places. They even destroy old semi-natural grasslands with a rich biological diversity.

### Ecological landscape plans and planing of a green infrastructure

Around 1990 the Swedish state had a project in Sundsvall and Timrå municipalities in order to create a better situation for the environment. Jan-Olof participated in one of the projects on "ecological planing of forestry" led by Per Angelstam. Stig Hagner and Per Simonsson from the forest company SCA also joined some meetings. We had many interesting discussions and many excursions took place. Forest companies like SCA classified all their forests and made "ecological landscape plans". Today every county has, in broad cooperation, ungoing exciting projects on creating a "green infrastructure" in their nature landscapes.



*Zygaena osterodensis* (smalsprötad bastardsvärmare) on *Geranium sylvaticum*, Lombäcksheden. Photo: Bengt Larsson

### Green infrastructure for butterflies

Bengt Larsson makes inventories of rare butterflies in "Jämtkrogens fjärlandskap" at the request of Bodil Carlsson at the county governments of Jämtland and Annika Carlsson at the county government of Västernorrland. At Lombäcksheden the beautiful butterfly *Zygaena osterodensis* (smalsprötad bastardsvärmare) appears at the only place in northern Sweden. On 12 June 2019 experts and butterfly researchers from Sweden and other countries met at Naturum Ånge in Borgsjö and out in the nature. We talked on a "green infrastructure" in "Jämtkrogens fjä-



*Hygrophorus calophyllus* on Lombäcksheden. Photo: Siv Muskos

rilandskap" consisting of forests, parks, power lines, road sides, railway stations and other habitats for butterflies like *Baptria tibiale*, *Lycaena helle* and *Zygaena osterodensis*. A broad network are now creating such a green infrastructure: the county governments of Jämtland and Västernorrland, owners of power lines (Svenska Kraftnät), the forest company SCA, the Swedish Transportation Administration (Trafikverket). Among participants are also people from Ånge municipality.

Bengt Larsson placed, at a summer excursion in 2019 an ampoul with special feromones on a stump and in some minutes several beautiful *Zygaena osterodensis* appeared! You can see the fascinating film by Jessica Andersson, when the butterflies were attracted by special feromones (smell substances), at the Facebook group of Medelpads Botaniska Förening 29 July 2019: <https://www.facebook.com/groups/1462577324035522/>

### Collections at exhibition table with field form

- Cortinarius alboviolaceus*, *Betula*, *Picea*, Kristoffer Stighäll, det. Karl Soop
- Cortinarius armillatus*, *Betula*, *Picea*, Kristoffer Stighäll, det. Birgitta Wasstorp
- Cortinarius balteatus*, *Picea*, Kristoffer Stighäll, det. Karl Soop
- Cortinarius limonius*, *Picea*, *Pinus*, Kristoffer Stighäll, det. Birgitta Wasstorp
- Cortinarius ochrophyllus*, *Alnus*, *Betula*, *Picea*, *Pinus*, Birgitta Wasstorp
- Cortinarius salor*, *Betula*, *Picea*, *Pinus*, Birgitta Wasstorp
- Cortinarius scaurus*, *Alnus*, *Betula*, *Picea*, *Pinus*, Birgitta Wasstorp
- Cortinarius subbalaustinus*, *Betula*, *Picea*, Anders Aronsson
- Cortinarius venustus*, *Betula*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson
- Craterellus cornucopioides*, *Pinus*, Inga-Lill Franzén
- Hydneum ferrugineum*, *Pinus*, Kristoffer Stighäll





Anders Dahlberg and Swedish Television. Granbodåsen 1991. Photo: Nils Jansson.

*Hygrophorus chrysoloma*, *Picea*, Kristoffer Stighäll  
*Hygrophorus karstenii*, *Picea*, *Pinus*, Kristoffer Stighäll,  
 det. Birgitta Wasstorp  
*Hygrophorus piceae*, *Picea*, Tanja Böhning  
*Laccaria bicolor*, Håkan Sundin, det Tony Svensson  
*Lactarius aquizonatus*, Anders Aronsson, Mats Karlsson,  
 Tony Svensson  
*Lactarius badiusanguineus*, *Alnus*, *Betula*, *Picea*, Birgitta  
 Wasstorp  
*Lactarius deliciosus*, *Pinus*, Inga-Lill Franzén  
*Lyophyllum deliberatum*, *Picea*, Tanja Böhning  
*Pluteus leoninus*, Birgitta Wasstorp  
*Ramaria apiculata*, *Picea*, *Pinus* Anders Aronsson, Tony  
 Svensso, det. Lennart Söderberg  
*Russula aeruginea*, *Betula*, *Pinus*, Inga-Lill Franzén  
*Russula amethystina*, *Picea*, Birgitta Wasstorp  
*Russula aquosa*, Gunnel Avehag  
*Russula delica*, Gunnel Avehag  
*Russula favrei*, *Picea*, Gunnel Avehag  
*Russula nauseosa*, *Betula*, *Picea*, Anders Aronsson, Mats  
 Karlsson, Tony Svensson  
*Russula paludosa*, *Pinus*, Inga-Lill Franzén

*Spathularia rufa*, *Picea*, Kristoffer Stighäll, det. Birgitta  
 Wasstorp  
*Thelephora palmata*, *Picea*, Inga-Lill Franzén  
*Tricholoma fucatum*, *Picea*, Birgitta Wasstorp

#### List by Anders Aronsson, Mats Karlsson, Tony Svensson

*Albatrellus confluens*  
*Albatrellus ovinus*  
*Ampulloclitocybe clavipes*  
*Apioperdon (Lycoperdon) pyriforme*  
*Chrogomphus rutilus s.l.*  
*Clitocybe odora*  
*Cortinarius armillatus*  
*Cortinarius brunneus*  
*Cortinarius collinitus*  
*Cortinarius laniger*  
*Cortinarius mucifluus*  
*Cortinarius mucosus*  
*Cortinarius semisanguineus*  
*Cortinarius stillatitius*





Machiel Noordeloos, Roy Watling and Mauri Korhonen on the calcareous sandy heath Lombäcksheden 1993. Photo: Kjell Olofsson.

*Cortinarius subbalaustinus*

*Cortinarius subtortus*

*Cortinarius trivialis*

*Cortinarius venustus*

*Crepidotus mollis*

*Cudonia circinans*

*Exidia candida* var. *cartilaginea*

*Exidia saccharina*

*Fomitopsis pinicola*

*Gomphidius glutinosus*

*Gymnopilus penetrans*

*Gymnopus androsaceus*

*Hebeloma crustuliniforme* s.l.

*Hygrocybe conica* s.l.

*Hygrophorus camarophyllus*

*Hygrophorus karstenii*



*Hygrophorus olivaceoalbus*  
*Inocybe geophylla*  
*Lactarius aquizonatus*  
*Lactarius mammosus*  
*Lactarius rufus*  
*Lactarius torminosus*  
*Lactarius trivialis*  
*Lactarius vietus*  
*Leccinum scaber*  
*Leccinum versipelle*  
*Marasmiellus perforans*  
*Mycena haematopus*  
*Mycena pura*  
*Paxillus involutus*  
*Phellinus chrysoloma*  
*Phellinus igniarius*  
*Phlebia centrifuga*  
*Ramaria apiculata*  
*Rhizopogon luteolus*  
*Russula adusta*  
*Russula aeruginea*  
*Russula betularum*  
*Russula decolorans*  
*Russula emetica*  
*Russula gracillima*  
*Russula paludosa*  
*Russula versicolor*  
*Russula vinosa*  
*Suillus luteus*  
*Suillus variegatus*  
*Tricholomopsis rutilans*  
*Xeromphalina campanella*  
*Xeromphalina caudicinalis*

### List by Tanja Böhning

**E**=eksiccatum, **D**=digital photo,  
**MB**=determination with microscope

*Albatrellus ovinus*, D,E,MB  
*Alloclavaria purpurea*, D,E, MB  
*Boletus edulis*  
*Boletus pinophilus*, D  
*Collybia cirrhata*, D  
*Cortinarius callisteus*, D,E, MB  
*Cortinarius caperatus*, D  
*Fomes fomentarius*  
*Fomitopsis pinicola*, D  
*Gomphidius glutinosus*, D  
*Hygrophorus piceae*, D  
*Lactarius badiusanguineus*, A. Verbeken, D, E, MB  
*Lactarius deliciosus*  
*Lactarius uvidus*, A. Verbeken, D, E, MB  
*Lyophyllum deliberatum*, D, E, MB

*Ramaria apiculata*, D, E, MB  
*Russula decolorans*  
*Russula paludosa*  
*Suillus bovinus*, D  
*Suillus luteus*, D  
*Spathularia rufa*, D

### List by Kristoffer Stighäll (KS) and Birgitta Wasstorp (BW)

*Albatrellus confluens*, KS  
*Albatrellus ovinus*, KS  
*Amanita muscaria var. regalis*, BW  
*Amanita porphyria*, BW  
*Chalciporus piperatus*, BW  
*Craterellus lutescens*, KS  
*Cortinarius alboviolaceus*, BW  
*Cortinarius armillatus*, BW  
*Cortinarius balteatus*, BW  
*Cortinarius brunneus*, BW  
*Cortinarius caperatus*, BW  
*Cortinarius cinnamomeus*, BW  
*Cortinarius gentilis*, BW  
*Cortinarius integerrimus*, BW  
*Cortinarius limonius*, BW  
*Cortinarius multiformis*, BW  
*Cortinarius ochrophyllus*, BW  
*Cortinarius rubellus*, BW  
*Cortinarius sanguineus*, KS  
*Cortinarius scaurus*, BW  
*Cortinarius semisanguineus*, BW  
*Cortinarius subtortus*, BW  
*Gomphidis glutinosus*, KS  
*Kuehneromyces mutabilis*, BW  
*Hydnum ferrugineum*, KS  
*Hydnum repandum*, KS  
*Hygrophorus karstenii*, BW  
*Hygrophorus melizeus*, BW  
*Hygrophorus piceae*, BW  
*Lactarius aquizonatus*, BW  
*Lactarius deliciosus*, BW  
*Lactarius fuliginosus*, BW  
*Lactarius scrobiculatus*, BW  
*Mycena galopus*, BW  
*Mycena laevigata*, BW  
*Phellinus chrysoloma*, KS  
*Pluteus leoninus*, BW  
*Russula decolorans*, BW  
*Russula nitida*, BW  
*Russula paludosa*, BW  
*Russula rhodopoda*, BW  
*Russula sphagnophila*, BW  
*Russula vinosa*, BW  
*Sarcodon imbricatus*, KS





Before the excursion. Photo: Hjördis Lundmark

*Spathularia rufa*, BW

*Suillus luteus*, KS

*Suillus variegatus*, KS

*Tricholoma fucatum*, BW

*Tricholoma virgatum*, BW

*Tricholomopsis rutilans*, BW

### Comment, site 23, Lombäcksheden and Harrån

Nature with high biological diversity, also fascinating old culture: calcareous, sandy Pine heath, deep brook valley along a small river, beautiful old village of Lombäcken, old pilgrim route. Jukka Vauras tells us in a mail 11 March 2019 that *Russula crassipes* (and *R. fennoscandica*) will soon be described as new species in the Finnish review Karstenia. Tero Taipale found *Russula crassipes* at site 26, Kullbäcken-Markbäcken nature reserve. *Russula crassipes* is, according to Anita Stridvall, a rather common but little known *Russula* species, see photo at homepage of Anita and Leif Stridvall: [www.stridvall.se](http://www.stridvall.se)

***Craterellus cornucopioides*** is a popular edible mushroom with a southern distribution, rather common in an area about 30 kilometers from the Bothnian coast in Medelpad. Mostly in moist, old *Picea* forest but also found in *Quercus* park at Norafors ironworks in Sättna parish. Few findings in Borgsjö parish in western Medelpad.

***Russula amethystina***. Funga Nordica: "In coniferous forests, especially with *Picea*, confused and mixed with *R. turci*, distribution and frequency thus poorly known, assumed to be very rare in temp., rare in hemiboreal-boreal."

### Collections, UPS

*Russula rhodopoda*, *Picea*, *Pinus*, Anders Aronson, Mats Karlsson, Tony Svensson

*Russula roseipes*, *Picea*, *Pinus*, Anders Aronson, Mats Karlsson, Tony Svensson

### Interesting "Russula grisea" under old aspen at Granbodåsen

During *Russula* workshop with Henri Romagnesi in 1983 Birgitta Wasstorp found a group of "Russula grisea" under big, old aspen trees at the mountain farm Granbodåsen. The collection was much discussed. Romagnesi proposed three different names in the evening talks: *R. anatina*, *grisea*, *medullata*. Someone said *parazurea*. Romagnesi finally said that species in the group around *aeruginea-grisea* needed to be more checked in the future. Stig Jacosson described the collection in his report in *Jordstjärnan* 1984/1 with macro and micro details, colour of the spore print and other characters. The conclusion of Stig was that either of the proposed names fully matched the collection from Granbodåsen. He 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 on determined this collection as *R. medullata* ss Kühner. Herbert keyed out 19 species belonging to section *Heterophyllae* known from Sweden in *Svensk Mykologisk Tidskrift* 28(3):21–69, 2007. He says: "The species belonging to *Russula* section *Heterophyllae* are among the most difficult species within *Russula*. Only a small number can be determined with the help of macroscopical features only since colour and fruit body shape are doubtful and variable characters."





Lennart Vessberg and Gunilla Kärrfelt with curious black and white sheeps on the mountain farm Granbodåsen.  
Photo: Hans Andersson

69445;14902

## 24 Granbodåsen, mountain farm, herbrich forest, nature reserve

Excursion guide pp. 100-103

28 Aug. 2018

**Guide:** Håkan Sundin

**Participants:** Anders Aronsson, Gunnel Avehag, Tanja Böhning, Inga-Lill Franzén, Mats Karlsson, Mathias Luderitz, Per Marstad, Kazako Shimono, Youshito Shimono, Hiroatso Sato, Maki Sato, Kristoffer Stighäll, Tony Svensson, Maj-Britt Sæthe and Birgitta Wasstorp.

### Selected previous records

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

*Russula acrifolia*, *adulterina* (Herbert Kaufmann, 14300d), *adusta*, *aeruginea*, *alnetorum*, *aquosa*, *atroglauca*, *atrorubens*, *betularum*, *chlaroflava*, *citrinochlora*, *chloroides* var. *trachyspora* (leg. Birgitta Wasstorp 1983, det Henri Romagnesi), *chloroides*, *clavipes*, *decolorans*, *delica*, *depallens*, *emetica*, *emetica* var. *longipes* (leg. Birgitta Wasstorp 25 Aug. 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 Aug. 1984, HK 840824), *puellaris*, *queletii*, *sanguinea*, *sapinea* (det. Juhani Ruotsalainen 2001), *taigarum*, *versicolor*, *vinosa*, *vinososordida*.

**Also:** *Amylocystis lapponica* (Leif Ryvardeen 1986), *Amanita flavescens* (Olle Persson), *Amylostereum laevigatum* (Ryvardeen), *Catathelasma imperiale*, *Chamonixia caespitosa* (collected by Kers near the brook), *Clitocybe amarescens* (Kyuper 1989, meadow), *Cortinarius alboglobosus*, *borgsjoensis*, *fuscovelatus*, *ionosmus*, *pinigaudis*, *rusticus*, *talimultiformis*, *uliginosus*, *Dermoloma josserandii* var. *phaeopodium*, *Entoloma dichroum*, *madidum* s.l., *pallens*, *Fayoida gracilipes*, *Gastrum pectinatum*, *Geoglossum starbaeckii*, *Gyroflexus brevibasidiatus* (Lindström-Kyupers 1989), *Helvella rivularis*, *Hygrocybe aurantiosplendens*, *punicea*, *Hygrophorus korhonenii*, *secretanii*, *Inocybe proximella*, *tjallingiorum*, *whitei*, *Microglossum olivaceum*, *Microglossum viride*, *Naucoria striatula*, *Psatyrella fagetophila*, *lutensis*, *rostellata*, *umbrina*, *Pseudobaeospora celloloderma* (Leif Andersson, Thomas Læssøe 1991), *Pseudotracheloma metapodium*, *Ramaria botrytis*, *Rugosomyces chrysensteron* (Arne Aronsen 1991), *Suillus flavidus*, *Tolypocladium (Elaphocordyceps) longisegmentum*.

### Mycologists loves the silence and the view at Granbodåsen

The meadow and forest at Granbodåsen nature reserve are a beautiful and popular excursion site during mycological workshops in Borgsjö. Some of our mycological friends from southern countries love the silence without human noises and the fantastic view over the forest landscape. We have many memories from moments of joy at the mountain farm often together with the old farmers Axel and Judith Jonsson. *Botrychium lunaria* is common and big at the meadow. Johan Nitare and others became excited on 28 Aug. 1985 when they found the beautiful *Clavaria zollingeri*. Johan became even more excited when he and others found *Entoloma dichroum* and *E. madidum* 3 Sept. 1989. They took photos for hours, see Johan's photos of *E. dichroum* and *E. madidum* in the review Jordstjärnan 1992/2. We were also excited when Lars Erik Kers found *Chamonixia caespitosa* near the brook. It was also remarkable when Mats Karström found *Trichoderma nybergianum* in September 1997 at the open meadow during a course on "Steget Före", a method to protect forests with high biological diversity.

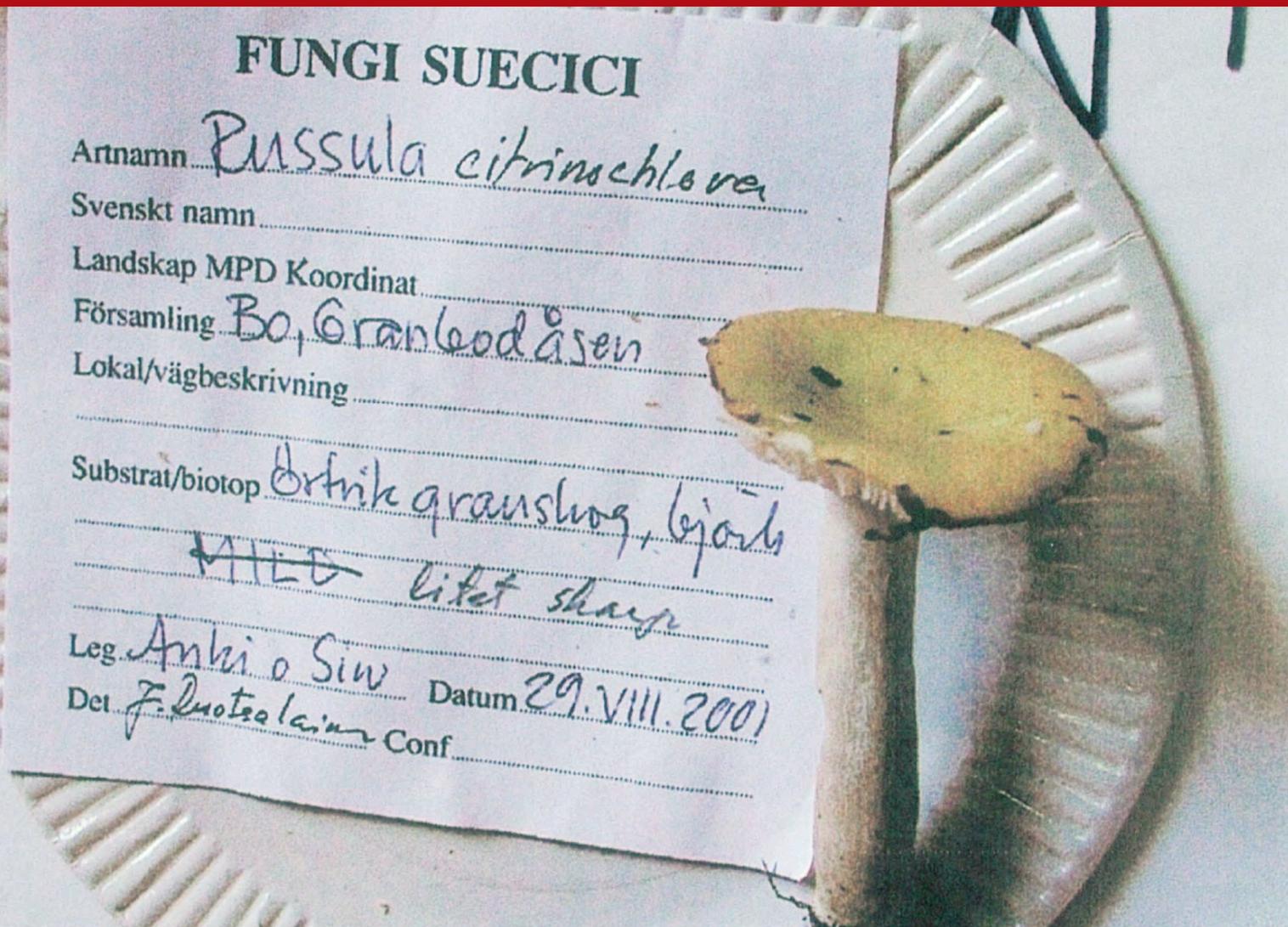
In 1985 Machiel Noordeloos identified more than 20 *Entoloma* species here at Granbodåsen. Totally 27 species of *Entoloma* and 21 species of *Hygrocybe* are found at

the meadow. The delicious edible mushroom *Hygrocybe punicea* is common at Granbodåsen. During a mycological workshop in Borgsjö we found a lot of *H. punicea* at Granbodåsen and made a delicious dish for our social banquet evening at the idyllic "Hedlundska gården" at Borgsjö hembygdsgård. Much appreciated (comment by Thomas Læssøe: "in parts of Europe this meal would have been considered a sacrilege").

### Collections at exhibition table with field form

*Cortinarius multiformis*, *Betula*, *Picea*, *Pinus*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Cortinarius septentrionalis*, Birgitta Wasstorp  
*Cortinarius varicolor*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Entoloma prunuloides*, meadow, Anders Aronsson  
*Exidia repanda*, *Betula*, Hjärdis Böhning, det. Tanja Böhning  
*Fomitopsis rosea*, *Picea* log, Kristoffer Stighäll  
*Gliophorus irrigata*, meadow, Anders Aronsson  
*Hygrophorus persicolor*, *Betula*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Hygrophorus piceae*, *Picea*, Kristoffer Stighäll, det. Birgitta Wasstorp  
*Hypholoma radicosum*, on rotten wood, Birgitta Wasstorp  
*Lactarius fennoscandicus*, *Picea*, *Pinus*, Birgitta Wasstorp  
*Lactarius flexuosus*, *Betula*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Karlsson  
*Lactarius representaneus*, meadow, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Lactarius zonarioides*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Leccinum melaneum*, *Betula*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Mycena pura*, *Picea*, Hjärdis Böhning, det. Tanja Böhning  
*Myxomphalia maura*, on burnt place, Birgitta Wasstorp  
*Phellinus nigrolimitatus*, *Picea* log, Kristoffer Stighäll  
*Phlebia centrifuga*, *Picea* log, Kristoffer Stighäll  
*Pholiota alnicola*, Tanja Böhning  
*Pholiota highlandensis*, on burnt place, Birgitta Wasstorp  
*Psatyrella pertinax (chandroderma)*, *Picea*, Tanja Böhning  
*Rhodophana (Rhodocybe) nitellina*, *Picea*, Hjärdis Böhning, det. Tanja Böhning  
*Russula atroglaucata*, *Betula*, *Picea*, *Pinus*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Russula claroflava*, *Betula*, Birgitta Wasstorp  
*Russula firmula*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Russula olivascens (postiana)*, *Picea*, *Pinus*, Birgitta W





*Russula citrinochlora*, Granbodåsen 2001. During *Russula* workshop in Borgsjö 2001 we found *R. citrinochlora* as new for Sweden on moist *Picea* slopes with *Alnus* and herbs at following three sites: Granbodåsen (UPS), Julåsen (GB) and Rankleven (UPS), all collections det. and conf. by Juhani Ruotsalainen and Jukka Vauras. Photo at exhibition: Hjördis Lundmark

*Russula olivobrunnea*, *Betula*, *Picea*, Anders Aronson,  
Mats Karlsson, Tony Svensson  
*Russula roseipes*, Birgitta Wasstorp

**List by Anders Aronsson, Mats  
Karlsson, Tony Svensson**

*Amanita crocea*  
*Amanita muscaria* var. *muscaria*  
*Amanita muscaria* var. *regalis*  
*Amanita rubescens*  
*Atheniella (Mycena) flavoalba* s.l.  
*Chalciporus piperatus*  
*Chroogomphus rutilus* s.l.  
*Chrysomphalina chrysophylla*  
*Clavariadelphus pistillaris*  
*Clavulina cristata* s.l.  
*Clitopilus prunulus*  
*Cortinarius anomalus*  
*Cortinarius armillatus*

*Cortinarius brunneus*  
*Cortinarius collinitus*  
*Cortinarius croceus*  
*Cortinarius malicorius*  
*Cortinarius multiformis* s.l.  
*Cortinarius subbalaustinus*  
*Cortinarius triumphans*  
*Cortinarius variegatus*  
*Fomitopsis rosea*  
*Gliophorus irrigatus*  
*Gomphidius glutinosus*  
*Gymnopilus penetrans*  
*Hygrocybe acutoconica* var. *acutoconica*  
*Hygrocybe conica*  
*Hygrocybe miniata*  
*Infundibulicybe gibba*  
*Inocybe mixtilis*  
*Kuhneromyces mutabilis*  
*Laccaria proxima*  
*Lactarius badiusanguineus*



*Lactarius deterrimus*  
*Lactarius flexuosus*  
*Lactarius repesaentaneus*  
*Lactarius spinosulus*  
*Lactarius torminosus*  
*Lactarius tuomikoskii*  
*Lactarius uvidus*  
*Lactarius zonarioides*  
*Leccinum scabrum*  
*Lycogala epidendron*  
*Phellinidiium (Phellinus) ferrugineofuscus*  
*Phelopilus (Phellinus) nigrolimitatus*  
*Phellinopsis (Phellinus) conchatus*  
*Pholiota highlandensis*  
*Pluteus cervinus*  
*Picipes (Polyporus) cf tubaeformis*  
*Russula adulterina*  
*Russula adusta*  
*Russula aquosa*  
*Russula atroglaucous*  
*Russula chloroides*  
*Russula clavipes*  
*Russula delica*  
*Russula favrei*  
*Russula firmula*  
*Russula foetens*  
*Russula gracillima*  
*Russula olivobrunnea*  
*Russula puellaris*  
*Russula roseipes*  
*Russula vinosa*  
*Suillus luteus*  
*Tricholoma saponaceum*  
*Tricholoma virgatum*

### List and collections by Tanja Böhning

**E**=eksiccatum, **D**=digital photo,  
**MB**=determination with microscope

*Amanita muscaria*  
*Amanita crocea*, D  
*Amanita regalis*, D  
*Amanita rubescens*  
*Climacocystis borealis*, D, E  
*Collybia cirrhata*, D  
*Cortinarius triumphans*, D, E, MB  
*Cudoniella acicularis*  
*Cudonia circinans*, D, E, MB  
*Entoloma caesiocinctum*, det. Mathias Lüderitz, D, E, MB  
*Entoloma majaloides*, det. Kai Reschke, KaiR1247,  
 KaiR1248  
*Entoloma serrulatum*, det. Mathias Lüderitz, D, E, MB  
*Exidia repanda*, D, MB  
*Fomes fomentarius*  
*Fomitopsis pinicola*  
*Geopyxis carbonaria*, D, E, MB  
*Hygrophorus secretanii*, D, E, MB  
*Kuehneromyces mutabilis*, MB  
*Mycena pura*  
*Myxomphalia maura*, D, E, MB  
*Phaeolus schweinitzii*  
*Pholiota alnicola*, D  
*Pholiota highlandensis*, D, MB  
*Pholiota squarrosa*, D  
*Psatyrella pertinax (chandroderma)*, E, MB  
*Rhodocybe caelata*, D, E, MB  
*Rhodocybe nitellina*, D, E, MB  
*Russula aeruginea*, D, E, MB  
*Russula favrei*, leg. Felix Hampe, D, E, MB  
 List by Kristoffer Stighäll (KS) and Birgitta Wasstorp  
 (BW)  
*Amanita muscaria var. regalis*, BW  
*Auriscalpium vulgare*, BW  
*Chalciporus piperatus*, BW  
*Chroogomphus rutilus*, KS  
*Clavicornia pyxidata*, KS  
*Clitopilus prunulus*, BW  
*Cortinarius armillatus*, BW  
*Cortinarius bivelus*, BW  
*Cortinarius integerrimus*, BW  
*Cortinarius multiformis*, BW  
*Cortinarius septentrionalis*, BW  
*Craterellus cornucupoides*, BW  
*Fomitopsis rosea*, KS  
*Glioporus irrigatus*, BW  
*Gomphidius glutinosus*, KS  
*Hygrocybe conica*, KS  
*Hygrophorus piceae*, BW  
*Hygrophorus pudorinus*, BW  
*Hypholoma radicosum*, BW  
*Inocybe geophylla*, BW  
*Laccaria proxima*, BW  
*Lactarius badiosanguineus*, BW  
*Lactarius fennoscandicus*, BW  
*Lactarius flexuosus*, BW  
*Myxomphalia maura*, BW  
*Phellinus ferrugineofuscus*, KS  
*Phellinus nigrolimitatus*, KS  
*Pholiota highlandensis*, BW  
*Phlebia centrifuga*, KS  
*Russula acrifolia*, BW  
*Russula amethystina*, BW  
*Russula aquosa*, BW  
*Russula decolorans*, BW  
*Russula delica*, BW  
*Russula favrei*, BW  
*Russula grisescens*, BW





*Russula clavipes*. Photo: Hjördis Lundmark

*Russula rhodopoda*, BW  
*Russula roseipes*, BW  
*Russula vinosa*, BW  
*Russula vitellina*, BW  
*Russula xerampelina*, BW  
*Thelephora palmata*, BW  
*Tricholoma saponaceum*, BW  
*Tricholomopsis rutilans*, BW  
*Xerocomus subtomentosus*, BW

### Collections, UPS

*Russula amethystina*, Picea, Pinus, Anders Aronson, Mats Karlsson, Tony Svensson  
*Russula clavipes*, Betula, Picea, Pinus, Anders Aronson, Mats Karlsson, Tony Svensson  
*Russula firmula*, Picea, Anders Aronson, Mats Karlsson, Tony Svensson

### Comment, site 24, Granbodåsen

*Cudoniella acicularis* is mostly found on *Quercus* wood in Southern Sweden, but also occurs on other deciduous wood. More information on page 72 in Ove Eriksson's book from 2014: "Checklist of the non-lichenized ascomycetes of Sweden".

*Russula adulterina*. John Axel Nannfeldt wrote 1985 on "Russula adulterina-ett missbrukat namn" (40). Henning Knudsen, Juhani Ruotsalainen, Jukka Vauras authored the *Russula* in *Funga Nordica* (2012). They state for *R. adulterina*: "In coniferous forests, especially with *Picea*, distribution and frequency poorly known due to confusion with related species, but occurring in hemibor—bor., in FI north to Ks, FI, NO.SE. -E&M 1, Mar 494, 496 (as *urens*), Sar 1:747, 749, Schff 68." They mention as synonyms: *R. cinnamomicolor*, *piceetorum*. During workshops in Borgsjö we have made several records of *R. adulterina* and related species and have had vivid discussions on this difficult and not yet fully understood species.



A good harvest for our german friends. Photo: Annemieke Verbeken

*Russula alnetorum* is our only *Russula* species connected to *Alnus*, favoured by limerich soil, earlier found here at Granbodåsen in *Alnus* marsh. It has a Southern distribution and appears along the coast in northern Sweden. It is rather common in *Alnus* forest on limestone around the island Alnö but also in warm southern mountains in Medelpad like Döviksberget,

Njurunda parish and Siljeberget, Selånger parish. Found by Håkan Lindström in a river ravine along Indalsälven in Jämtland, Hammarstrand. Also found in Ångermanlad, Ramsele during Swedish mycological week in 2002. Among collections: Medelpad, Selånger, Siljeberget, 15 Sept. 1985, J. Tedebrand (S).





*Russula fennoscandica*. Photo: Hjärdís Lundmark

6941467;149165

## 26 Kullbäcken-Markbäcken nature reserve

Excursion guide pp. 104-107

27 Aug. 2018

**Guide:** Jan-Olof Tedebrand

**Participants:** Mauro Bellucci, Margareta Byström, Ornella Comandini, Eske De Crop, Bruno Brizzi, Lynn Delgat, Glen Dierickx, Siv Norberg, Jorinde Nuytinck, Umberto Pera, Andrea Rinaldi, Stefanie De Schrijver, Lennart Söderberg, Tero Taipale, Jan-Olof Tedebrand and Annemieke Verbecken

### Selected previous records

*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, integriformis, queletii, paludosa, puellaris, queletii, rhodopoda, vinosa*.

**Also** *Amylocystis lapponica, Aphroditeola* (*Hygrophoropsis*) *olida, Clitocybe alnetorum* (Bellu), *Cortinarius aureofulvus, caesiocinctus, caesiostamineus, fuscovelatus, hercynicus, oulankensis, sanguineus, venustus, violaceocinereus, Craterellus cf sinuosus* (Jan-Olof, Håkan Lindström), *Gomphus clavatus, Hebeloma geminatum* (Bellu), *syrjense, Hygrophorus hedrychii, karstenii*, *Naucoria geraniolens* (Bellu), *Ossicaulis*





*Lactarius subcircellatus*. Photo: Hjärdis Lundmark

*lignatilis*, *Sarcodon fennicus*, *Tricholoma atrosquamosum*, *olivaceotinctum*.

### A morning with high quality of life

We followed the forest road from the village Boltjärn. The beautiful flower *Vicia sylvatica* was common on road sides, indicating calcareous soil. The sun was rising on our arrival to the reserve. We saw fresh and beautiful fruitbodies after rain in the night. We walked slowly just some hundred meters. Our friends from southern Europe came from hot summer weather and dry forests without fungi to this wet forest in the northern taiga full of fresh fungi. They also enjoyed the rich lichen and moss flora on trees, logs and ground.

### Kristin showed us important historical maps on earlier land use

All the nature reserve was in earlier centuries more open,

grazed and surrounded by mountain farms and with hay-making on fens. Kullbäcken-Markbäcken nature reserve has an area of 276 hectares and is formed by Johan Uebel and others at the county government. During a mycological workshop Kristin Lindström from the county government showed historical maps and told about the fascinating biocultural heritage from earlier forest grazing and haymaking in the rich fens, see also <https://www.lansstyrelsen.se/vasternorrland/besok-och-upptack/naturreservat/kullbacken-markbacken---kalkpraglad-skogs--och-myrmark.html>

### The biocultural heritage

Today there are much dead wood along the brooks in the nature reserve. Francesco Bellu found in 2016 the northern *Amylocystis lapponica* on a big *Picea* log over a forest brook. Mats Karström, a wellknown fighter for northern, valuable forests, use to say that "Amylocystis lapponica indicate a real forest and has a smell of taiga". Blueberry forest with old





*Russula olivina*. Photo: Hjördis Lundmark



*Russula crassipes*. Photo: Hjördis Lundmark

*Pinus* and old, tiny *Picea* trees dominate further away from the brook with species like *Hygrophoropsis olida*. The bio-cultural heritage is evident in the reserve. We saw old dead *Juniperus* as a reminder of a more open forest when cattle from mountain farms grazed here. See article in this report by Margita Sjöberg on forest grazing around the mountain farm Kullbodarna. Earlier forest fires have also formed this mycological hot spot. We saw burnt pine stumps also in the wet herb-rich area near the brooks. Kullbäcken-Markbäcken nature reserve and surrounding Habitat Protection Areas with rich fens and moist *Cypripedium* forests is today a paradise for rare limedemanding mycorrhizal fungi.

#### Anders, Johan and Tor Erik had a show in *Cypripedium* fens and forests

During the *Cortinarius* workshop in 2003 Tor Erik Brandrud, Anders Dahlberg and Johan Nitare told a journalist from the local newspaper about biological diversity and mycorrhiza fungi in this "promised land of *Cypripedium calceolus*". Lena Larsen and others found flowering *Epipogium aphyllum* ("skogsfru" in Swedish, "ghost orchid" in English), a beautiful orchid we often find flowering late in August or in the beginning of September during workshops in Borgsjö. *Epipogium aphyllum* is connected down in the forest soil mostly to species of *Inocybe* and

*Hebeloma*. Anders Dahlberg demonstrated in 2003 the red mycelium of *Cortinarius sanguineus* and had a dramatic mycorrhiza lecture among *Cypripedium* plants on our important fellow forest workers down in the forest soil. Johan talked with enthusiasm about the black soil with earthworms in the finest calcareous forests. Tor Erik told the journalist about the importance of *Cortinarius* species in the northern forests. Afterwards there were several pages with fine photos in the newspaper. Rolf Lidberg, Hans Marklund, Jacques Melot, Siw Muskos and Jan-Olof walked together that autumn day in 2003 and fully enjoyed old willow trees with *Lobaria pulmonaria*, big ant hills and lots of *Cypripedium*, see pp. 12–15 in the report from *Cortinarius* workshop in 2003.

#### 50 species of *Cortinarius* were found in 2016

At the European *Cortinarius* days (JEC) in 2016 Francesco Bellu, Håkan Lindström, Ilkka Kytövuori, Karl Soop and others found 50 *Cortinarius* species in the old mossy forests with long forest continuity among others *C. bovinus*, *fuscovelatus*, *oulankensis*, see pp. 90–96 in the report.

*Cortinarius jonimichelliae* is also found here, named after one of Håkan Lindström's favorite artists. Håkan also named a new *Cortinarius* species after his beloved son Andreas: *Cortinarius andreae*.



### Collections at exhibition table with field form

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*Cortinarius semisanguineus*, *Pinus*, Margareta Byström  
*Cortinarius testaceofolius* Lindström & Soop, *Picea*, Karl Soop  
*Cortinarius ochrophyllus*, *Picea*, Håkan Sundin, det. Karl Soop  
*Cortinarius riederi*, *Picea*, Karl Soop  
*Gomphidius roseus*, Margareta Byström  
*Gomphus clavatus*, *Picea*, Margareta Byström  
*Hygrophorus karstenii*, *Picea*, Håkan Sundin  
*Lactarius auriolla*, *Picea*, Tero Taipale  
*Lactarius badiosanguineus*, *Picea*, *Pinus*, Tero Taipale  
*Lactarius flavopalustris*, *Betula*, *Picea*, Tero Taipale  
*Lactarius leonis*, *Picea*, Tero Taipale  
*Lactarius mammosus*, *Pinus*, Annemieke Verbeken  
*Lactarius representaneus*, *Picea*, Tero Taipale  
*Lactarius scrobiculatus*, *Picea*, Mieke Verbeken  
*Lactarius subcircellatus*, *Betula*, *Picea*, Mieke Verbeken  
*Lactarius torminosus*, *Betula*, Mieke Verbeken  
*Lactarius trivialis*, *Betula*, *Picea*, Jan-Olof Tedebrand, conf. Annemieke Verbeken  
*Lactarius tuomikoskii*, *Picea*, Tero Taipale  
*Lactarius uvidus*, *Betula*, *Picea*, Tero Taipale  
*Russula atroglauca*, *Betula*, *Picea*, Tero Taipale  
*Russula chloroides*, *Picea*, *Pinus*, Tero Taipale  
*Russula crassipes*, Tero Taipale  
*Russula elaeodes (clavipes)*, *Picea*, *Pinus*, Tero Taipale  
*Russula favrei*, *Picea*, Tero Taipale  
*Russula fenoscandica*, *Picea*, *Pinus*, Tero Taipale  
*Russula nauseosa*, *Picea*, *Pinus*, Tero Taipale  
*Russula nitida*, *Betula*, *Picea*, Tero Taipale  
*Russula olivina*, *Picea*, Lennart Söderberg, Tero Taipale  
*Russula queletii*, *Picea*, Tero Taipale  
*Russula renidens*, *Picea*, Tero Taipale  
*Russula rhodopoda*, Tero Taipale  
*Russula vinososordida*, Tero Taipale  
*Thelephora palmata*, Margareta Byström

### List by Belluci-Brizzi-Pera

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*Albatrellus ovinus*  
*Amanita muscaria* var. *regalis*  
*Boletus edulis*  
*Cortinarius armillatus*  
*Cortinarius caperatus*  
*Gomphidius glutinosus*  
*Gomphidius roseus*  
*Hygrophorus karstenii*  
*Lactarius fenoscandicus*  
*Lactarius glyciosus*  
*Lactarius pubescens*  
*Lactarius rufus*

*Lactarius scoticus*  
*Lactarius scrobiculatus*  
*Lactarius torminosus*  
*Lactarius trivialis*  
*Leccinum holopus (niveum)*  
*Leccinum scabrum*  
*Leccinum versipelle*  
*Lyophyllum fumosum*  
*Russula aeruginea*  
*Russula claroflava*  
*Russula decolorans*  
*Russula favrei*  
*Russula gracillima*  
*Russula grisescens*  
*Russula nauseosa*  
*Russula paludosa*  
*Russula rhodopoda*  
*Russula versicolor*  
*Russula vinosa*  
*Suillus luteus*  
*Suillus variegatus*  
*Xerocomus ferrugineus*

### List by Jan-Olof Tedebrand

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*Albatrellus ovinus*  
*Chroogomphus rutilus* s.l.  
*Cortinarius armillatus*, Glen Dierickx  
*Cortinarius caperatus*, very common  
*Cortinarius cinnamomeus*, Glen Dierickx  
*Cortinarius collinitus*, Glen Dierickx  
*Cortinarius gentilis*  
*Cortinarius malicorius*, Glen Dierickx  
*Cortinarius sanguineus*, Glen Dierickx  
*Gomphidius glutinosus*  
*Gomphus clavatus*  
*Hydnum (Bankera) violascens*  
*aHygrophorus olivaceoalbus*  
*Laccaria laccata*  
*Lactarius deterrimus*  
*Lactarius flavopalustris*, in flooded areas along the brook  
*Lactarius leonis*  
*Lactarius mammosus*  
*Lactarius torminosus*  
*Lactarius trivialis*  
*Lactarius tuomikoskii*  
*Lactarius uvidus*  
*Lactarius vietus*  
*Russula acrifolis*  
*Russula aeruginea*  
*Russula claroflava*  
*Russula decolorans*  
*Russula gracillima*  
*Russula paludosa*





*Lactarius badiosanguineus* is typical in herbrich *Picea* forest in the limestone area of mid Sweden.  
Photo: Hjärdís Lundmark

*Russula turci*  
*Russula vesca*  
*Suillus bovinus*, along forest road  
*Suillus luteus*  
*Suillus variegatus*

### Collections, UPS

*Lactarius auriolla*, *Picea*, Jan-Olof Tedebrand  
*Lactarius fennoscandicus*, *Picea*, Tero Taipale  
*Lactarius olivinus*, *Picea*, *Pinus*, Tero Taipale  
*Lactarius scoticus*, Tero Taipale  
*Ramaria pallida*, *Picea*, Lennart Söderberg  
*Ramaria testaceoflava*, *Picea*, Lennart Söderberg  
*Russula clavipes*, *Picea*, *Pinus*, Tero Taipale  
*Russula crassipes*, Tero Taipale  
*Russula favrei*, *Picea*, *Pinus*, Tero Taipale  
*Russula fennoscandica*, *Picea*, *Pinus*, Tero Taipale  
*Russula nauseosa*, *Picea*, *Pinus*, Tero Taipale  
*Russula olivina*, *Picea*, Lennart Söderberg  
*Russula rhodopoda*, *Picea*, *Pinus*, Tero Taipale

### Nature conservation

During the last 40 years we have made inventories of vascular plants and fungi in Medelpad. We have seen that the surroundings to forest brooks have much more biological

diversity than more dry forest areas. In western Medelpad we see along brooks herbs like *Aconitum septentrionale*, *Hepatica nobilis*, *Polygonatum verticillatum* and bushes like *Daphne mezereum*, *Lonicera xylosteum* and *Rosa majalis*. Here we also find a special diversity of fungi, lichens and not at least mosses. Now in 2018 we observed enormous, fairy rings with *Gomphus clavatus* in the wet area with tall herbs along the forest brooks. Perfect ecology for *Gomphus*! The enormous rings of *Gomphus* appeared at a distance of about 100 meter between each ring in the flooded area near the brooks. Every *Gomphus* ring had 30-50 fruitbodies. Håkan Lindström found *Gomphus* in similar nature type at Jämtkrogen along Harrån in Borgsjö. Siw Muskos have found *Gomphus* in some calcareous *Picea* forests in her home parish Tuna. *Gomphus* is also found in many old *Picea* forests on limestone around the island Alnön. A national action plan (åtgärdsprogram) for *Gomphus clavatus* was written in 2006. The Norwegian mycologist Tor Erik Brandrud crawled slowly along Kullbäcken in 2016 and found *Entoloma affermineus*, *E. nidorosum* and other species in "Entoloma, rhodopolium group".

It is important for biological diversity to save flooded areas along forest brooks in modern forestry. Such wet, herbrich areas are visible on the new hydrological maps. It is also important to save not only broadleaved trees but only some *Picea* and *Pinus* trees in the flooded herbrich area near





*Lactarius aurioilla*. Photo: Hjördis Lundmark

the brooks. Many rare mycorrhiza fungi like *Gomphus* and species in *Cortinarius* subgenus *Phlegmacium* appear in this herb-rich zone and they are mostly associated with conifers! No problem if some coniferous trees fall down in storms. Big conifer logs in wet areas along brooks are valuable for many wood inhabiting species. See also academic thesis at Umeå university by Lenka Kuglerová on "Grow with the flow-Hydrological controls of riparian vegetation in boreal streams networks" (2015): <http://umu.diva-portal.org/smash/record.jsf?pid=diva2%3A790801&dsid=-152>

### **Comment, site 26, Kullbäcken-Markbäcken**

*Cortinarius testaceofolius* was described by Håkan Lindström and Karl Soop, has the Swedish name "tegelstivig spindling" and is rather common here in central Sweden in mossy blueberry forest. Fine collection by auctor Karl at the exhibition table.

*Lactarius flavopalustris*. Annemieke Verbeken said last evening of the workshop: "We are so happy. We have found all the northern yellow-milked species described by Ilkka Kytövuori during the week". *L. flavopalustris* is common under *Betula* in calcareous wet forests

in Borgsjö. Siw Muskos also found *L. flavopalustris* together with Ilkka in alpine calcareous forest at Lillåsvalen, Ramundberget in Härjedalen 2006 (UPS). See also text by Jorinde on *Lactarius flavopalustris* at in the report.

*Lactarius leonis*. Fine collection of Tero at the exhibition table from the calcareous, wet brook side, a typical nature type for this *Lactarius* described from the Swedish province Ångermanland by Ilkka Kytövuori (H).

*Xerocomus ferrugineus* is often confused with *X. subtomentosus*, for differences see pp. 128 in Flora Agaricina Neerlandica 7 (2018). Machiel Noordeloos writes on *Xerocomus* in FAN7. Ladurnet and Simonini studied 22 species in *Xerocomus* s.l. in Fungi Europaei Vol. 8 (2003). In 2016 Giampaolo Simonini visited the *Cortinarius* workshop in Borgsjö and studied *Boletales* together with Tatyana Svetasheva. Andy Taylor and Ursula Eberhardt presented 16 Swedish species in *Xerocomus* ("sammetsoppor" in Swedish) in Svensk Mykologisk Tidskrift 2006/3 pp. 35–48. *Boletus* and *Xerocomus* is now restricted to a handful species and other genera are used for the remaining species e.g. *Xerocomellus* and *Hortiboletus*.





View over Julåsen in 1924. Ernst in the foreground. Notice the beautiful wooden fences! Photo by Gullik Gulliksson. Photo owner: Västernorrlands Museum

6942190;1489112

## 28 Kullbäcken south of Kullen mountain farm

Excursion guide pp. 112

27 Aug. 2018

### Selected earlier records

*Lactarius aquizonatus* (leg. Morten Christensen 4 Sept. 1997, det. Maria Teresa Basso), *auriolla*, *badiosanguineus*, *detririmus*, *flavopalustris*, *glyciosmus*, *leonis*, *lilacinus*, *mammosus*, *olivinus*, *pubescens*, *rufus*, *scoticus*, *scrobiculatus*, *torminosulus*, *torminosus*, *trivialis*, *tuomikoski*, *utilis*, *avidus*, *vietus*, *zonarioides*.

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

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

### List by Jan-Olof Tedebrand

*Amanita muscaria* var. *regalis*  
*Chroogomphus rutilus* s.l.  
*Cortinarius sanguineus*  
*Cortinarius semisanguineus*  
*Gomphidius glutinosus*  
*Lactarius aquizonatus*  
*Lactarius flavopalustris*  
*Lactarius olivinus*  
*Lactarius scrobiculatus*  
*Lactarius subcircellatus*  
*Lactarius torminosus*  
*Lactarius tuomikoskii*  
*Lactarius trivialis*  
*Russula acrifolia*, *Betula*, *Picea*, Jan-Olof Tedebrand



## RUSSULALES BORGSJÖ 2018 FORM FOR EXHIBITION

Species ..... RUSSULA TAIGARUM .....  
 Locus ..... JULÅSEN .....  
 Biotop Picea ← Pinus  
 Alia.....  
 Dies 29/8 - 2018 .....  
 Leg TOM / MAD / ANNA .....  
 Det ..... Conf .....  
 Smell, write at next side



*Russula taigarum* is rather common from the coast to the alpine areas in Mid Sweden, often in sphagnum in blueberry *Picea* forest. Photo: Hjärdís Lundmark

*Russula fennoscandica*, along the brook, Tero Taipale,  
 Lennart Söderberg  
*Russula grisescens*  
*Suillus luteus*

deposited in TURA, UPS and other fungaria. Michael Krikorev found *R. fennoscandica* here along Kullbäcken, see Michael's photo of *R. fennoscandica*: [http://svampguiden.com/art/visa/russula\\_fennoscandica](http://svampguiden.com/art/visa/russula_fennoscandica)

### Comment, site 28, Kullbäcken south of the meadow

692502;1501371

*Lactarius flavopalustris* and *L. olivinus* indicates wet forest rich in chalk. Lennart Söderberg and Tero Taipale walked together and had a lively discussion in the rich, calcareous swampy *Betula-Picea* forest along the brook. Mats Karström found 4 Sept. 1997 *Gomphus clavatus* here and also *Multiclavula mucida* on decorticated, big aspen log fallen over the brook.

*Russula fennoscandica* smells like *R. queletii* but is smaller and not so sharp in taste. During *Russula* workshop in Borgsjö 2001 our invited experts Jukka Vauras and Juhani Ruotsalainen proved that *R. fennoscandica* was a common species in wet *Betula-Picea* forests in the Borgsjö area. Many collections were

## 29 Julåsen

Excursion guide pp. 114-115

29 Aug. 2018

**Guide:** Håkan Sundin

**Participants:** Anders Aronsson, Tanja Böhning, Rolf-Göran Carlsson, Inga-Lill Franzén, Stig Jacobsson, Kurt-Anders Johansson, Mats Karlsson, Ellen Larsson, Jan Olsson, Karl Soop and Tony Svensson





*Hygrophorus purpurascens*, Julåsen. Painting by Tanja Böhning

### Selected earlier records

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

*Russula adusta*, *aeruginea*, *aquosa*, *atroglauca*, *atrорubens*, *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*, *Bryoglossum gracile*, *Cathatelasma imperiale* (leg. Leif

Anderson), *Collybia fodiens*, *Cortinarius privignipallens*, *Cortinarius anthracinus* (Hjördis Lundmark), *Entoloma caesiocinctum* (in *sphagnum*, Machiel Noordeloos), *Geoglossum sphagnophilum*, *Haploporus odoratus*, *Hebeloma aanenii* (Bellu 2010), *Hydnellum mirabile*, *suaveolens*, *Hygrophorus persicolor*, *purpurascens*, *Inocybe casimiri*, *castanea*, *Leccinum variicolor*, *Lepista densifolia*, *Marasmius scorodoni*, *Mycena capillaripes*, *urania*, *Neobarya parasitica*, *Psatyrella jacobsonii*, *pertinax*, *Ramaria botrytis*, *Tricholoma olivaceotinctum*, *Typhula lutescens*.

### Forests formed by fires and grazing

During mycological workshops we often visit the vast areas in the southern part of Borgsjö parish. At the idyllic village Finnsjön Machiel Noordeloos found *Entoloma pratulense* in 1985, type locality for this meadow fungi, redlisted as VU in Norway. Dan Broström and Roy Watling found interesting *Conocybe* species at dung and nitrogen rich grassland in 1993. Roy said that Finnsjön reminded him of the highlands in Scotland. Julåsen is another village about 500 meter above sea level and south of our working hall down in the valley. Finnish settlers came here about



*Otidea* sp. and *Trichoderma nybergianum*. Julåsen. Photo: Mathias Lüderitz

400 hundred years ago. They were specialists on forest burning and had cattles grazing vaste areas. Almost all forests around the Finnish settlements in southern Borgsjö have been burnt and are formed by earlier forest fires and forest grazing.

### ***Hygrophorus purpurascens***

Stig Jacobsson and others have a tradition to pay a visit to the mycelium of the rare and high redlisted (EN) *Hygrophorus purpurascens*, first found by Jan-Olof and Erik Rald 25 aug. 1986. Åke Strid presented *H. purpurascens* ("slöjvaxskivling" in Swedish) in the review Jordstjärnan 1986 (1), pp. 16–20 with photo at frontpage of fruitbodies from Uppland, Österåker. Åke mention a record by Nils Hakelier from Jämtland, Mörsil 22 Aug. 1983, S. According to Artportalen most findings of *H. purpurascens* are from the lime district of Jämtland and western Medelpad.

Annemieke Verbeken and Machiel Nooreloos found big group of *Lactarius aspideus* in 1997 under a big, old *Salix caprea* with *Haploporus odorus*. During the same visit to Julåsen Ilkka Kytövuori collected *Lactarius hygginoides*, a boreal species whose name indicates relationship with *L. hygginus*. Both have brownish colours and viscid caps. The rare alpine *Russula citrinoclora* is also found here. Hjördis Lundmark use to collect the rare southern *Cortinarius anthracinus* at Julåsen, a mushroom good for wool dyeing, see page 201 in the book edited by Hjördis and Hans Marklund on wool dyeing with mushrooms (22). The forest at Julåsen is protected within Forest Stewardship Council (FSC) after letter contact with Per Simonsson at the forest company SCA. The Forest Stewardship Council (FSC) is an international non-profit multi-stakeholder organization established in 1983 to promote responsible management of the world's forests.





Jan Olsson, Ellen Larsson, Rolf-Göran Carlsson, Anita Stridvall and Kurt-Anders Johansson at Julåsen.  
Photo: Håkan Sundin

### Borgsjömusseron

The most famous fungi at Julåsen is *Tricholoma borgsjoeënsis*, described in Mycotaxon 95:195–200 by Stig Jacobsson, Ellen Larsson and Siw Muskos. See also article by Siw and Stig in Svensk Mykologisk Tidskrift 2006/3: 66–70. Before the scientific description we gave "Borgsjömusseron" the name "*Tricholoma julåsensis*". Siw Muskos and Jan-Olof have been here with the interested and pushing forester Gunnar Selling at the local office of Swedish Forest Agency and talked at the kitchen table with our friend and landowner Jochum Forsberg. Gunnar then protected this fungus hot spot with "Borgsjömusseron" as Habitat Protection Area ("biotopskydd" in Swedish). There are also many other rare fungi in the protected area like big groups of *Cortinarius serarius* and *Mycena oregonensis* in a brook valley. A large part of the protected *Picea* dominated slope was felled by the severe storm in december 2011. *Tricholoma borgsjoeënsis* is now proposed to IUCN global red list of fungi.

### Maria Gardfjell and her field biologists visited Julåsen in 1989

A bus with young Swedish field biologists "fältbiologer" visited Borgsjö some days in July 1989 and stayed at the

youth hostel. They looked on the biological diversity of old semi-natural grasslands. Jan-Olof guided them to old mountain farms and other types of grasslands. Maria Gardfjell participated. She is now a leading green politician and advocates biological diversity in the Swedish government. Article and photo of "fältbiologerna" at Julåsen in Sundsvalls Tidning 5 July 1989.

### Collections at exhibition table with field form

*Arrhenia oniscus*, on *sphagnum* in *Alnus* bog, Karl Soop, det. Jan Olsson

*Cortinarius armillatus*, *Betula*, *Picea*, Inga-Lill Franzén

*Cortinarius bivelus*, *Picea*, Karl Soop

*Cortinarius depressus*, Jan Olsson

*Cortinarius evernius*, *Picea*, Anders Aronsson, Mats

Karlsson, Tony Svensson

*Cortinarius illuminus*, Jan Olsson, det. Karl Soop

*Cortinarius laniger*, *Picea*, Inga-Lill Franzén

*Cortinarius ochrophyllus*, Jan Olsson

*Cortinarius pholideus*, *Betula*, *Picea*, Anders Aronsson,

Mats Karlsson, Tony Svensson



*Cortinarius scaurus*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Cortinarius talus*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson, det. Stig Jacobsson och Karl Soop  
*Cortinarius testaceofolius*, *Betula*, *Picea*, Karl Soop  
*Cortinarius trivialis*, Jan Olsson  
*Cortinarius varicolor*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Entoloma lividoalbum*, Jan Olsson  
*Flammulaster limmulatus*, stump, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Galerina mniophila*, Jan Olsson  
*Hohenbuhelia fluxilis*, Jan Olsson  
*Hygrocybe irrigata*, meadow, Tanja Böhning  
*Hygrocybe nitrata*, meadow, Tanja Böhning  
*Hygrophorus korhonenii*, rich mixed forest on roadside, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Hypholoma marginatum*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Lactarius cf picinus*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Lactarius representaneus*, *Picea*, Inga-Lill Franzén  
*Mycena galericulata*, mossy log, Jan Olsson  
*Naucoria celluloderma*, *Alnus* bog, Jan Olsson  
*Naucoria striatula*, *Alnus* bog, Jan Olsson  
*Rhodocollybia fodiens*, *Picea*, Anita Stridvall  
*Rhodocybe caelata*, Karl Soop, det. Jan Olsson  
*Russula cf citrinochlora*, ”spores a little to big”, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Russula consobrina*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Russula fenoscandica*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Russula rhodopoda*, *Picea*, Inga-Lill Franzén  
*Russula taigarum*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Russula vinososordida*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Tricholoma viridilutescens*, *Picea*, Ellen Larsson

### List by Anders Aronsson, Mats Karlsson, Tony Svensson

*Alloclavaria purpurea*  
*Amanita muscaria* var. *regalis*  
*Cortinarius armillatus*  
*Cortinarius brunneus*  
*Cortinarius camphoratus*  
*Cortinarius caperatus*  
*Cortinarius cinnamomeus*  
*Cortinarius collinitus*  
*Cortinarius delibutus*  
*Cortinarius evernius*

Tricholoma  
 julåsensis  
 tamefan!



*Tricholoma julåsensis*. Self portrait by Rolf Lidberg

*Cortinarius sanguineus* s.l.  
*Cortinarius scaurus* s.l.  
*Cortinarius stillatitius*  
*Cortinarius subtortus*  
*Cortinarius trivialis*  
*Cortinarius varicolor*  
*Cystoderma amianthinum*  
*Gymnopilus picreus*  
*Entoloma rhodopolium*  
*Entoloma serrulatum*  
*Gymnopilus picreus*  
*Hygrophorus korhonenii*  
*Hygrophorus olivaceoalbus*  
*Hygrophorus piceae*  
*Hygrophorus secretanii*  
*Hypholoma marginatum*  
*Infundibulicybe gibba*  
*Inocybe cincinnata*  
*Inocybe flocculosa*  
*Inocybe geophylla*  
*Kuehneromyces mutabilis*  
*Laccaria proxima*  
*Lactarius deterrimus*  
*Lactarius glycosmus*  
*Lactarius helvus*  
*Lactarius necator*  
*Lactarius picinus*  
*Lactarius representaneus*  
*Lactarius scrobiculatus*

*Lactarius tabidus*  
*Lactarius torminosus*  
*Lactarius trivialis*  
*Lactarius zonarioides*  
*Leccinum variicolor*  
*Marasmiellus perforans*  
*Mycena galericulata*  
*Mycena galopus*  
*Paxillus involutus*  
*Russula betularum*  
*Russula claroflava*  
*Russula clavipes*  
*Russula consobrina*  
*Russula decolorans*  
*Russula emetica*  
*Russula favrei*  
*Russula foetens*  
*Russula nauseosa*  
*Russula puellaris*  
*Russula rhodopus*  
*Russula taigarum*  
*Russula vinososordida*  
*Stropharia semiglobata*  
*Tricholoma inamoenum*  
*Xerocomus subtomentosus* s.lat.

### List of Tanja Böhning

**D**=digital photo, **E**=eksiccatum,  
**MB**=determination with microscope

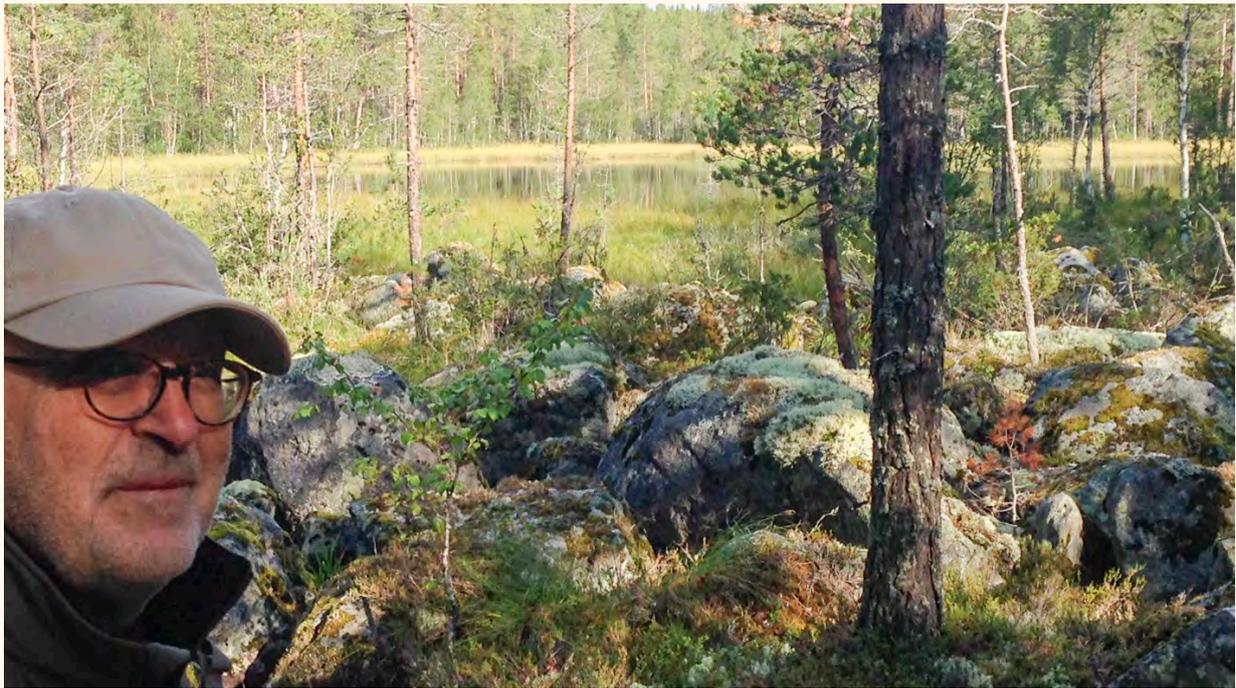
*Amanita muscaria*, D  
*Coltricia perennis*, D  
*Hygrophorus purpurascens*, Tanja and Ellen Larsson, D,  
 E, MB, aquarelle TB  
*Trichoderma nybergiana*, D, E

### List by Anita Stridvall

*Albatrellus confluens*  
*Alloclavaria purpurea*  
*Amanita regalis*  
*Boletus edulis*  
*Cantharellus cibarius*  
*Cerrena unicolor*  
*Collybia cirrhata*  
*Cortinarius armillatus*  
*Cortinarius barbatus* (= *eburneus*)  
*Cortinarius bififormis*  
*Cortinarius brunneus*  
*Cortinarius callisteus*  
*Cortinarius camphoratus*  
*Cortinarius caperatus*  
*Cortinarius cinnamomeus*

*Cortinarius collinitus*  
*Cortinarius croceus*  
*Cortinarius delibutus*  
*Cortinarius duracinus*  
*Cortinarius erubescens*  
*Cortinarius flexipes*  
*Cortinarius gentilis*  
*Cortinarius huronensis*  
*Cortinarius multififormis*  
*Cortinarius obtusus*  
*Cortinarius pluvius*  
*Cortinarius rusticus*  
*Cortinarius sanguineus*  
*Cortinarius sphagnophilus*  
*Cortinarius stillatitius*  
*Cortinarius subtortus*  
*Cortinarius testaceofolius*  
*Cortinarius trivialis*  
*Entoloma cetratum*  
*Entoloma lividoalbum*  
*Entoloma nidorosum*  
*Entoloma sericeum*  
*Entoloma turbidum*  
*Fomes fomentarius*  
*Fomitopsis pinicola*  
*Galerina pumila*  
*Gomphidius glutinosus*  
*Heterobasidion parvisporum*  
*Hygrophorus erubescens*  
*Hygrophorus exiguus*, det. Ellen Larsson  
*Hygrophorus olivaceoalbus*  
*Hygrophorus piceae*  
*Hygrophorus pudorinus*  
*Hygrophorus secretanii*  
*Hypholoma elongatum*  
*Hypholoma myosotis*  
*Inocybe cincinnata*  
*Inocybe geophylla*  
*Laccaria laccata*  
*Lactarius badiosanguineus*  
*Lactarius deterrimus*  
*Lactarius fennoscandicus*  
*Lactarius fuliginosus*  
*Lactarius leonis*  
*Lactarius necator*  
*Lactarius representaneus*  
*Lactarius rufus*  
*Lactarius scrobiculatus*  
*Lactarius trivialis*  
*Lactarius tuomikoskii*  
*Lactarius vietus*  
*Leccinum variicolor*  
*Lycogala epidendrum*  
*Lycoperdon perlatum*





Håkan Sundin, guide into the wilderness of Borgsjö. Photo: Gunilla Kärrfelt

*Lycoperdon umbrinum*  
*Marasmius androsaceus*  
*Mycena laevigata*  
*Mycena rubromarginata*  
*Mycena sanguinolenta*  
*Paxillus filamentosus*  
*Paxillus involutus*  
*Phellinus conchatus*  
*Phyllotopsis nidulans*  
*Piptoporus betulinus*  
*Rhodocollybia fodiens*  
*Russula aeruginea*  
*Russula aquosa*  
*Russula claroflava*  
*Russula decolorans*  
*Russula favrei*  
*Russula rhodopoda*  
*Russula vinososordida*  
*Spathularia rufa*  
*Tephrocycbe rancida*  
*Trichaptum abietinum*  
*Tricholoma inamoenum*  
*Tricholoma olivaceotinctum*, Stig Jacobsson  
*Tricholoma viridilutescens*, Stig Jacobsson

### Comment, site 29, Julåsen

*Cortinarius barbatus* belongs to *Cortinarius* subgenus *Myxacium*, was earlier named *C. eburneus* and is a southern species with few findings north of Dalälven in Sweden.

*Lactarius picinus* is similar to *L. fuliginosus* and is discussed on pp. 343 in FAN7 with conclusion: "More information is needed to determine whether these are indeed two distinct species". Birgitta Wasstorp and others have found "Lactarius picinus" at Julåsen during several workshops in Borgsjö and collections have been much discussed. Jorinde and others said during *Russulales* in Borgsjö that *L. picinus* is just a dark form of *L. fuliginosus*.

### *Hygrophorus exiguus* + *Tricholoma inamoenum* = true?

*Hygrophorus exiguus* was an interesting finding of Ellen Larsson, newly described as new for science in the Finnish review *Karstenia* by Ellen Larsson, Matteo Carbone and Emanuele Campo: [http://funga.fi/Karstenia/Karstenia\\_54-2\\_2014-1.pdf](http://funga.fi/Karstenia/Karstenia_54-2_2014-1.pdf)

In Fennoscandia *H. exiguus* is associated with rather moist old growth mixed *Betula-Picea* forests of the *Vaccinium myrtillus* type or as here at Julåsen: *Picea* slope with calcareous, herbrich forest. Such rich slopes are typical ecology for many *Hygrophorus* species in Jämtland, Medelpad and Ångermanland. Siw Muskos has collected and painted *Hygrophorus atramentosus* in a similar slope in Tuna parish. *H. exiguus* was also collected by Stig Jacobsson, Ellen Larsson and others on 25 Aug. 2010 in mixed, grazed forest at Gammelbodarna in Borgsjö (EL 187–10). It seems to be growing solitarily deep in mosses, often among *Tricholoma inamoenum*. There are suspicions of some kind of relation between *H. exiguus* and *T. inamoenum*. Perhaps *H. exiguus* is cheating on *T. inamoenum*? We still know very little about the fascinating underground internet in our forests



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

6932320;1483670

## 30 Alby churchyard

Excursion guide pp. 116–118

**Betula and Pinus park at rich gravel ridge:  
31 Aug. 2018**

**Guides:** Karin Kellström, Bengt Petterson, Jeanette Södermark

### Selected earlier records

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

*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.*

### List of Jan Olsson

*Amanita muscaria*  
*Chrogomphus rutilus s.l.*  
*Clitocybe phyllophila*  
*Cystoderma granulosum*  
*Galerina clavata, Jan Olsson*  
*Hygrocybe conica*  
*Hygrophoropsis aurantiaca*  
*Inocybe flocculosa*  
*Inocybe grammata*  
*Inocybe rimosa*  
*Lactarius deliciosus*  
*Lactarius deterrimus*  
*Mycena leptcephala*  
*Polyporus ciliatus*  
*Rhodocybe caelata*  
*Rhodocybe hirneola*  
*Russula adusta*  
*Russula chloroides*  
*Russula lutea*



### Comment, site 30, Alby churchyard

During *Russula* workshop 2001 big, beautiful fruitbodies of *Russula aurantioflammans* were collected under *Betula* in the church park. Tuula Niskanen collected in 2003 *Cortinarius alboamarens* on the churchyard, a small white species in subgen. *Myxaciium*. Anita Stridvall and Stig Jakobson found in 2010 *Cortinarius ionophyllus* and *Gomphus clavatus* in *Picea* forest north of the churchyard.

6943734;1486455

## 32 Dysjöberget nature reserve

Excursion guide pp. 120-121

Wonderful broadleaved forest that burnt in 1888 ("lövbränna" in Swedish) with aspen, birch, pine, sallow. In older days farmers at Boltjärn village kept goats and sheeps grazing at Dysjöberget. 28 aug. 2018

**Guide:** Håkan Sundin

**Participants:** Francesco Bellu, Mauro Belluci, Bruno Brizzi, Gunilla Kärrfelt, Umberto Pera, Karl Soop

### Collections on exhibition table with field form

*Cortinarius albovariegatus*, *Picea*, Håkan Sundin, det. Karl Soop  
*Cortinarius biformis*, *Picea*, Karl Soop  
*Cortinarius flexipes*, *Picea*, Karl Soop  
*Cortinarius porphyropus*, *Betula*, *Picea*, Karl Soop  
*Cortinarius aff talimultiformis*, *Betula*, *Picea*, Gunilla Kärrfelt, det. Karl Soop  
*Hygrophorus piceae*, *Picea*, Karl Soop  
*Russula aurea*, *Betula*, *Picea*, Karl Soop  
*Russula intermedia*, *Betula*, Karl Soop

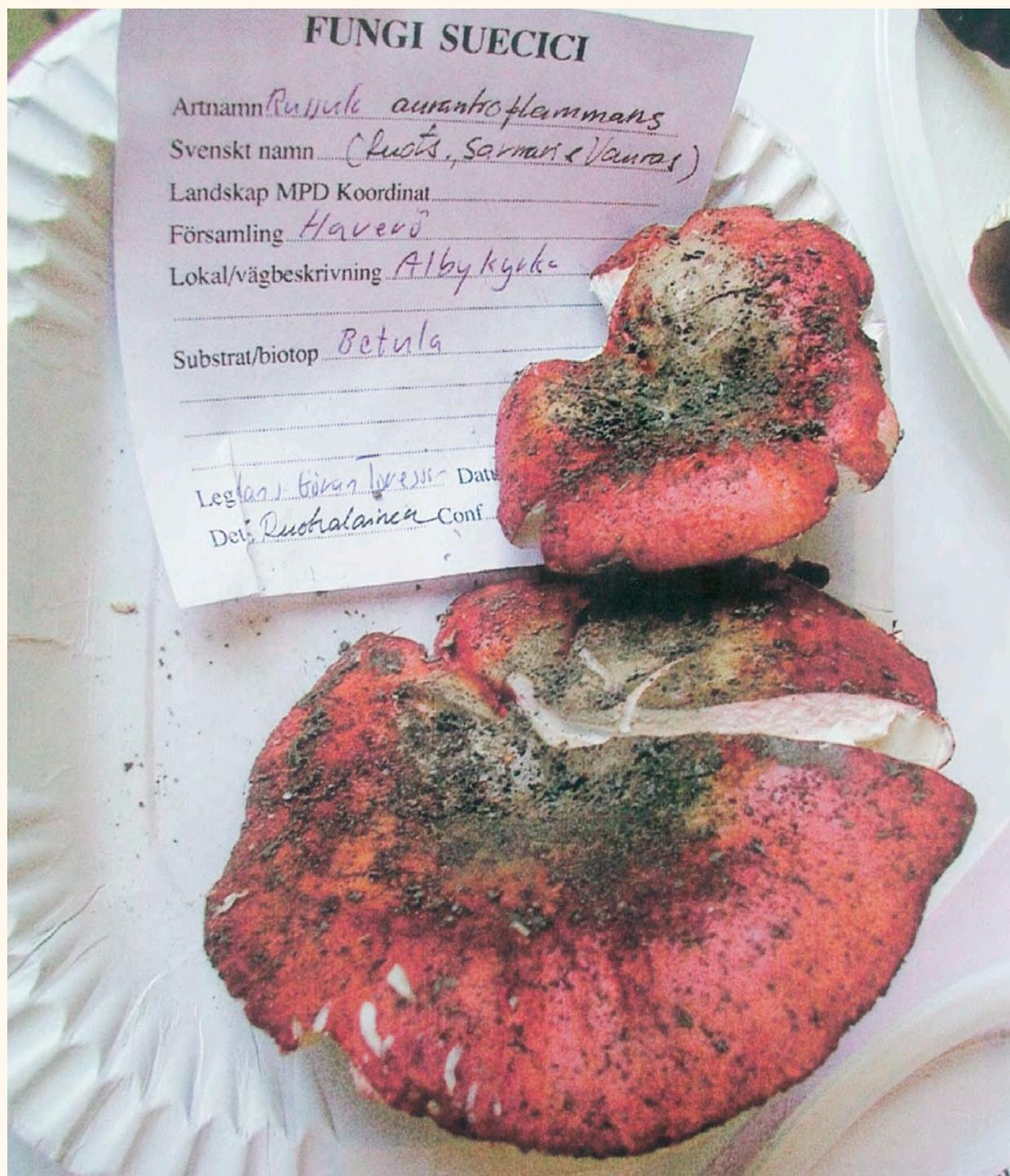
### List by Francesco Bellu

*Cortinarius alboviolaceus*  
*Cortinarius armeniacus*  
*Cortinarius armillatus*  
*Cortinarius balaustinus*  
*Cortinarius bovinus*  
*Cortinarius flexipes*  
*Cortinarius harcynicus*



Gunilla Kärrfelt with *Catathelasma imperiale* in her left hand. Photo. Hjördis Lundmark

*Cortinarius illuminus*  
*Cortinarius laniger*  
*Cortinarius multiformis*  
*Cortinarius pholideus*  
*Cortinarius pseudonaevosus* (=vaccinophilus)  
*Cortinarius riederi* (=pseudoarcuta=smolandicus ss Moser)  
*Cortinarius sanguineus*  
*Cortinarius semisanguineus*  
*Cortinarius talimultiformis*  
*Cortinarius trivialis*  
*Lactarius fennoscandicus*  
*Lactarius flavopalustris*  
*Lactarius flexuosus*  
*Lactarius glyciosmus*  
*Lactarius rufus*  
*Lactarius scrobiculatus*  
*Lactarius torminosus*  
*Lactarius trivialis*  
*Lactarius tuomikoskii*  
*Lactarius uvidus*  
*Lactarius vietus*  
*Leccinum melaneum*  
*Leccinum versipelle*  
*Russula aeruginea*  
*Russula atrorubens*



*Russula aurantioflammans*, under *Betula* on Alby churchyard, 2001, det. Juhani Ruotsalainen.  
Photo at exhibition: Hjärdís Lundmark

*Russula aurea*  
*Russula decolorans*  
*Russula paludosa*  
*Russula vesca*  
*Russula vinosa*

**List by Belluci-Brizzi-Pera**

*Amanita muscaria* var. *muscaria*  
*Amanita muscaria* var. *regalis*

*Amanita rubescens*  
*Boletus pinophilus*  
*Clitocybe odora*  
*Cortinarius armillatus*  
*Cortinarius caperatus*  
*Cortinarius collinitus*  
*Cortinarius harcynicus*  
*Craterellus lutescens*  
*Entoloma lividoalbum* s.l.  
*Hydnum repandum*



*Hygrophorus camarophyllus*  
*Hygrophorus piceae s.l.*  
*Lactarius aquizonatus*  
*Lactarius glyciosmus*  
*Lactarius helvus*  
*Lactarius torminosus*  
*Lactarius trivialis*  
*Leccinum holopus*  
*Leccinum versipelle*  
*Lyophyllum decastes*  
*Megacollybia platyphylla*  
*Russula acrifolia*  
*Russula aeruginea*  
*Russula atrorubens*  
*Russula claroflava*  
*Russula decolorans*  
*Russula favrei*  
*Russula gracillima*  
*Russula paludosa*  
*Russula subfoetens*  
*Suillus luteus*  
*Suillus variegatus*  
*Tricholoma equestre*  
*Tricholoma saponaceum*

### Comment, finds at site 32, Dysjöberget

*Cortinarius aff. talimultiformis* collected by Francesco was interesting, see more information about *C. talimultiformis* in Journal Des J.E.C. 2015: "Cortinarius Subgenus *Phlegmacium* Sektion *Multiformes* in Europe, Brandrud and others".

### There is a need of more state money to manage protected areas

The nature in Dysjöberget nature reserve is a result of a big forest fire in 1888. Today new burnt areas with aspen, birch, pine and sallow ("lövbrännor" in Swedish) are very rare. Per Angelstam and other researchers mean that a rich bird fauna demands at least 20 % of broadleaved trees in a forest. Today many old protected forests instead are becoming more and more dominated by *Picea*. There is a need of more money to manage protected areas with burning or removing *Picea* in order to favour broadleaved trees. Normally in older times about one percent of Swedish forests (200 000 hectares) burnt every year. In the hot summer 1888 more than 200.000 hectares of Swedish forests burnt. About 20 000 hectares of the forests burnt in 2018, only one per thousand of Swedish forests. A problem today is also high amounts of elk and deer. Swedish politicians should act more than today and decide, together with forest owners and others, adequate numbers of deers, elks and wild boars in Swedish forests. Important both for biological diversity and forest production!

### Forest fires over almost all landscape in older times

The diaries of Linné and others tells us about burnt forests in northern Sweden. At mid summer time 1799 two young men from Stockholm, Johan Wilhelms Schmidt and Carl Gustaf Gillberg travelled along the river Ljusnan to Ljusnedal in Härjedalen. They saw burnt forests and broadleaved trees (lövbrännor) everywhere ("Resa genom Hälsingland och Härjedalen" 1799, kommenterad av Anders Lööv, Tännäs 1992). Bengt Oldhammer wrote in Svensk Botanisk Tidskrift 1994/5 about forest fires in northern parts of the province Dalarna. He found remnants from forest fires in almost all landscape, also in wet places. In summertime 2019 a group from Medelpads Botaniska Förening and Sundsvalls Mykologiska Sällskap visited "Ljusdalsbrännan" along the river Ljusnan in Hälsingland, the biggest fire place in Sweden 2018 with forest fires covering 9000 hectares! We were guided by our friend Peter Ståhl from the county government of Gävleborg. We saw fungi like *Geopyxis carbonaria* and *Morchella elata* all over the area and also plants like *Geranium bohemicum*. They had been in the forest soil since the last fire some hundred years ago and now they formed fruitbodies in the burnt soil. Fascinating! Gro Gulden has written excellent article about fungi at fireplaces in the Norwegian review *Agarica* 2013/33. Jessica Andersson and Kerstin Stickler published wonderful films and photos from our visit to Ljusdalsbrännan at the Facebook group of Medelpads Botaniska Förening on June 11 in 2019.

The importance for biological diversity of more broadleaved trees like aspen, birch, mountain ash and sallow is treated on pp. 314–316 in the informative book by Johan Nitare and the Swedish Forest Agency: "Skyddsvärd skog, Naturvårdsarter, kriterier för naturvärdesbedömning" (44) with list of advices to forest owners at page 316. Many forest species are dependent on aspen, birch, pine and sallow! The white-backed woodpecker is today a threatened bird who is favoured by broadleaved forests after forest fires. Kristoffer Stighäll work at The Swedish organization for Protection of Nature. He participated in the *Russulales* workshop and. Kristoffer has for a long time done an important job with measures for the white-backed woodpecker which also have favoured many other forest species bound to broadleaved trees.

### Collections, UPS

*Lactarius fennoscandicus*, Tero Taipale  
*Lactarius flavopalustris*, *Betula*, *Pinus*, Gunilla Kärrfelt  
*Russula aurantioflammans*, *Picea*, Lennart Söderberg  
*Russula gracillima*, *Betula*, *Picea*, Tero Taipale  
*Russula intermedia*, *Betula*, *Picea*, *Pinus*, Karl Soop, det.  
 Herbert Kaufmann  
*Russula queletii*, *Picea*, Tero Taipale





Annemike Verbeken talks about a yellow-milked *Lactarius*. Photo: Gunilla Kärrfelt

## TORP PARISH

6933916;1512039

### 36 Tubbobäcken and forest west of Mörberget (Habitat Protection Area)

Excursion guide pp. 130-131

27 Aug. 2018

**Guide:** Bengt Larsson

**Participants:** Slavomir Adamčík, Miroslav Cabon, Robin Dost, Jochen Girvert, Felix Hampe, Sona Jancovicova,

Cathrin Manz, Paul Nedelev, Elias Polemis and José Maria Traba-Velay

#### Selected earlier records

*Lactarius badiosanguineus, deterrimus, fuliginosus, glyciosmus, lilacinus, obscuratus, olivinus, rufus, sanguinea, scoticus, scrobiculatus, theiogalus, torminosus, trivialis, vietus.*

*Russula aeruginea, atrorubens, badia, claroflava, consobrina, decolorans, delica, favrei, formula, gracillima, lutea, olivobrunnea, paludosa, parazurea (Doris Laber), queletii, taigarum, versicolor, vinosa.*



**Also** *Amanita friabilis*, *Camarops microspora*, *Clavaria fumosa*, *Clitocybe harperi*, *phaeophthalma*, *Cordyceps gracilis*, *Cortinarius aureopulverulentus*, *harcynicus*, *ionosmus*, *venustus*, *Crepidotus kubickae*, *stenocystis*, *Echinoderma pseudoasperula* (Johan Nitare and Sigvard Svensson), *Entoloma dysthales*, *E. pseudocoelestinum* (JH Heilmann-Clausen, C), *Gastrum fimbriatum*, *Hygrophorus chrysodon*, *korhonenii*, *persicolor*, *subviscifer*, *Marasmius siccus*, *Melanophyllum echinatum*, *Mycena oregonensis*, *Onnia leporina*, *Radulomyces confluens* (Ryvarden 1986), *Rhizochaete radicata* (rare species, collected 1986 by Leif Ryvarden as *Phanerochaete filamenosa*), *Ramaria gracilis*, *Rhodocybe nitellina*, *Rhodonía placenta*, *Sowerbyella radicata*, *Steccherinum collabens*, *Tremiscus helvelloides*, *Trichoderma nybergianum*, *Tricholoma atrosquamosum*.

### Collections on the exhibition table with field form

*Cortinarius citrinofulvescens*, Bengt Larsson  
*Cortinarius flexipes*, Bengt Larsson, det. Karl Soop  
*Cortinarius scaurus*, Bengt Larsson, det. Karl Soop  
*Hygrophorus erubescens*, *Picea*, Pavel Nedelev  
*Lactarius badiosanguineus*, *Picea*, Bengt Larsson  
*Lactarius rufus*, *Betula*, *Picea*, *Pinus*, Elias Polemis, det. Felix Hampe  
*Lactarius scrobiculatus*, *Picea*, *Pinus*, Robin Dost, conf. Mieke Verbeken  
*Mycena haemotopus*, *Betula* wood, Pavel Nedelev  
*Mycena oregonensis*, Bengt Larsson  
*Russula aeruginea*, *Betula*, *Picea*, Elias Polemis, det. Felix Hampe  
*Russula chloroides*, *Picea*, Elias Polemis  
*Russula decolorans*, *Picea*, *Pinus*, Elias Polemis, det. Felix Hampe  
*Russula favrei*, *Picea*, Elias Polemis, det. Felix Hampe  
*Russula fennoscandica*, Bengt Larsson  
*Russula olivina*, *Picea*, Jochen Girvert, det. Tero Taipale  
*Russula renidens*, *Betula*, *Picea*, Elias Polemis, det. Felix Hampe  
*Russula turci*, *Pinus*, Jochen Girvert, det. Per Marstad  
*Tricholoma inamoneum*, *Picea*, *Pinus*, Robin Dost, conf. Jan-Olof Tedebrand  
*Xerocomus ferrugineus*, Bengt Larsson

### List by Cathrin Manz

*Amanita rubescens*, Jochen Girwert  
*Entoloma sericatum*, Cathrin Manz, det. Kai Reschke, KaiR1246  
*Russula atroglaucá*, Felix Hampe  
*Russula delica* coll., Jochen Girwert  
*Russula dryadicola*, Jochen Girwert, det. Slavormir

Adamçik and Felix Hampe  
*Russula olivina*, Jochen Girwert  
*Russula olivobrunnea*  
*Russula rhodopoda*, Cathrin Manz and Felix Hampe  
*Russula roseipes*, Cathrin Manz and Felix Hampe

### List by Bengt Larsson

*Albatrellus ovinus*  
*Amanita muscaria* var. *muscaria*  
*Amanita muscaria* var. *regalis*  
*Bjerkandera adusta*  
*Calocera viscosa*  
*Clitocybe odora*  
*Cortinarius armillatus*  
*Cortinarius citrinofulvescens*  
*Cortinarius harcynicus*  
*Cortinarius sanguineus*  
*Creolopus cirrhatus*  
*Fomitopsis pinicola*  
*Gliophorus psittacinus*  
*Gomphidius glutinosus*  
*Hydnellum suaveolens*  
*Hygrocybe conica*  
*Hygrophorus erubescens*  
*Lactarius badiosanguineus*  
*Lactarius deterrimus*  
*Lactarius fennoscandicus*  
*Lactarius glyciosmus*  
*Lactarius scrobiculatus*  
*Lactarius torminosus*  
*Lactarius trivialis*  
*Lactarius vietus*  
*Lactarius zonarioides*  
*Leccinum aurantiacum*  
*Leccinum scabrum*  
*Leccinum variicolor*  
*Leccinum versipelle*  
*Lycoperdon perlatum*  
*Lycoperdon pyriforme*  
*Megacollybia platyphylla*  
*Osmoporus odoratus*  
*Paxillus involutus*  
*Phellinus conchatus*  
*Phellinus punctatus*  
*Piptoporus betulinus*  
*Pluteus cervinus*  
*Pluteus phlebophorus*  
*Rickenella fibula*  
*Russula adusta*  
*Russula aeruginea*  
*Russula atrorubens*  
*Russula chloroides*  
*Russula claroflava*



*Russula decolorans*  
*Russula favrei*  
*Russula firmula*  
*Russula gracillima*  
*Russula nitida*  
*Russula paludosa*  
*Russula renidens*  
*Russula taigarum*  
*Tricholoma inamoenum*  
*Tricholoma saponaceum*  
*Tricholomopsis decora*  
*Xerocomus ferrugineus*

### Collections, UPS

*Russula atroglaucula*, *Betula*, Elias Polemis  
*Russula favrei*, *Picea*, Elias Polemis, det. Felix Hampe  
*Russula turci*, *Pinus*, Jochen Girwert, det. Per Marstad

### Johan and Sigvard found the rare *Echinoderma pseudoasperula* at Tubbobäcken!

Calcareous wet area along Tubbobäcken with *Alnus-Salix*, also herb-rich coniferous forest. *Botrychium virginianum* (one of two places in Medelpad) and *Cypripedium calceolus*. Bengt Larsson has guided to this fungus hot spot during many mycological workshops in Borgsjö. He lives with his family close to this area. In the *Alnus-Salix* brook valley Johan Nitare and Sigvard Svensson in 1989 found the rare *Echinoderma pseudoasperula* belonging to a very special "Lepiota society", see pp. 542–545 in the book of Johan Nitare and Skogsstyrelsen about "Skyddsvärd skog-naturvårdsarter" (44). We have hot spots in Medelpad with many small *Lepiota* species in *Alnus* forests on Alnö lime stone area, see article by Grundström-Tedebrand (11) and report from Swedish mycological meeting in Timrå 2014 at [www.myko.se](http://www.myko.se).

### Cathrin, Felix and Robin liked Tubbobäcken and forest west of Mörberget

In 1986 we looked during the Borgsjö week on the interesting wood fungi in *Polyporales*. Bengt Larsson guided a group with the Norwegian *Polyporales* expert Leif Ryvarden to the swampy old forests west of Mörberget with *Circaea alpina* covering the ground and much of big fallen coniferous wood. We found many *Polyporus* species among others *Steccherinum collabens*. Another day in 1986 we visited together with Ryvarden the virgin forest Björntjärn in Haverö parish and found a beautiful and rare crust fungi, later named *Phlebia ryvardenii* in honour of Leif. The only known site in Sweden for "auroraskinn". We have also studied mosses in the calcareous, wet forest west of Mörberget together with our friend Tomas Hallingbäck in September 1988 and found around more than 50 moss



Hans Marklund och Siw Muskos, Saint Olof inn, Borgsjö 1980. Photo: Ingrid Lundberg

species e.g. the beautiful *Saelania glaucescens* on uprooted trees (rotvältor). Tomas has published an excellent book: "Mossor – en fältguide" (Naturcentrum 2016). Bengt and Sofia Lundell led a moss excursion to this nature hot spot for "Mossornas vänner". Gunnar Selling at the Swedish Forest Agency protected the area as Habitat Protection Area. In another wet *Picea* forest not long from Mörberget Ilkka Kytövuori in 1995 found *Leucopaxillus subzonalis* (S). Karin Kellström has also found *L. subzonalis* in her own forest in Slätteråsen, Jämtland. Karin wrote about the sensational record in *Svensk Mykologisk Tidskrift* 2011/3. See more information about Tubbobäcken and the forest west of Mörberget in the Excursion guide pp. 130–131. Robin Dost, Cathrin Manz and Felix Hampe very much liked the forests around Tubbobäcken. Bengt Larsson accompanied them back to Tubbobäcken at the end of the week.





Lively discussions near Tubbobäcken. Photo: Bengt Larsson

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## 39 East of Långberget, Habitat Protection Area

Excursion guide pp. 134-135

**Ravine with subterranean brook and  
a rich biological diversity.  
28 aug. 2018**

**Guide:** Bengt Larsson

**Participants:** Gunnel Avehag, Rolf-Göran Carlsson, Inga-Lill Franzén, Stig Jacobsson, Kurt-Anders Johansson, Ellen Larsson, Jan Olsson, Anita Stridvall, Lennart Söderberg and Tero Taipale

Gunnar Selling at the Swedish Forest Agency has protected the rich brook ravine as Habitat Protection Area (biotopskydd), a perfect form for protection of smaller forest areas with many rare and redlisted fungi. Bengt Larsson guided here on 1 Sept. 1991. Irene Andersson, Arne Aronsen and Thomas Læssøe then found 16 *Mycena* species: *acicula*, *amicta*, *epipterygia*, *flavoalba*, *galericulata*, *galopus*, *haemotopus*, *metata*, *oregonensis*, *pterigena*, *pura*, *rubromarginata*, *sanguinolenta*, *speirea*, *stipata*, *vulgaris*. Irene found *Echinoderma jacobii* (UPS). Also big aspen

trees and aspen logs with *Ossicaulis lignatilis*. Rolf Lidberg noted on 1 Sept. 1991 interesting vascular plants: *Actaea spicata*, *Epipogium aphyllum*, *Galium triflorum*, *Hepatica nobilis*, *Lactuca muralis*, *Lathyrus vernus*, *Mattheuccia struthiopteris*, *Plantanthera bifolia*, *Polygonatum verticillatum*, *Viola mirabilis*.

Moist brook valleys with a lot of dead wood are good places for *Mycena* species. In 1984 Henning Knudsen, Håkan Lindström and Leif Örstadius visited a deep brook ravine at Alderängsås in Torp parish. They found the beautiful *Mycena renati* and also thousands of *Mycena polygramma* (UPS).

### Collections at the exhibition table with field form

*Clitocybe phyllophila*, Jan Olsson

*Cortinarius alboviolaceus*, *Betula*, *Picea*, Inga-Lill Franzén

*Cortinarius armillatus*, *Betula*, *Picea*, Inga-Lill Franzén

*Cortinarius citrinofulvescens* (= *callisteus*), Rolf-Göran Carlsson/Jan Olsson, conf. Stig Jacobsson

*Cortinarius collinitus*, *Picea*, Inga-Lill Franzén

*Cortinarius riederi*, *Picea*, Jan Olsson, det Anita Stridvall, conf. Karl Soop

*Fomitopsis rosea*, Rolf-Göran Carlsson

*Lactarius cyathuliformis*, *Alnus*, Jan Olsson, det. Kurt-Anders Johansson





Group photo, Mycena workshop in 1991. Photo: Nils Jansson

*Lactarius fennoscandicus*, *Picea*, Jan Olsson  
*Lactarius leonis*, Tero Taipale  
*Lactarius tuomikoskii*, *Picea*, Inga-Lill Franzén  
*Lactarius zonarioides*, *Picea*, Tero Taipale  
*Lycoperdon molle*, Rolf-Göran Carlsson  
*Pholiota lundbergii*, roadside, Stig Jacobsson  
*Ramaria karstenii*, Lennart Söderberg  
*Russula clavipes*, Tero Taipale  
*Russula favrei*, *Picea*, Tero Taipale  
*Russula olivobrunnea*, *Picea*, Jan Olsson, det. Lennart Söderberg  
*Russula olivobrunnea*, *Picea*, Tero Taipale  
*Russula queletii*, Tero Taipale  
*Tricholoma olivaceotinctum*, *Picea*, Lennart Söderberg, det. Stig Jacobsson  
*Tricholomopsis decora*, Jan Olson  
*Tubaria confragosa*, Anita Stridvall

### List of Mathias Lüderitz

**E**=eksiccatum, **D**=digital photo,  
**MB**=determination with microscope

*Clavariadelphus ligula*, E, MB  
*Delicatula integrella*  
*Entoloma pleopodium*  
*Entoloma rhodopolium* var. *fragrans*, E, MB  
*Lactarius representaneus*, D

*Marasmius siccus*, MB, E  
*Mycena cinerella*  
*Mycena diosma*, E, MB  
*Mycena laevigata*, Ellen Larsson, D, E  
*Ossicaulis cf lachnopus*, on rotten *Picea*, D, E, MB  
*Polyporus ciliatus*  
*Polyporus tubaeformis*, on *Salix*, D, E

### Jan Olsson wrote this list assisted by Rolf-Göran Carlsson and Ellen Larsson

*Albatrellus ovinus*  
*Amanita friabilis*  
*Amanita fulva*  
*Amanita muscaria* var. *anulosulphurea*  
*Amanita muscaria* var. *regalis*  
*Amanita vaginata*  
*Boletus edulis*  
*Byssomerulius purum*, Rolf-Göran Carlsson  
*Calocera viscosa*  
*Chalciporus piperatus*  
*Clavariadelphus cf ligula*  
*Clitocybe gibba*  
*Clitocybe odora*  
*Clitocybe phyllophila*  
*Clitopilus prunulus*  
*Collybia cirrhata*  
*Cortinarius albobviolaceus*





*Russula atroglauca* favoured by limerich soil and rather common in the limebelt of Mid Sweden. Felix Hampe collected *R. atroglauca* and is now waiting for DNA results.. Photo: Hjördis Lundmark

- |  |   |
|--|---|
| <i>Cortinarius brunneus</i>                  | <i>Laccaria laccata</i>                                 |
| <i>Cortinarius caperatus</i>                 | <i>Laccaria proxima</i>                                 |
| <i>Cortinarius duracinus</i>                 | <i>Lactarius cyathuliformis</i> , Kurt-Anders Johansson |
| <i>Cortinarius illuminus</i> , Jan Olsson    | <i>Lactarius fennoscandicus</i>                         |
| <i>Cortinarius septentrionalis</i>           | <i>Lactarius glyciosmus</i>                             |
| <i>Cudonia confusa</i>                       | <i>Lactarius leonis</i> , Kurt-Anders Johansson         |
| <i>Diatrype stigma</i> , Rolf-Göran Carlsson | <i>Lactarius representaneus</i>                         |
| <i>Entoloma nidorosum</i>                    | <i>Lactarius rufus</i>                                  |
| <i>Fomes fomentarius</i>                     | <i>Lactarius scrobiculatus</i>                          |
| <i>Fomitopsis pinicola</i>                   | <i>Lactarius tabidus</i> (=theiogalus)                  |
| <i>Gomphidius glutinosus</i>                 | <i>Lactarius torminosus</i>                             |
| <i>Gymnopilus penetrans</i>                  | <i>Lactarius trivialis</i>                              |
| <i>Gymnopus dryophilus</i>                   | <i>Lacrymaria lacrymabunda</i>                          |
| <i>Hydnum repandum</i>                       | <i>Leccinum aurantiacum</i>                             |
| <i>Hygrophoropsis aurantiaca</i>             | <i>Leccinum scabrum</i>                                 |
| <i>Hygrophorus piceae</i>                    | <i>Lentinellus</i> sp, Ellen Larsson                    |
| <i>Hygophorus pudorinus</i> (=persicolor)    | <i>Lycoperdon molle</i> , Rolf-Göran Carlsson           |
| <i>Inocybe geophylla</i>                     | <i>Megacollybia platyphylla</i>                         |
| <i>Inocybe mixtilis</i>                      | <i>Micromphale perforans</i>                            |
| <i>Laccaria bicolor</i>                      | <i>Mycena cinerella</i>                                 |





Evening mingle with wine and delicate local cheeses at the birthdays of Annemieke and Jeanette.  
Photo: Hjördis Lundmark

*Mycena flavoalba*  
*Mycena galericulata*  
*Mycena laevigata*  
*Mycena leptcephala*  
*Mycena pura*  
*Mycena rubromarginata*  
*Paxillus involutus*  
*Phellinus conchatus*  
*Phellinus nigricans*  
*Piptoporus betulinus*  
*Polyporus ciliatus*  
*Polyporus tubaeformis*  
*Reticularis lycoperdon*  
*Russula aeruginea*  
*Russula atroglauca*, det. Tero Taipale  
*Russula chloroides*  
*Russula favrei*  
*Russula fennoscandica*  
*Russula nitida*  
*Russula olivobrunnea*, Lennart Söderberg  
*Russula renidens*  
*Russula taigarum*  
*Russula versicolor*, det. Tero Taipale  
*Russula vinososordida*, det. Tero Taipale  
*Stereum subtomentosum*

*Trichaptum abietinum*  
*Tricholoma fulvum*  
*Tricholoma saponaceum*  
*Tricholomopsis decora*  
*Tricholoma inamoenum*  
*Tubaria conspersa*  
*Tubaria confragosa*  
*Xerocomus ferrugineus*

### Collections, UPS

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*Lactarius leonis*, *Picea*, Tero Taipale  
*Lactarius fuliginosus*, *Picea*, Tero Taipale  
*Lactarius obscuratus*, *Alnus*, Tero Taipale  
*Russula olivobrunnea*, *Picea*, Tero Taipale

### Comment, site 39, east of Långberget

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*Chalciporus piperatus* is according to FAN7 mycoparasitic, associated with *Amanita muscaria*.  
*Pholiota lundbergii* is named in honour of Lars Lundberg, founder of Östersund Mykologiska Förening.





*Hodophilus anatinus*, roadside at Sågåstjärn. Photo: Mathias Lüderitz

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## 40 Sågåstjärn, Svartberget

Excursion guide pp. 136

**Moist Picea forest, also marshes with *Alnus-Salix*. At the fen Glimyran Thomas Læssøe collected on 5 Sep. 1991 the alpine waxcap *Cuphophyllus cinerellus* "in acid red sphagnum" (K).  
28 aug. 2018**

**Guide:** Bengt Larsson

**Participants:** Gunnel Avehag, Rolf-Göran Carlsson, Inga-Lill Franzén, Stig Jacobsson, Kurt-Anders Johansson, Ellen Larsson, Jan Olsson, Anita Stridvall, Lennart Söderberg and Tero Taipale

### Selected earlier records:

*Lactarius deliciosus, deterrimus, glycosmus, 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 sphagnicola, Cortinarius colus, septentrionalis, Cuphophyllus cinerellus, Datronia stereoides, Flagelloschypha kavinae* (Læssøe, K), *Hebeloma atrobrunneum, infundibulicybe costata, Hygrophorus korhonenii, Mycena mirata, Otidea brunneoparva, Pholiota lubrica, Tricholoma olivaceotinctum.*





Jeanette is shining of happiness. Her mushroom dyeing resulted in a wonderful bluegreen colour!  
Photo: Hjärdís Lundmark

### Collections at exhibition table with field form

*Amanita porphyria*, Picea, Pavel Nedelev  
*Cantharellus lutescens*, Picea, Pinus, Pavel Nedelev  
*Cortinarius alnetorum*, Jan Olsson  
*Cortinarius balteatus*, Bengt Larsson, det. Stig Jacobsson  
*Cortinarius spilomeus*, Picea, in bog, Jan Olsson  
*Entoloma turbidum*, moist Picea forest, Jan Olsson  
*Gyrodon lividus*, Alnus swamp, Jan Olsson  
*Hebeloma helodes*, Jan Olsson  
*Kuehneromyces mutabilis*, Jan Olsson  
*Lacrymaria lacrymabunda*, roadside, Stig Jacobsson  
*Lactarius pubescens*, Betula, Stig Jacobsson  
*Lactarius representaneus*, Rolf-Göran Carlsson, Kurt-Anders Johansson, Anita Stridvall  
*Lactarius scrobiculatus*, Picea, Inga-Lill Franzén  
*Lactarius trivialis*, Betula, Picea, Inga-Lill Franzén  
*Paxillus filamentosus*, Alnus bog, Gunnel Avehag  
*Phellinus nigricans*, Rolf-Göran Carlsson  
*Suillus flavidus*, Rolf-Göran Carlsson

**Writer: Jan Olsson assisted by Rolf-Göran Carlsson and Ellen Larsson**

*Amanita submembranacea*  
*Agaricus langei*  
*Auriscalpium vulgare*  
*Chalciporus piperatus*  
*Collybia cookei*  
*Cortinarius alboviolaceus*  
*Cortinarius alnetorum*  
*Cortinarius anomalus*  
*Cortinarius armillatus*  
*Cortinarius brunneus*  
*Cortinarius laniger*  
*Cortinarius sanguineus*  
*Cortinarius saniosus*  
*Cortinarius trivialis*  
*Entoloma nidorosum*  
*Exidia candida* var. *cartilaginea*  
*Fomes fomentarius*  
*Fomitopsis pinicola*  
*Fuligo septica*  
*Gymnopilus penetrans*  
*Gymnopus dryophilus*  
*Hebeloma helodes*  
*Inocybe lanatodisca*, Ellen Larsson  
*Inocybe lindrothii*, Ellen Larsson  
*Inocybe mixtilis*  
*Inocybe nematoloma*, Ellen Larsson  
*Inocybe rivularis*, Ellen Larsson  
*Kuehneromyces mutabilis*  
*Laccaria laccata*  
*Lactarius cf auriolla*, Rolf-Göran Carlsson  
*Lactarius deterrimus*  
*Lactarius helvus*  
*Lactarius necator*  
*Lactarius scrobiculatus*  
*Lactarius tabidus*  
*Lactarius torminosus*  
*Lactarius trivialis*  
*Lactarius uvidus*  
*Leccinum melaneum*  
*Leccinum vulpinum*  
*Lepiota magnispora*  
*Megacolybia platyphylla*  
*Mycena epipterygia*  
*Mycena galericulata*  
*Mycena haematopus*  
*Mycena rubromarginata*  
*Mycena vitilis*  
*Naucoria escharioides*  
*Paxillus filamentosus*  
*Phellinus cinereus*  
*Phellinus nigricans*

*Piptoporus betulinus*  
*Pucciniatrum areolatum*, *Picea* cone  
*Russula aeruginea*  
*Russula atroglauca*  
*Russula claroflava*  
*Russula clavipes*  
*Russula decolorans*  
*Russula favrei*  
*Russula nitida*  
*Russula paludosa*  
*Russula queletii*  
*Suillus flavidus*  
*Suillus luteus*  
*Tricholoma fulvum*

### List by Rolf-Göran Carlsson, Kurt-Anders Johansson, rich fen

*Cantharellus lutescens*  
*Collybia cirrhata*  
*Collybia cookei*  
*Cortinarius scaurus*  
*Cortinarius septentrionalis*  
*Cortinarius spilomeus*  
*Entoloma pseuocoelestinum*  
*Gyrodon lividus*  
*Inocybe nematoloma*  
*Inocybe nitidiuscula*  
*Lactarius representaneus*  
*Lactarius scoticus*  
*Lactarius uvidus*  
*Leccinum variecolor*  
*Paxillus filamentosus*  
*Ramaria apiculata*  
*Russula betularum*  
*Russula griseascens*  
*Suillus flavidus*

### Writer: Mathias Lüderitz, moist forest, moor

*Amanita fulva*  
*Entoloma albotomentosum*, among detritus and sphagnum, D, E, MB  
*Entoloma undatum*, E, MB  
*Lactarius glyciosmus*  
*Lactarius helvus*  
*Lactarius scoticus*  
*Leucoscypha leucotricha*, with *Betula*  
*Russula claroflava*

### Writer Mathias Lüderitz, roadside

*Hodophilus anatinus*, spec. 1, D, E, MB, det. S. Adamčík & M. Lüderitz, sequenced

*Hodophilus anatinus* spec. 2, det. S. Adamčík & M. Lüderitz, sequenced  
*Hygrocybe conica* var. *conica*

### Comment, site 40, Sågåstjärn-Svartberget

*Entoloma albotomentosum*, Funga Nordica (2012) say: "On debris of grasses and sedges in marshy places, very rare or overlooked in temp-hemib." Few finds in Sweden. See also pp. 135 in Danmarks Svampeatlas (15). Hans von Eichwald describe a collection of *E. albotomentosum* with photo, determined by Leif Örstadius, in the review Jordstjärnan 19 (1), 1998. Johan Myhrer found *E. albotomenotum* in 2018 near Vadeån in Bergsjö parish, Hälsingland.

*Inocybe lindrothii* (P. Karsten) Vauras & E. Larss. is described in *Karstenia* 54: 25 (2014)

*Leucoscypha leucotricha*. In 2014 Ove Eriksson published: "Checklist of the non-lichenized ascomycetes of Sweden". At page 150 Ove refers to two old findings of *Leucoscypha leucotricha*: Södermanland 1849 (Fries) and Stockholm, Ugglevikskärret in 1888 (Romell). In 2018 Johan Myhrer found the species in northern Hälsingland. Anita Stridvall has also finds in Västergötland 1981 (together with Leif Stridvall) and in 2003.

### Mathias found *Hodophilus* (*Camarophyllopsis*) *anatinus* at Sågåstjärn

On some calcareous courtyards, meadows, roadsides we find species in *Hodophilus* (= *Camarophyllopsis*). The genus *Camarophyllopsis* was observed already in 1980 by Håkan Lindström in his study of fungi and vascular plants on old meadows (31). Species in *Hodophilus* have been considered as difficult to determine. Slavomir Adamčík published last year an article about *Hodophilus* together with Balint Dima, Sona Jancovicova and others. They revealed from phylogenetic studies that *C. micacea* is 6 species. Slavomir tells in a mail on 21 June 2019: "There were two collections at August 28 collected by Mathias Lüderitz in calcareous roadside at Sågåstjärn, Svartberget. We sequenced them and they are both *Hodophilus anatinus* Dima, Adam ík and Jan ovi ová, described last year". During good mushroom years (= warm and rainy) we find species in *Entoloma*, *Geoglossum*, *Hygrocybe* and other meadow fungi on calcareous grassy and mossy sides of forests roads in the Borgsjö area. During the *Cortinarius* workshop in 2010 Marjo and Nico Dam found along the roadside to Marktjärn in Torp parish and about 2 kilometres from highway E 14 *Camarophyllopsis foetens* and *C. micacea* s.l. On the fantastic roadside at Tysjöarna in Jämtland (the most beautiful road side in Sweden with *Cypripedium* plants) *Entoloma korhonenii* was found on 2 Sept. 2016 and sequenced by Balint Dima.





*Lactarius lapponicus*, Vigge, Stöde parish.  
Painting by Tanja Böhning





*Lactarius lapponicus*. Photo: Mathias Lüderitz

## STÖDE PARISH

15456;69119

### 45 Vigge, Högänge nature reserve

Excursion guide pp. 140

Forest

#### List of Tanja Böhning

*Agaricus silvaticus*  
*Agrocybe arvalis*  
*Amanita muscaria* var. *muscaria*  
*Chondrostereum purpureum*, D  
*Climacocystis borealis*  
*Clitocybe platyphylla*  
*Flammulina fennae*, D, E, MB  
*Galerina triscopa*, MB  
*Inocybe cincinnata*, D, MB  
*Inocybe mixtilis*, D, MB  
*Laccaria laccata* var. *pallidifolia*, Mathias Lüderitz, with *Alnus* and *Betula*  
*Lactarius duplicatus* (=lapponicus), D, E, MB, conf. A. Verbeken, aquarelle Tanja Böhning  
*Lactarius subcircellatus*, Mathias Lüderitz, D, e, MB, conf.

Tero Taipale  
*Mycena galericulata*  
*Mycena pura*  
*Pholiota alnicola*, D  
*Polyporus brumalis*  
*Russula claroflava*, Mathias Lüderitz, with *Betula* in *spaghnum*  
*Russula pelargonica*, *Betula-Picea*, det. Tero Taipale,  
*Russula versicolor*, *Betula-Picea*, det. Tero Taipale

#### Comment, site 45, Vigge, Högänge

*Lactarius duplicatus* ("lappriskä" in Swedish), is an alpine species and the only find during *Russulales* in Borgsjö. Congratulations Tanja! The map in Artportalen just shows dots in alpine region. Ilkka Kytövuori found *L. duplicatus* in a snowbed (snölega) at Lillåsen in Ramundberget during mycological week in Härjedalen 2006. Tanja now found *L. duplicatus* east of the road from Vigge to Matfors and near the place where simmental cows are grazing. We have earlier found *L. duplicatus* in wet place with tall herbs like *Aconitum* along the river Selångerån and also at Stornäset nature reserve at the Bothnian coast. Kjell Olofsson collected *L. lapponicus* in *Betula-Picea* forest with tall herbs at Liden, Brattfallet on 21 Aug. 1984 (UPS).



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

# Hälsingland

## LJUSDAL PARISH

### Hennan

Not in the Excursion Guide

### Collections of Tero Taipale on exhibition table with field form

*Lactarius fennoscandicus*  
*Lactarius fuliginosus*  
*Lactarius necator*  
*Lactarius tabidus*  
*Lactarius torminosus*

*Lactarius trivialis*  
*Lactarius vietus*  
*Russula aquosa*  
*Russula atroglaucula*  
*Russula claroflava*, *Betula*, *Picea*, UPS  
*Russula decolorans*  
*Russula grisescens*, *Picea*, UPS  
*Russula nitida*, *Picea*, UPS  
*Russula paludosa*  
*Russula renidens*  
*Russula taigarum*, *Picea*  
*Russula versicolor*  
*Russula vinosa*, *Picea*



# Jämtland

## Östersund Mykologiska Förening (ÖMF)

Karin Kellström is today president of ÖMF. During Russulales in Borgsjö 2018 a group visited parks in Östersund guided by Karin Kellström, Bengt Petterson and Jeanette Södermark. At the park Lillskogen some of us also visited Ingrid and Lars Lundberg in their house close to the park. Lars is today 97 years of age. In 1977 he initiated the start of ÖMF, was president 1977–1997, arranged together with friends the Nordic Mycological Congress at Birka in Jämtland in 1982 and also the Swedish mycological weeks in Jämtland, Edsåsdalen 1984 and in Härjedalen, Hamra 2006. Lars has collected fungi at many occasions all over Härjedalen and Jämtland together with his friend Stig Jacobsson.

Håkan Lindström also made an inventory of fungi for the county government at Rannåsen in 2006 together with Lars Lundberg. They found among others *Russula olivobrunnea* and *R. rivularis*. In 2017 Lars was awarded Sveriges Mykologiska Förening's "Golden knife" for his mycological work together with Elisabeth Bååth from Umeå. Now Lars was happy to have us looking for fungi in his own home park Lillskogen. Jämtlands Botaniska Sällskap (JÄBS) make an inventory of vascular plants in Jämtland and publish the review Rödlobläran in cooperation with Medelpads Botaniska Förening. Staffan Åström is president of JÄBS.

## Fascinating calcareous coniferous forests with calcium carbonate (kalkbleke) at the lime plate in Jämtland

The province Jämtland and the western parts of the provinces Medelpad and Ångermanland have the largest calcareous land area in Sweden, see map below. Only in Jämtland more than 100,000 plants of the orchid *Cypripedium calceolus* (lady's slipper) are flowering in June, the richest occurrence in Europe of this magnificent orchid. There are today hundreds of old, discontinued limestone quarries at the lime plate in central Jämtland and also hundreds of places with bog lime.

A fantastic botanical and mycological paradise! We have visited Tysjöarna nature reserve with one of the largest deposits in the world of calcium carbonate (kalkbleke in Swedish) at an area of 90 hectares and about 25 meter thick layer. During the "Journées Européennes du Cortinaire" in Borgsjö 2016 Tor Erik Brandrud led a memorable excursion to Tysjöarna. They found 51 *Cortinarius* species and also other interesting fungi like *Entoloma korhonenii* and the southern *Lactarius citriolens*, see pp. 115–118 in the report: [www.myko.se/wp-content/uploads/2014/05/Svamprapport\\_Borgsjo\\_2016.pdf](http://www.myko.se/wp-content/uploads/2014/05/Svamprapport_Borgsjo_2016.pdf)



Map over calcareous areas in Sweden.

## Fillstabäcken-a classic mycological hot spot

Another fascinating area in Jämtland with "kalkbleke" is Fillstabäcken nature reserve. We have several times visited Fillstabäcken together with Rolf Lidberg and Siw Muskos to observe and enjoy orchids like *Ophrys insectifera* and rare fungi like *Agaricus augustus*, *Cortinarius inexpectatus*, *Inocybe tricolor*, *Ramaria fennica*, *Tricholoma borgsjoeense*. Håkan Lindström found at Fillstabäcken three *Cortinarius* species in section *Bovini*: *C. anisochrous*, *fuscovinaster* and *oulankensis*. Håkan described this three *Cortinarius* species in *Mycologia* 105 (4) pp 977–993 together with Tuula Niskanen, Ilkka Kytövuori and Kare Liimatainen. Jan-Olof and Siw Muskos found 9 July 2000 *Cortinarius inexpectatus* Brandrud on lake marl and near *Ophrys insectifera* in Fillstabäcken nature reserve. Anki Suneson found an enormous *Boletopsis leucomelanea* on 2 Sept. 1997, broad as a Swedish "dasslock". Ellen Larsson visited Fillstabäcken after *Russulales* workshop 2018 and found "olympic fairy rings" of *Hygrophorus pudorinus*. The geological society of Jämtland and Härjedalen has at their site a popular and informative text in Swedish by Monica Kämpe about the limestone area in central Jämtland: [www.geonord.se/org/JAGS/pdfiler/Kalkm.PDF](http://www.geonord.se/org/JAGS/pdfiler/Kalkm.PDF)

## BRÄCKE PARISH

6959260;1480480

## 55 Bräcke churchyard

Excursion guide pp. 160

**Pinus park and churchyard along a brook and near the beautiful church, built of wood in 1859.  
31 Aug. 2018**

## Collections at exhibition table with field form

*Inocybe melanopus*, *Pinus*, Ellen Larsson  
*Leccinum melaneum*, *Betula*, Rolf-Göran Carlsson  
*Rhizopogon roseolus*, *Pinus*, Rolf-Göran Carlsson det. Jan Olsson  
*Russula subfoetens*, Kurt-Anders Johansson, Anita Stridvall

## List by Francesco Bellu

*Boletus pinophilus*  
*Chroogomphus rutilus*  
*Clitopilus cystidiatus*  
*Hohenbuhelia petaloides*  
*Hygrophopsis aurantiaca*  
*Laccaria bicolor*  
*Lactarius deliciosus*  
*Rhodocybe hirneola*  
*Russula acrifolia*  
*Suillus granulatus*  
*Thelephora terrestris*  
*Xerocomus ferrugineus*

## List by Anders Aronsson, Mats Karlsson, Tony Svensson

*Lycoperdon nigrescens*  
*Pluteus atromarginatus*  
*Rhizopogon luteolus*  
*Suillus luteus*

## List by Herbert Kaufmann

*Hohenbuhelia geogenia*, HK 18280  
*Hygrocybe acutoconica* var. *acutoconica*

6956317;1480368

## 56 Bodtjärnbäcken

Excursion guide pp. 160-162

28 Aug. 2018

Guide: Jan-Olof Tedebrand

A small herbrich brook valley with *Alnus*, *Salix*, *Picea* along Bodtjärnbäcken in moist, northern slope near "Sjöändan" in the big lake Revsundsjön and a classic stop during our excursion trips to the village Sidsjö. The oldest way with a stone bridge passes the ravine. Old mossy blueberry *Picea* forest with *Cicerbita alpina* and *Moneses uniflora*. Rare *Cortinarius* species in the brook valley like *C. cupreorufus* and *C. argillaceosericeus*. During the *Lactarius* workshop in 1997 Maria Teresa Basso and others found 20 species of *Lactarius* here as *L. aquizonatus* and *leonis* (now refound by Birgitta Wasstorp), see page 13 in the report from the *Lactarius* workshop in 1997.

## Collections at exhibition table with field form

*Cortinarius duracinus*, *Picea*, Kristoffer Stighäll, det. Birgitta Wasstorp  
*Cortinarius illuminus*, Birgitta Wasstorp  
*Cortinarius rusticus*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Cortinarius septentionalis*, *Betula*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Hygrophorus erubescens*, *Picea*, *Pinus*, Kristoffer Stighäll, det. Birgitta Wasstorp  
*Hygrophorus korhonenii*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Hygrophorus pudorinus*, *Picea*, Kristoffer Stighäll, det.



Birgitta Wasstorp  
*Lactarius olivinus*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Lactarius representaneus*, *Picea*, Kristoffer Stighäll, det. Birgitta Wasstorp  
*Lactarius scrobiculatus*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Lactarius zonarioides*, *Picea*, *Pinus*, Birgitta Wasstorp  
*Russula fennoscandica*, *Picea*, *Pinus*, Birgitta Wasstorp  
*Russula integra*, *Picea*, *Pinus*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Russula nauseosa*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Thelephora caryophyllea*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson

### List by Hjördis and Tanja Böhning

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*Entoloma lupinum*, Hjördis Böhning and Tanja Böhning, det. Kai Reschke, KaiR1250

### List by Anders Aronsson, Mats Karlsson, Tony Svensson

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*Albatrellus confluens*  
*Albatrellus ovinus*  
*Amanita porphyria*  
*Bisporella citrina*  
*Cortinarius armillatus*  
*Cortinarius brunneus*  
*Cortinarius caperatus*  
*Cortinarius cinnamomeus*  
*Cortinarius collinitus*  
*Cortinarius croceus*  
*Cortinarius delibutus*  
*Cortinarius laniger*  
*Cortinarius rieder*  
*Cortinarius rusticus*  
*Cortinarius sanguineus s. lato*  
*Cortinarius septentrionalis*  
*Cortinarius subtortus*  
*Cortinarius trivialis*  
*Cortinarius venustus*  
*Cystoderma granulosa var. granulosa*  
*Gymnopus acervatus*  
*Hydnellum peckii*  
*Hydnum repandum*  
*Hygrophorus camarophyllus*  
*Hygrophorus olivaceoalbus*  
*Hygrophorus pudorinus*  
*Inocybe geophylla*  
*Lactarius aquizonatus*  
*Lactarius badiosanguineus*  
*Lactarius deterrimus*

*Lactarius olivinus*  
*Lactarius rufus*  
*Lactarius scrobiculatus*  
*Lactarius torminosus*  
*Lactarius tuomikoskii*  
*Marasmiellus perforans*  
*Mycena galericulata*  
*Pholiota lubrica*  
*Pluteus cervinus*  
*Rhodocollybia maculata*  
*Ramaria testaceoflava*  
*Rhodocollybia fodiens*  
*Russula aquosa*  
*Russula favrei*  
*Russula gracillima*  
*Russula grisescens*  
*Russula integra*  
*Russula nauseosa*  
*Russula paludosa*  
*Russula rhodopus*  
*Russula sanguinea*  
*Russula turci*  
*Russula velenovskyi*  
*Russula vinosa*  
*Sarcodon imbricatus*  
*Spathularia rufa*  
*Suillus variegatus*  
*Xeromphalina caucinalis*

### List by Kristoffer Stighäll (KS) and Birgitta Wasstorp (BW)

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*Albatrellus confluens*, KS  
*Albatrellus ovinus*, KS  
*Calocera viscosa*, KS  
*Chalciporus piperatus*, BW  
*Clavaria purpurea*, KS  
*Cortinarius brunneus*, BW  
*Cortinarius balteatus*, BW  
*Cortinarius brunneus*, BW  
*Cortinarius camphoratus*, BW  
*Cortinarius caperatus*, KS  
*Cortinarius duracinus*, BW  
*Cortinarius gentilis*, BW  
*Cortinarius illuminus*, BW  
*Cortinarius limonius*, BW  
*Cortinarius malachius*, BW  
*Cortinarius multiformis*, BW  
*Cortinarius sanguineus*, BW  
*Cortinarius traganus*, BW  
*Cortinarius trivialis*, BW  
*Gomphidius glutinosus*, KS  
*Hygrophorus erubescens*, BW  
*Hygrophorus inocybiformis*, KS, det. Ellen Larsson, Stig J



*Hygrophorus korhonenii*, BW  
*Hygrophorus piceae*, KS  
*Hygrophorus pudorinus*, BW  
*Laccaria laccata*, BW  
*Lactarius badiusanguineus*, BW  
*Lactarius fennoscandicus*, BW  
*Lactarius leonis*, BW  
*Lactarius mammosus*, BW  
*Lactarius repraesentaneus*  
*Lactarius rufus*, BW  
*Lactarius tuomikoskii*  
*Lactarius trivialis*, BW  
*Lactarius vietus*, BW  
*Lactarius zonarioides*, BW  
*Lepiota magnispora*, BW  
*Ramaria karstenii*, KS, det. Lennart Söderberg  
*Ramaria* sp, undescribed species, KS, det. Lennart Söderberg  
*Russula atrorubens*, BW  
*Russula consobrina*, BW  
*Russula decolorans*, BW  
*Russula firmula*, BW  
*Russula griseascens*, BW  
*Russula paludosa*, BW  
*Russula rhodopoda*, BW  
*Russula vinosa*, BW

### List by Jan-Olof Tedebrand

*Clitocybe odora*  
*Hygrophorus camarophyllus*  
*Lactarius deterrimus*  
*Lactarius olivinus*  
*Lactarius rufus*  
*Lactarius scrobiculatus*  
*Lactarius torminosus*  
*Lactarius uvidus*  
*Phellinus conchatus*  
*Russula acrifolia*  
*Russula alnetorum*  
*Russula puellaris*  
*Spathularia flavida*  
 Jochen Girwert found *Entoloma conferendum*, det. Kai Reschke, KaiR1251  
*Entoloma sericatum*, det. Kai Reschke, KaiR1263

### Collections UPS

*Hygrophorus inocybiformis*, *Picea*, Kristoffer Stighäll, det. Ellen Larsson-Stig Jacobsson  
*Lactarius tuomikoskii*, *Picea*, Anders Aronson, Mats Karlsson, Tony Svensson  
*Ramaria karstenii*, *Picea*, Kristoffer Stighäll, det. Lennart Söderberg

*Russula consobrina*, *Picea*, Birgitta Wasstorp  
*Russula paludosa*, Anders Aronson, Mats Karlsson, Tony Svensson

### Comment, site 56, Bodtjärnsbäcken

*Entoloma lupinum* is described as new for science by Katri Kokkonen in Mycol. Progress (2015), 14:116. She write: "Etym.: named after *Lupus lupus* (wolf), still living in the region. Both species are grey-brown and rare. Holotype: Finland, Kainuu, Paltamo Municipality, west of Saukkovaara, ca. 300 m west of Tolola, forest dominated by *Picea abies*, moist and rich site, near *Picea*, *Betula*, *Pinus sylvestris*, *Alnus incana*, *Lycopodium annotinum*, *Vaccinium myrtillus*, *Rubus saxatilis*, *Gymnocarpium dryopteris*, *Geranium sylvaticum*, *Oxalis acetosella* and *Phegopteris connectilis*, Grid 27°E: 71489–90:35573–4, 17.VIII.2014 K." The Finnish type locality in moist and rich *Picea* forest with *Alnus*, *Betula* and *Pinus* is similar to the moist, rich forest at Bodtjärnsbäcken. *Entoloma lupinum* was also found by Machiel Noordeloos at Gammelbodarna, Borgsjö, in august 1985 on the meadow or in rich forest near the meadow. Machiel write in mail from 27 July 2018: "I identified it as *Entoloma kuehnerianum*, but now ITS has been isolated from it and to my surprise It appears to have 100 percent match with the recently described *Entoloma lupinum* Kokkonen. So you can list *E. lupinum* as a species new to the area and cross out *E. kuehnerianum*". *Entoloma lupinum* is not mentioned in Artportalen.

*Lactarius leonis* is a good indicator species for rich brook valleys.

*Lactarius scrobiculatus*, Stefanie de Schrijver was fascinated by groups of enormous big and beautiful fruitbodies of *L.scrobiculatus* down in the brook valley together with herbs like the northern *Cicerbita alpina*.

*Russula integra* is reported from many places in Jämtland and Medelpad. During the *Russula* workshop in Borgsjö 2001 we found a similar species, *Russula integriformis* Sarnari, in many moist, calcareous forests. Ruotsalainen and Vauras meant that *R. integriformis* is most common in northern Scandinavia and is replaced by *R. integra* in southern Scandinavia. *R. integriformis* has smaller spores. There are also other differences between the two species.



# HÄLLESJÖ PARISH

1506825;6961655

## 59 Djupdalsbäcken

Excursion guide pp. 168–169

31 Aug. 2018

**Guide:** Mats Dynesius

**Participants:** Slavomir Adamčík, Anders Aronson, Francesco Bellu, Miroslav Cabon, Sona Jancovicova, Herbert Kaufmann, Mats Karlsson, Gunilla Kärrfelt, Ellen Larsson, Lars G Ljungberg, Mathias Lüderitz, Pavel Nedelev, Ludmila Nedeleva and Tony Svensson.

Djupdalsbäcken is a fantastic nature hot spot. Here in the old calcareous *Picea* forest we find hundreds of the magnificent and rare *Catathelasma imperiale*! We also find more than 20 000 plants of the eastern fern *Diplazium sibiricum* (we counted them a summer day in 2018) in a deep and long brook ravine surrounded by more common coniferous forests! *Diplazium sibiricum* is a so called "huldreplant" that occurs on some isolated places from Norway (Gudbrandsdalen), Sweden (Djupdalsbäcken, Kvikkjokk) to Siberia (76). We mostly find this "huldreplants" in fertile forests, often in ravines and brook valleys. The climate in the deep brook valley of Djupdalsbäcken is cold and moist. Among vascular plants: *Aconitum lycoctonum* subsp. *septentrionale*, *Actaea spicata*, *Epipogium aphyllum*, *Hepatica nobilis*, *Ranunculus lapponicus*, *Viola selkirkii*. At Djupdalsbäcken we find *Lactarius* and *Russula* species belonging to the finest northern calcareous coniferous forests ("kalkbarrskogar"). *Haploporus odoratus* has been found on 12 big *Salix caprea* trees, spreading a smell of perfume in the ravine in the mild summer wind mixed with a faint smell of the orchid *Plathantea bifolia*. An exclusive and strong nature experience! Matthias Lüderitz said about Djupdalsbäcken: "the best mycological excursion site for me during the week". Slavomir said: "Fantastic, hundreds of *Catathelasma* along the brook. I have just seen it once in Norway".

Håkan Lindstöm guided a group of mycologists, among others Nils Lundqvist and Birgitta Wasstorp, to Djupdalsbäcken during the Borgsjö seminar in 1999. They also visited Ann Klensmeden at Åsberget's Gårdsmejeri ([www.asberget.se](http://www.asberget.se)) and bought delicious local cheeses, see pp. 13–14 in report.

Thanks to Per Sander and his colleagues at the county

government of Jämtland Djupdalsbäcken is today a nature reserve.

In 1996 Magnus Johansson made an inventory of wood fungi in "Lungsjöskogen", also in Hällesjö parish, by commission of the forest company SCA. Magnus found many rare and redlisted wood fungi e.g. *Phlebia coccineofulva* ("praktvaxskinn" in Swedish), the only site in Sweden for this beautiful dark winered-violet-orange crust fungi. The rare insect *Xylomya czekanovskii* (karelsk barkfluga) is found here on enormous aspen logs. Today Lungsjöskogen is an interesting nature reserve with many *Lactarius*, *Russula* and other ectomycorrhiza fungi bound to aspen, birch and willow trees. Magnus also made inventories of wood fungi in some old forests in western Medelpad. He stayed at the youth hostel in Borgsjö during his inventories.

Carl-Johan Wikström is biologist and has been employed by the county government of Jämtland. He wrote in a mail on 8 Oct. 2019 on lichens at Djupdalsbäcken:

"Åren 1998, 2001 och 2015 inventerade jag i ett forskningsprojekt lavar i bäcksfogar. Provytan på 20 x 50 meter i Djupdalsbäcken utgjorde en av flera referenser i skyddade skogsmiljöer. Ett urval lavararter av naturvårdsintresse inventerades, med några undantag bl a noterades samtliga knappåslavar (*Caliciales*). Totalt fanns 19 olika arter knappåslavar och 10 rödlistade lavararter i provytan. Rödlistade arter som här särskilt kan nämnas är liten svartspik *Chaenothecopsis nana* (NT), smalskaftad nållav *Chaenotheca gracilentia* (VU), vitskaftad svartspik *Chaenothecopsis viridialba* (NT), brunpudrad nållav *Chaenotheca gracillima* (NT), vitgrynig nållav *Chaenotheca subroscida* (NT), lunglav *Lobaria pulmonaria* (NT) och violettgrå tagellav *Bryoria nadvornikiana* (NT).

Liten svartspik är en förbisedd art, som har hittats frekvent i många provtytor. Violettgrå tagellav förekom rikligt i Djupdalsbäcken, men även i flera andra provtytor i Bräckeområdet. Arter ofta funna i fuktig bäckskogsmiljö är vitskaftad svartspik, brunpudrad nållav och vitgrynig nållav.

Den vitgryniga nållaven har nyligen blivit rödlistad och eftersom jag har hittat den ofta på äldre granstammar i bäckskogsmiljöer i Jämtland blev jag lite förvånad över rödlistningen. Men efter stormen IVAR den 17 december 2013 har jag insett att denna art kan vara mycket sårbar om omgivande miljö förändras. IVAR orsakade stor förödelse i provytan i Djupdalsbäcken. Flera träd blåste omkull och skapade stora luckor i trädbeståndet. Stabila substrat, som stående träd, gamla rotvältor etc., ändrade plötsligt läge. Detta gjorde att flera arter försvann eller minskade i frekvens. Den vitgryniga nållaven hade år 2015 minskat i frekvens med 60 procent sedan inventeringen år 2001.



Utanför provytan i Djupdalsbäcken finns förstås flera intressanta lavararter bl a är skrovellav *Lobaria scrobiculata* (NT) och trådbrosklav *Ramalina thrausta* (EN) noterade.”

Kristoffer Hylander is ecologist and moss researcher at Stockholm university. He wrote in a mail on 29 April 2019: ”Jag har varit och inventerat en provyta på 20 x 50 meter strax uppströms beståndet av ryssbräken. Allt jag sett där finns inlagt på artportalen, men jag kan nämna några intressanta fynd. Den senaste gången jag var där och inventerade var 2009 och då var även Henrik Weibull med och vi hittade ytterligare lite roliga saker som jag inte sett 1998 och 2001. *Scapania apiculata* - jag hittade den 1998, men 2001 var den borta eller hade väldigt få skott. Sedan 2009 var den mycket riklig vilket var glädjande. Andra vedspecialister som jag hittat där är *Lophozia ascendens*, *Anastrophyllum helle-rianum* och *Lophozia longiflora*, *Herzogiella turfacea*. Några arter som är relativt frekventa i södra Sverige men här på sin absoluta nordgräns är *Buxbaumia viridis* och *Herzogiella seligeri*. Henrik hittade *Eremonotus myriocarpus*, en mycket liten levermossa i bäcken som annars mest finns i fjällen. Jag har rapporterat *Cynodontium fallax*, men känner mig nu i efterhand osäker på bestämningen av den.”

### Collections at exhibition table with field form

*Catathelasma imperiale*, *Picea*, Gunilla Kärrfelt  
*Cortinarius balteatus*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Cortinarius betulinus*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Cortinarius cyanites*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Cortinarius emunctus*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Cortinarius ionosmus*, *Betula-Picea-Pinus*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Cortinarius percomis*, *Picea*, Gunilla Kärrfelt  
*Cortinarius riederi*, Anders Aronsson, Mats Karlsson, Tony Svensson, det. Stig Jacobsson  
*Cortinarius scaurus*, *Picea-Pinus*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Helvella macropus*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Hydnellum aurantiacum*, *Picea*, *Pinus*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Lactarius aurioilla*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Lactarius resimus*, *Betula-Picea-Pinus*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Lactarius tuomikoskii*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Leccinum albostipitatum*, *Populus*, Pavel Nedelev  
*Ramaria suecica*, *Picea*, Anders Aronsson, Mats Karlsson,

Tony Svensson  
*Rhizopogon sp*, *Pinus*, Slavomir Adamçik  
*Russula atrorubens*, *Betula*, *Picea*, *Pinus*, Miroslav Cabon  
*Russula chloroides*, *Betula*, *Picea*, *Pinus*, Slavomir Adamçik  
*Russula consobrina*, *Betula*, *Picea*, *Pinus*, Slavomir Adamçik  
*Russula decolorans*, *Betula-Picea-Pinus*, Slavomir Adamçik  
*Russula favrei*, *Betula*, *Picea*, Slavomir Adamçik  
*Russula formula*, *Betula*, *Picea*, Miroslav Cabon  
*Russula foetens*, *Betula*, *Picea*, *Pinus*, Sona Jancovicova  
*Russula gracillima*, *Betula*, *Picea*, *Pinus*, Slavomir Adamçik  
*Russula grisescens*, *Picea*, Miroslav Cabon  
*Russula lutea*, *Betula*, *Picea*, *Pinus*, Slavomir Adamçik  
*Russula olivina*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Russula paludosa*, *Picea*, *Pinus*, Slavomir Adamçik  
*Russula pubescens*, *Picea-Pinus*, Anders Aronsson, Mats Karlsson, Tony Svensson, det. Lennart Söderberg  
*Russula rhodopoda*, *Betula*, *Picea*, *Pinus*, Miroslav Cabon  
*Russula queletii*, *Betula*, *Picea*, *Pinus*, Francesco Bellu, det. Slavomir Adamçik  
*Russula vinososordida*, *Betula*, *Picea*, *Pinus*, Slavomir Adamçik  
*Tricholoma olivaceotinctum*, *Betula-Picea-Pinus*, Anders Aronsson, Mats Karlsson, Tony Svensson

### List by Anders Aronsson, Mats Karlsson, Tony Svensson. They listed 100 fungi species!

*Albatrellus ovinus*  
*Amanita crocea*  
*Amanita muscaria* var. *regalis*  
*Amanita vaginata* var. *vaginata*  
*Cantharellula umbonata*  
*Catathelasma imperiale*  
*Chalciporus piperatus*  
*Chlorociboria aeruginascens*  
*Clitocybe odora*  
*Clitocybula platyphylla*  
*Collybia tuberosa*  
*Cortinarius armillatus*  
*Cortinarius balteatus*  
*Cortinarius betulinus*  
*Cortinarius brunneus*  
*Cortinarius camphoratus*  
*Cortinarius collinitus*  
*Cortinarius cyanites*  
*Cortinarius emunctus*  
*Cortinarius harcynicus*  
*Cortinarius ionosmus*



*Cortinarius laniger*  
*Cortinarius malicorius*  
*Cortinarius multiformis*  
*Cortinarius riederi*  
*Cortinarius scaurus s.lat.*  
*Cortinarius varicolor*  
*Cortinarius venustus*  
*Craterocolla cerasi*  
*Entoloma dysthaloides, det. Kai Reshcke, KaiR1303*  
*Entoloma serrulatum*  
*Fomitopsis pinicola*  
*Gomphidius glutinosus*  
*Gymnopus acervatus*  
*Gymnopus confluens*  
*Gymnopus androsaceus*  
*Gymnopilus picreus*  
*Hebeloma laterinum*  
*Hebeloma mesophaeum*  
*Hydnellum aurantiacum*  
*Hydnellum ferrugineum*  
*Hydnellum suaveolens*  
*Hygrophorus karstenii*  
*Hygrophorus piceae*  
*Lactarius aquizonatus*  
*Lactarius auriolla*  
*Lactarius badiosanguineus*  
*Lactarius deterrimus*  
*Lactarius fuliginosus*  
*Lactarius resimus*  
*Lactarius rufus*  
*Lactarius scrobiculatus*  
*Lactarius torminosus*  
*Lactarius tuomikoskii*  
*Lactarius uvidus*  
*Lactarius zonarioides*  
*Leccinum aurantiacum s.lat.*  
*Lentinellus vulpinus*  
*Lepiota clypeolaria*  
*Leptoporus mollis*  
*Lycoperdon nigrescens*  
*Marasmius rotula*  
*Mycena galericulata*  
*Mycena galopus*  
*Mycena haematopus*  
*Mycena zephirus*  
*Mycena polygramma*  
*Mycena pura*  
*Paxillus involutus*  
*Phellinus chrysoloma*  
*Phellinus viticola*  
*Phellodon tomentosus*  
*Phlebia centrifuga*  
*Pholiota tuberculosa*  
*Ramaria suecica*



Bengt Sändh, one of the initiators of Sveriges Mykologiska Förening at the first annual meeting in Gullspång 1980. Photo: Katarina Lundmark

*Russula adusta*  
*Russula aquosa*  
*Russula decolorans*  
*Russula delica*  
*Russula firmula*  
*Russula gracillima*  
*Russula pubescens*  
*Russula queletii*  
*Russula rhodopoda*  
*Russula vinosa*  
*Russula violaceoincarnata*  
*Russula xerampelina s. str.*  
*Suillus variegatus*  
*Tricholoma inamoenum*  
*Tricholoma olivaeocotinctum*  
*Tricholoma saponaceum*  
*Tricholomopsis decora*

#### + lichens:

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*Chaenotheca brunneola*  
*Chaenotheca chrysocephala*

#### Species list by Francesco Bellu

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*Albatrellus ovinus*  
*Amanita muscaria*  
*Catathelasma imperiale*  
*Chroogomphus rutilus*  
*Cortinarius armillatus*  
*Cortinarius balaustinus*  
*Cortinarius caperatus*  
*Cortinarius claricolor*  
*Cortinarius collinitus*  
*Cortinarius flexipes var. inolens*  
*Cortinarius heterocyclus*  
*Cortinarius russus*  
*Cortinarius scaurus*

*Cortinarius talimultiformis*  
*Deconica crobula*  
*Entoloma nidorosum*  
*Entoloma politum*  
*Fomes fomentarius*  
*Gomphidius glutinosus*  
*Inocybe nitidiuscula*  
*Laccaria laccata*  
*Lactarius scrobiculatus*  
*Lactarius torminosus*  
*Lactarius tuomikoskii*  
*Leccinum albostipitatum*  
*Leccinum holopus*  
*Leccinum scabrum*  
*Leccinum versipelle*  
*Lyophyllum semitale*  
*Pholiota tuberculosa*, on *Betula*  
*Psatyrella (Typhrosa) gossypina*  
*Russula nitida*  
*Russula queletii*  
*Russula vinosa*  
*Suillus variegatus*

### List by Mathias Lüderitz

**B**=description, **D**=digital photo, **E**=exsikkate,  
**MB**=determination with microscope

*Catathelasma imperiale*, D, E  
*Clavaria falcata*, D, E, MB, on edge of the brook  
*Clavulina coralloides*, MB, with *Alnus*, *Picea*  
*Clavulina rugosa*, MB  
*Collybia cookie*  
*Cudonia confusa*, D, E, MB  
*Cortinarius harcynicus*, MB, with *Picea*  
*Gymnopus confluens*  
*Hydnellum suaveolens*, D, E, MB  
*Hygrophorus piceae*, D, E  
*Lactarius scrobiculatus*, D, E  
*Lactarius tabidus s.str.*, with *Alnus*, *Betula*  
*Lactarius tuomikoskii*, D, E, MB  
*Micromphale foetidum*, on deciduous twig  
*Micromphale perforans*  
*Mycena haematopus*  
*Mycena laevigata*, on *Picea*  
*Mycena polygramma*, on *Betula*  
*Paxillus filamentosus s. str.*, with *Alnus* (*Paxillus rubicundulus* is genetically a different species)  
*Paxillus involutus*  
*Russula alnetorum*, E, MB, with *Alnus*

### List by Herbert Kaufmann

*Clavariadelphus ligula*

*Clavariadelphus truncatus*  
*Cortinarius harcynicus*  
*Cortinarius laniger*  
*Cortinarius percomis*  
*Hydnellum suaveolens*  
*Hygrophorus piceae*  
*Otidea onotica*  
*Ramaria eomorpha*  
*Ramaria testaceoflava*  
*Russula nitida*  
*Russula olivascens*  
*Russula queletii*  
*Russula rhodopoda*  
*Russula sphagnophila*

### Comment, site 59, Djupdalsbäcken

*Catathelasma imperiale*, a rare fungi bound to calcareous old forests had hundreds of magnificent fruitbodies along the brook and among the rare plant *Diplazium sibiricum*. A fantastic mycological happening! Jörgen Jeppson and Mikael Jeppson wrote on *C. imperial* in Svensk Mykologisk Tidskrift 2010/2. *Entoloma dysthaloides*, first record in Jämtland.

*Leccinum albostipitatum*. Machiel Noordeloos and Henk C. Den Bakker write on *Leccinum* in FAN7 and say at page 167: "In Europe two red-capped *Leccinum* species can be found associated to *Populus*. The importance of the colour of the stipital squamules has not been sufficiently appreciated. Den Bakker & Noordeloos (in Peersoonia 18:98.2005) argued that the true *L. aurantiacum* is the one with the dark squamules on the stipe, and accordingly *L. albostipitatum* was described for the taxon with white squamules". The Swedish name "aspsopp" is used for a popular edible mushroom that is common already in July under *Populus* and have squamules on the stipe that are first white and then turn redbrown.

*Psatyrella (Typhrasa) gossypina* grows on wood and is, according to Funga Nordica (2012) very rare in hemiboreal – boreal zone. Only a few southern Swedish finds in Artportalen.

*Russula sphagnophila* is mild, thin, fragile, appears in swampy forest, seems close to *R. nitida*. Among collections: Jämtland, Sidsjö, *Betula* marsh, 4 Sept. 1997, M. Sarnari (Sarnari); Medelpad, Borgsjö, Rankleven, wet *Picea* forest, 30 Aug. 2001, A-B. Staernes, det. J. Vauras (UPS), Ångermanland, Härnösand, Härnökubb, *Betula-Picea* forest with sphagnum, 25 Aug. 1997, M. Sarnari (Sarnari).

*Russula violaceoincarnata* is an alpine species, but also found under *Betula* in some parks in Jämtland and Medelpad. Among collections: Jämtland, Undersåker, S part of mount Renfjället, fairly moist forest with *Betula*, *Picea*, *Salix* bushes, 25 Aug. 2001, J. Vauras (TURA).



Pirjo Kytövuori and Jeanette Södermark outside our working hall at Erikslunds Folkets Hus.  
Photo: Hjärdís Lundmark





*Russula roseipes*. Photo: Hjördis Lundmark

## BODSJÖ PARISH

6958192;1466138

### 60 Sidsjö, north of Sidsjöån, Bodsjö parish

Excursion guide pp. 170–172

28 Aug. 2018

**Guide:** Jan-Olof Tedebrand

**Participants:** Slavomir Adamčík, Anders Aronson, Ronnie Boeykens, Hjördis Böhning, Tanja Böhning, Miroslav Carbon, Robin Dost, Ursula Eberhardt, Jochen Girwert, Felix Hampe, Sona Jancovicova, Mats Karlsson, Ruben De Lange,

Cathrin Manz, Per Marstad, Elias Polemis, José Maria Traba-Velay, Hiroatso Sato, Nathan Schoutteten, Youshito Shimono, Stefanie de Schrijver, Kristoffer Stighäll, Tony Svensson, Birgitta Wasstorp and Annemieke Verbeken.

We often visit Sidsjö because this is a rainy area with many different nature types on calcareous ground: old, mossy, swampy *Picea* forest between the road and Sidsjöån with the orchid *Goodyera repens*, dry pine forest in different ages north of the road with *Cortinarius phrygianus*, deciduous forests with *Betula* along the forest road down to the river and grasslands around the water sawmill from 1860 (later renovated). Lisbeth Kagardt, president of Sundsvall Mycological Society 1994–2009, often guided groups to this popular site. During the workshop in Borgsjö 1997 Lisbeth



took groups to Sidsjö during two days. Mauro Sarnari collected at Sidsjö his own *Russula robertii* Sarnari, a little known and perhaps not accepted species (not mentioned in Funga Nordica). We use to find plenty of *Cantharellus lutescens* here, a popular edible mushroom, abundantly in calcareous, moist, *Picea* forests in Jämtland. Now in 2018 we had a sunny, warm autumn day. There were a lot of fresh mushrooms after rain. Kristoffer Stighäll noticed the rare *Alchemilla oxyodontha* at roadside. We also found *Gentianella amarella* subsp. *amarella*, still flowering *Parnassia palustris* and *Tremiscus helvelloides* along the forest roads.

### Collections at exhibition table with field form

- Cortinarius evernius*, *Picea*, Kristoffer Stighäll, det. Birgitta Wasstorp  
*Cortinarius riederi*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Cortinarius scaurus*, *Picea*, Kristoffer Stighäll, det. Birgitta Wasstorp  
*Cortinarius septentrionalis*, *Betula*, *Picea*, Birgitta Wasstorp  
*Cortinarius solis-occasus*, *Picea*, *Pinus*, Birgitta Wasstorp  
*Cortinarius vibratilis*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Gomphidius glutinosus*, *Picea*, José Maria Traba-Velay  
*Hydnellum suaveolens*, *Picea*, *Pinus*, Kristoffer Stighäll  
*Hygrophorus camarophyllus*, *Betula*, *Picea*, *Pinus*, Robin Dost, det. Felix Hampe  
*Hygrophorus korhonenii*, *Picea*, *Pinus*, Birgitta Wasstorp  
*Inocybe flocculosa*, *Betula*, *Picea*, *Salix*, gravel road, Anders Aronsson, det. Ellen Larsson  
*Inonotus leporinus*, at broken dead *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Lactarius tuomikoskii*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Leccinum vulpinum*, *Picea*, *Pinus*, Slavomir Adamçik  
*Lyophyllum deliberatum*, Hjördis Böhning, det. Tanja Böhning  
*Pholiota lubrica*, *Picea*, Anders Aronsson, Mats Karlsson, Tony Svensson, det. Stig Jacobsson  
*Russula atroglauca*, *Betula*, Elias Polemis  
*Russula consobrina*, Birgitta Wasstorp  
*Russula depallens*, Elias Polemis  
*Russula firmula*, *Picea*, Elias Polemis, det. Slavomir Adamçik  
*Russula gracillima*, Elias Polemis, det. Slavomir Adamçik  
*Russula grisescens*, *Picea*, Elias Polemis, det. Slavomir Adamçik  
*Russula cf nitida*, Elias Polemis, det. Slavomir Adamçik  
*Russula paludosa*, *Picea*, *Pinus*, Anders Aronsson, Mats Karlsson, Tony Svensson  
*Russula rhodopoda*, *Picea*, *Pinus*, Elias Polemis, det. Slavomir Adamçik  
*Russula roseipes*, *Picea*, *Pinus*, Slavomir Adamçik  
*Russula versicolor*, *Betula*, *Pinus*, Robin Dost, det. Dost/Adamçik  
*Russula vinosa*, *Picea*, Elias Polemis, det. Per Marstad  
*Spathularia flavida*, *Picea*, José Maria Traba Velay  
*Tremiscus helvelloides*, Anders Aronsson, Mats Karlsson, Tony Svensson

### List by Anders Aronsson, Mats Karlsson, Tony Svensson

- Amanita muscaria* var. *muscaria*  
*Amanita muscaria* var. *regalis*  
*Amanita porphyria*  
*Boletus edulis*  
*Chalciporus piperatus*  
*Cantharellus lutescens*  
*Chroogomphus rutilus*  
*Clitocybula platyphylla*  
*Clitocybe odora*  
*Collybia cirrhata*  
*Collybia tuberosa*  
*Cortinarius anomalus*  
*Cortinarius armillatus*  
*Cortinarius brunneus*  
*Cortinarius camphoratus*  
*Cortinarius caperatus*  
*Cortinarius delibutus*  
*Cortinarius hemitrichus*  
*Cortinarius laniger*  
*Cortinarius malicorius*  
*Cortinarius rubellus*  
*Cortinarius sanguineus* s.l.  
*Cortinarius subtortus*  
*Cortinarius venustus*  
*Cortinarius vibratilis*  
*Cystodermella granulosa* var. *granulosa*  
*Entoloma aff brunneoserrulatum*, Anders Aronson, det. Kai Reschke, KaiR1265  
*Entoloma nidorosum*  
*Entoloma rhombisporum*, Anders Aronson, det. Kai Reschke, KaiR1264  
*Entoloma serrulatum*  
*Gomphidius glutinosus*  
*Hebeloma crustuliniforme*  
*Helvella lacunosa*  
*Hygrocybe acutoconica* var. *acutoconica*  
*Hygrocybe ceracea*  
*Hygrophorus agathosmus*  
*Hygrophorus olivaceoalbus*  
*Hygrophorus piceae*  
*Hypholoma capnoides*  
*Infundibulicybe gibba*



*Inocybe dulcamara*  
*Inocybe geophylla*  
*Kuehneromyces mutabilis*  
*Laccaria proxima*  
*Lactarius badiusanguineus*  
*Lactarius deterrimus*  
*Lactarius fennoscandicus*  
*Lactarius pubescens*  
*Lactarius torminosus*  
*Lactarius trivialis*  
*Leccinum scabrum*  
*Lycoperdon nigrescens*  
*Onnia leporina*  
*Paxillus involutus*  
*Pluteus cervinus*  
*Rugosomyces carneus*  
*Russula aeruginea*  
*Russula aquosa*  
*Russula claroflava*  
*Russula decolorans*  
*Russula depallens*  
*Russula favrei*  
*Russula fragilis*  
*Russula paludosa*  
*Russula rhodopus*  
*Russula roseipes*  
*Russula velenovskyi*  
*Russula vinosa*  
*Suillus variegatus*  
*Thelephora caryophyllea*  
*Tremiscus helvelloides*  
*Tricholoma fulvum*  
*Tricholomopsis decora*  
*Xanthoporus (Albatellus) syringae*

### List by Tanja Böhning

**E**=eksikkate, **D**=digital photo,  
**MB**=determination with microscope

*Albatrellus ovinus*, D, MB  
*Boletus pinophilus*, D  
*Chalciporus piperatus*, D  
*Clavariadelphus ligula*, D  
*Cortinarius caesiocinctus*, D, E, MB  
*Hemimycena lactea* var. *tetraspora*  
*Hohenbuhelia petaloides*, D, E, MB  
*Hydnellum* sp., D, E, MB, "belongs to section *velutipes*"  
*Hygrophorus erubescens*, D  
*Lactarius scrobiculatus*, D  
*Lichenomphalina umbellifera*  
*Lyophyllum deliberatum*, D, E, MB  
*Phellinus concatus*, D  
*Polyporus varius*

*Spathularia rufa*, D, E  
*Tricholoma saponaceum*, D  
*Xeromphalina campanella*, D

### List by Jan-Olof Tedebrand

*Chroogomphus rutilus*  
*Hygrophorus piceae*  
*Lactarius deliciosus*  
*Lactarius fennoscandicus*  
*Lactarius glyciosmus*  
*Lactarius lilacinus*  
*Lactarius necator*  
*Lactarius scoticus*  
*Lactarius tabidus*  
*Lactarius torminosus*  
*Lactarius tuomikoskii*  
*Lactarius vietus*  
*Micromphale perforans*  
*Paxillus involutus*  
*Phaeolepiota aurea*  
*Russula acrifolia*  
*Russula atroglauca*  
*Russula emetica*  
*Russula fennoscandica*  
*Russula pelargonica*  
*Russula queletii*  
*Russula roseipes*  
*Spathularia flavida*  
*Suillus bovinus*  
*Thelephora caryophyllea*

### List by Kristoffer Stighäll (KS) and Birgitta Wasstorp (BW)

*Amanita porphyria*, BW  
*Bankera violascens*, KS  
*Craterellus lutescens*, KS  
*Clitocybe odora*, BW  
*Collybia confluens*, BW  
*Collybia tuberosa*, BW  
*Cortinarius armillatus*, BW  
*Cortinarius balteatus*, BW  
*Cortinarius brunneus*, BW  
*Cortinarius camphoratus*, BW  
*Cortinarius caperatus*, common, BW  
*Cortinarius limonius*, BW  
*Cortinarius malachius*, BW  
*Cortinarius mucosus*, BW  
*Cortinarius rubellus*, BW  
*Cortinarius scaurus*, BW  
*Cortinarius septentrionalis*, BW  
*Cortinarius solis-occasus*, BW  
*Cortinarius subtortus*, BW



*Gomphidius glutinosus*, KS  
*Gomphidius roseus*, BW  
*Hydnellum suaveolens*, under young *Picea* at roadside, KS  
*Hygrophorus korhonenii*, BW  
*Laccaria laccata*, BW  
*Lactarius badiusanguineus*, BW  
*Lactarius deterrimus*, BW  
*Lactarius leonis*, BW  
*Lactarius pubescens*, BW  
*Lactarius subcircellatus*, BW  
*Lactarius trivialis*, BW  
*Lactarius uvidus*, BW, det. Annemieke Verbeken  
*Leccinum holopus*, BW  
*Lentinellus cochleatus*, BW  
*Leptoporus mollis*, Jan-Olof Tedebrand  
*Lyophyllum connatum*, BW  
*Phellinus ferrugineofuscus*, decayed *Picea* log, KS  
*Russula adusta*, BW  
*Russula betularum*, BW  
*Russula claroflava*, BW  
*Russula decolorans*, BW  
*Russula depallens*, BW  
*Russula grisescens*, BW  
*Russula paludosa*, common, BW  
*Russula renidens*, BW, det. Tero Taipale  
*Russula rhodopoda*, BW  
*Russula vinosa*, BW  
*Suillus luteus*, BW  
*Suillus bovinus*, BW  
*Spathularia rufa*, KS  
*Suillus luteus*, BW  
*Suillus variegatus*, KS  
*Xanthoporus (Albatellus) syringae*, on forest roadside under *Alnus incana*, BW

### Collection by Annemieke Verbeken

*Entoloma coeruleoflocculosum*, Annemieke Verbeken, det. Kai Reschke, KaiR1266

### Collections, UPS

*Lactarius uvidus*, *Picea*, *Pinus*, Birgitta Wasstorp  
*Lactarius vietus*, *Betula*, *Picea*, Robin Dost  
*Russula exalbicans*, *Betula*, *Picea*, Elias Polemis, det. Slavomir Adamcik  
*Russula paludosa*, J.M. Traba  
*Tremiscus helvelloides*, roadside, Anders Aronson, Mats Karlsson, Tony Svensson

### Comment, finds at site 60, Sidsjö

*Entoloma coeruleoflocculosum* has in Artportalen 2 records from Öland and 1 record from Bohuslän.



Kristiina Oikari is managing the homepage of Myko, [www.myko.se](http://www.myko.se). She has also good knowledge on the Finnish mushroom traditions. Photo: Berthold Lundmark

Funga Nordica says: "very rare in temp.-subalp., in semi-natural grassland and open grassy places in boreal or alpine moist *Betula* or *Alnus* forests". VU at redlist in Norway.

*Russula claroflava* is Hjördis Lundmark's favourite edible mushroom and common from the sea coast in Medelpad to the alpine zone in Jämtland. Often found in moist *Betula* forest along fens and lakes but also common under *Betula* in dry *Picea* forest and found above the tree limit with *Betula nana* in western Härjedalen (Jacobsson 1984). We also see *Russula claroflava* in dry, stony, heathlike *Betula* forests in burnt forests (lövbrännor) like the nature reserves Helvetesbrännan and Sönnasjöbergen in Medelpad. Among collections: Medelpad, Timrå, Indalsälvens delta, Skeppsholmen, sea shore forest with *Alnus*, *Betula*, *Picea*, 26 Aug. 2001, Jukka Vauras (TURA).

*Russula consobrina* is in literature considered to grow in acid, poor *Picea* forest. Here in the provinces of Jämtland and Medelpad *R. consobrina* is a common species with broad ecology: typical for blueberry *Picea* forest but also common in calcareous forest and found in alpine *Betula* forest (Jacobsson 1984 a). Among collections: Jämtland, Undersåker, Södra Renfjället, *Betula*, *Picea*, *Salix*, 25 Aug. 2001, Jukka Vauras (TURA); Medelpad, Selånger, Huli, blueberry *Picea* forest, 22 Aug. 1983, Eva Kristina Portén, det. Birgitta Wasstorp (S).

*Russula velenovskyi* is common mostly under *Betula* in Jämtland and Medelpad, hat in reddish brown with often black centre but hat colour differs much. Juhani Ruotsalainen used to say that you are a good *Russula* expert if you can identify *R. velenovskyi* in the field. Among collections: Medelpad, Torp, Hammar, *Betula*, 30 Aug. 2001, Håkan Lindström, det. J. Ruotsalainen (UPS); Ångermanland, Säbrå, Hans Marklund (HM 232–95).

# City of Östersund

## 66 Wonderful parks on limestone in the city of Östersund and on Frösö Island

29 Aug. 2018

Excursion guide pp. 184–188

**Guide:** Karin Kellström, Bengt Petterson

**Participants:** Slavomir Adamčík, Miroslav Cabon, Sona Jancovicova, Karin Kellström, Per Marstad, Bengt Petterson, Maj-Britt Sâthe, Jeanette Södermark, Jan-Olof Tedebrand and José Traba-Velay

### Lennart found 41 *Russula* species in Ramlösa park!

Today there is in Sweden a growing interest for more biological diversity in the large areas of old parks. Parks with old trees and not fertilized lawns often have an extraordinary rich funga. Torbjörn Tyler describe in Svensk Botanisk Tidskrift 2019/3–4 old English landscape parks and their flora. Our friend from Skåne, Lennart Söderberg, found 41 *Russula* species in Ramlösa park, Helsingborg, Skåne county in south Sweden, see the review Jordstjärnan 1999, 20:6–19. Birgitta Wasstorp and her friends in Stockholm have found many interesting *Russula* species under *Tilia* in the more than 300 years old royal park of *Drottningholm*. The parks in Östersund with old trees on limestone are also interesting for ectomycorrhiza fungi. Lars Lundberg, Stig Jacobsson and members of Östersund Mykologiska Förening have earlier looked for fungi the parks of Östersund, see pp. 184–188 in the Excursion guide. During the last 50 years Lars Lundberg has observed the southern *Inocybe erubescens* in a park near the hospital in central Östersund. We have just one record of *Inocybe erubescens* in the province of Medelpad: Siljeberget, Selånger parish, 13 Sept. 2014, Christer Albinson, during Swedish Mycological week in Timrå 2014. Thanks to a remarkable fungi peak in 2018 we found many interesting fungi in the parks of Björkbacka and Lillskogen.

### The old *Russula globispora* is now *R. dryadicola*!

We have often found *Russula globispora* ("fläckkremla" in Swedish) under *Betula*. We now saw many groups of



Maj-Britt Sâthe and Lars Lundberg at fungi exhibition 2004 in the city of Östersund. Photo: Birgit Ström

this *Russula* with brown spots both in Lillskogen park, in Björkbacka park and at other sites. Miroslav, Slavomir and others took many collections for further DNA studies, see interesting result by Miroslav below. We also collected *Lactarius* and *Russula* species under old *Populus* trees in the parks of Lillskogen and Björkbacka.

### *Entoloma violaceozonatum* is found in park outside the hospital of Östersund

After a small accident at Storvålen 1997 some mycologists visited the hospital and Jan Vesterholt then collected *Entoloma violaceozonatum* in the park outside the hospital (herbarium Leiden), the only find in Sweden until today. Erhard Ludwig has a fine water colour painting of *E. violaceozonatum* at page 106 in *Pilzkompendium/2*.

### City gardener Frida Larsson told us about "Jämtlandspoppel"

We collected fungi under old *Populus* trees in the parks of Östersund. According to the city gardener Frida Larsson it is planted *Populus balsamifera Elongata*. The Swedish name is "Jämtlandspoppel". The city of Östersund has since 2013 a plan for nature conservation in their parks and forests: <https://www.ostersund.se/bygga-bo-och-miljo/naturvard-parker.html>

### The parks of Östersund were full of fresh mushrooms

We were lucky with the weather resulting in a peak for *Lactarius* and *Russula* species at Lillskogen park and at Björkbacka park. The fine edible mushroom *Lactarius deliciosus* grew in perfect condition and in big groups all over the parks. *Russula aurea* and *R. cremeoavellanea* were also common.



### Some kind advices to city gardener Frida Larsson and her colleagues

Old parks on lime stone in Jämtland have an interesting and often rare biological diversity of ectomycorrhiza fungi bound to poor soil under different park trees. It is important not to fertilize lawns in parks. Some suitable areas on poor soil could perhaps be managed as meadows with late hay-making in order to favour wild flowers, butterflies, insects and colourful autumn fungi such as wax caps and red spored fungi.

1441861;7008670

## The Park of Lillskogen (=the small forest park)

Not in the Excursion Guide

Park on limestone with old *Betula*,  
*Pinus*, *Populus*  
29 Aug. 2018

**Guide:** Karin Kellström, Bengt Petterson

**List:** Jan-Olof Tedebrand

**Participants:** Slavomir Adamčik, Miroslav Cabon, Sona Jancovicova, Karin Kellström, Per Marstad, Bengt Petterson, Maj-Britt Sätthe, Jeanette Södermark, Jan-Olof Tedebrand and José Traba-Velay

Frida Larsson is a city gardener in Östersund. She told us that the area around Lillskogen was planed in 1943. Lillskogen is a "nature park". The playground in the park was built in 1953. Some of us took the opportunity to visit Ingrid and Lars Lundberg who lives near Lillskogen park. Lars had a wish that we should visit his home park Lillskogen. We found groups of beautiful *Russulas* under *Betula*, *Populus*, *Pinus*. José Maria from Spain and others in the group took photos of beautiful *Russulas* in Lillskogen park. *Lactarius evosmus* was a sensational record. Slavomir said: "now we have lots of collections for exhibition and for later studies".

### Collections at exhibition table with field form

*Russula olivascens*, *Betula*, *Picea*, Per Marstad

### List by Jan-Olof Tedebrand

*Amanita muscaria* var. *muscaria*  
*Chroogomphus rutilus*  
*Lactarius claroflava*  
*Lactarius evosmus*, Jan-Olof Tedebrand, det. Annemieke

**FUNGI SUECICI**

Artnamn *Russula aurantioflammans*  
Svenskt namn .....  
Landskap MPD Koordinat .....  
Församling .....  
Lokal/vägbeskrivning *Jämtli*  
Substrat/biotop *Betula*  
Leg *BW* Datum *01.08.27*  
Det *Blu* Conf .....

Birgitta Wasstorp collected *Russula aurantioflammans*, *R. depallens* and *R. globispora* (=dryadicola) under *Betula* in park on limestone outside the cultural museum Jämtli, Östersund during the *Russula* workshop in Borgsjö 2001.

Verbeke, painting by Omer van de Kerckhove.

*Lactarius pubescens*  
*Lactarius torminosus*  
*Leccinum scabrum*  
*Russula aurea*  
*Russula claroflava*  
*Russula depallens*, Per Marstad  
*Russula dryadicola*, common in groups under *Betula*, Slavomir Adamčik  
*Russula intermedia*, Per Marstad  
*Russula medullata*, common in groups under *Populus*, Slavomir Adamčik  
*Russula olivascens*, Per Marstad  
*Suillus luteus*

### List of Kai Reschke

*Entoloma sericeum* s.str., KaiR1267  
*Tricholoma inocybeoides* (*argyraceum*), KaiR1268

### Collections, UPS

*Lactarius evosmus*, F, under big *Populus*, Jan-Olof Tedebrand, det. Annemieke Verbeke  
*Russula medullata*, F, common in groups under big *Populus*  
*Tricholoma inocybeoides*, Swedish name "dvärgmusseron", few finds north of Uppland



Hjördis received from Olle Persson this copy of a Schäffer watercolour. Olle had received it from Nils Suber.

### Comment, finds in park of Lillskogen

***Lactarius evosmus***. Sensational finding of this fungi with distinct southern distribution in Sweden, see wonderful painting of Omer! See also good photos in FAN7, pp. 536–537.

Funga Nordica (2012) says: "On calcareous soil, thermophilous, rare in temp-hemibor., very rare in southern boreal, DK (NT), FI (NT), NO (NT), SE. Photo and description also on pp. 60–61 in Pilze der Schweiz/6. *Lactarius evosmus* is also found by Bengt Petterson at Slåtthornet nature reserve, Brunflo parish, Jämtland during excursion 24 Aug. 2010 with among others Göran Eriksson, Tobias Fröslev and Herbert Kaufmann.

Most findings in Sweden of *L. zonarius* in Artportalen are from Öland and Gotland. But some findings are perhaps *L. evosmus*? Rolf Lidberg and Håkan Lindström found in 1977 a species they called *Lactarius zonarius* at Ås village in the limestone area at Alnö, Medelpad. We very much discussed that finding before publishing "Medelpads Svampar" in 1985. But according to both FAN7 and Funga Nordica *L. zonarius* is strictly bound to southern *Quercus* forest. So perhaps Håkan and Rolf found *L. evosmus* on limestone near the sea in Medelpad? Unfortunately they took no collection. The extremely dry and hot summer 2018 had activated fruitbodies of *Lactarius evosmus* in Lillskogen park. Ingrid and Lars Lundberg who lives near Lillskogen park have never found *L. evosmus* there. A parallel is

*Rubroboletus satanas*, found in the centre of Uppsala after the hot summer 2018 and earlier known only from Öland och Gotland (SMT 2018 (3): 13–21). Both species must have existed in the soil and then been activated by the hot summer and much rain in august. See also article by Mattias Andersson on *Rubroboletus legaliae* in the Royal garden of Drottningholm (Stockholm) with facts about climate factors (SMT 2018 (3): 8–12.

***Russula dryadicola*** is in literature said to be an alpine species with *Dryas octopetala*. See photo and description at pp. 162–163 in Pilze der Schweiz/6. But now we can say that *Russula dryadicola* was common in big groups under *Betula* in the parks Lillskogen and Björkbacka and also found at other sites, see interesting result below from DNA-studies by Miroslav. In Lillskogen park Slavomir Adamchi told us: "We have a project about *Russula globispora* group that consists of 6 different species. A good character for species in this group is brown-yellow dots at fruitbodies. Much of *globispora* group in this park, have very yellow spores. All findings in Estonia and Finland have in DNA tests turned out to be *Russula dryadicola*, a species known from alpine heaths with *Dryas octopetala*". Slavomir later told us in mail 26 Jan. 2019: "Dear Jan-Olof, *Russula globispora* and group of related species are model group for our projekt <http://ibot.sav.sk/dipofungi-en/>

We were happy to be able to find many collections in *Russula globispora* group that looked very different in field during



Hans Marklund shows his fantastic lifework concerning mushrooms, a work done together with dear friends like Tor Erik Brandrud, Pelle Holmberg, Håkan Lindström, Hjördis Lundmark and Siw Muskos. Photo: Hjördis Lundmark

the *Russulales* workshop in Borgsjö. Miro already sequenced them and in brief he explained me that he identified them all as *R. dryadicola*! We did not expect this, taking in account how different collections looks.

Warm greetings  
Slavomir”

*Russula medullata* was common under big *Populus* trees. Our friends from Slovakia took collections of fine fresh fruitbodies. Sona took photos and said ”fantastic *Russula* day!

1442370;7008394

## The Björkbacka Park (Lövberga) on limestone, called ”The childrens park”

Not in the Excursion Guide

Park on limestone with big, old *Betula*, *Picea*, *Pinus*, *Populus balsamifera* *Elongata*  
29 Aug. 2018

**Guide:** Karin Kellström, Bengt Pettersson

**Participants:** Slavomir Adamčík, Miroslav Cabon, Sona

Jancovicova, Karin Kellström, Per Marstad, Bengt Pettersson, Maj-Britt Sâthe, Jeanette Södermark, Jan-Olof Tedebrand and José Traba-Velay

Frida Larsson, city gardener in Östersund, told us that the Björkbacka park at 3 hectares was finished in 1912. The café was built in 1924.

### Collections at exhibition table

*Lactarius pubescens*, *Betula*, *Pinus*, *Populus*, Sona Jancovicova  
*Russula cessans*, Per Marstad  
*Russula depallens*, Per Marstad  
*Russula lutea*, Per Marstad  
*Russula sanguinea*, *Pinus*, Per Marstad  
*Russula versicolor*, *Betula*, José Maria Traba-Velay

### List by Jan-Olof Tedebrand

*Amanita muscaria* var. *muscaria*  
*Chroogomphus rutilus*  
*Hygrocybe acutoconica*  
*Lactarius deliciosus*, very common  
*Russula aurea*  
*Russula cessans*, *Pinus*, Per Marstad  
*Russula cremeoavellanea*, Maj-Britt Sâthe, det. Per Marstad



*Russula aurea*. Photo: Lars Lundberg

*Russula depallens*

*Russula pelagonia*, common under *Populus*-*Betula*,

Slavomir Adamčík

*Russula sanguinea*, *Pinus*, Per Marstad

*Russula xerampelina* s.l. under *Pinus*

### List by Kai Reschke

*Tricholoma inocybeoides*, KaiR1268

### Comments, finds in Björkbacka park

We enjoyed this paradise for *Lactarius* and *Russula* species. Slavomir said: "Fantastic place".

At our arrival we stopped a lawnmower and informed the kind driver about scientific mushroom picking. Beautiful, about a hundred year old park in the centre of Östersund. Hard tramped grass areas with open soil areas near a school for young children with dominating *Euphrasia stricta* and *Plantago major*. These disturbed areas outside the school were good for *Lactarius* and *Russula* species.

*Lactarius deliciosus* was common. Jeanette Södermark picked her basket full with this delicious mushroom.

*Russula cremeoavellanea* appeared in big groups under *Betula*.

*Russula cf pelargonica* was also found in big groups under old *Populus balsamifera* *Elongata* (jämtlandspoppel in Swedish). Sona took photos. Slavomir said: "There are several species around *R. pelargonica*, we must study our collections to determine exact species". Many names have been mentioned in the complex such as *R. clariana*, *R. pelargonica*, *R. violacea*, *R. innocua*. We mostly find *R. pelargonica* in rich aspen groves and in parks with *Betula* and *Populus* in Jämtland and Medelpad.

*R. pelargonica* is also typical under *Populus* at herbrich soil in warm southern mountains like Siljeberget in Selånger parish. Among earlier collections of *R. pelargonica*: Jämtland, Frösö, Sommarhagen, under old *Populus*, 27 Aug. 2001, Ruben Valleyn (UPS); Medelpad, Borgsjö, youth hostel, under *Populus* on rich soil, Ruben Valleyn, 25 Aug. 2001 (GENT); Medelpad, Tuna, Torkarlsberget, lawn with *Betula*, Kjell Olofsson, det Juhani Ruotsalainen (UPS). Slavomir say in mail 16 Sept. 2019: "We have not sequenced Swedish collections of *R. pelargonica*. Our result from Central and South Europe indicate that there are more species than earlier



distinguished. But our IS sequences yet only allow a brief look into the complex around *R. pelargonia*.”

*Russula sanguinea* is typical under old pine trees in churchyards and others parks, along forest roads, in forest borders on limerich, often poor sandy soil in Jämtland and Medelpad. More common near the Bothnian coast. Among collections: Jämtland, Lockne, Storvålen, 30 Aug. 2001, Juhani Ruotsalainen (UPS); Medelpad, Borgsjö, Sankt Olofs källa, 30 Aug. 2001, Per Marstad (UPS).

*Tricholoma inocybeoides* is discussed on pp. 150-151 in the Danish book about Ridderhatte by Christensen and Heilmann-Clausen (2013). It is little known, mostly appears under *Betula* and *Populus*, difficult to separate in field from *T. argyraceum* and *T. scalpturatum*.

Lars-Olof Grund collected *Russulas* at Frösövallen and Frösö Strand. Ingrid and Lars Lundberg participated in the *Russula* workshop in 2001. They guided to Frösövallen and Frösö strand. Håkan Lindström, Juhani Ruotsalainen, Jukka Vauras, Ruben Walley and Birgitta Wasstorp also participated in this excursion. They found in the parks of Frösövallen and Frösö Strand: *Russula aurantioflammans*, *aurea*, *cessans*, *cremeoavellanea*, *font-queri*, *globispora* (= *dryadicola*), *integriformis*, *medullata*, *nauseosa*, *olivascens*, *pelargonia*, *puellaris*, *queletii*, *sapinea*.

Lars-Olof Grund lives at Frösö Strand and gave us following *Russula* collections:

*Russula clavipes*, Lars-Olof Grund, det. Lennart Söderberg, Jan-Olof Tedebrand

*Russula favrei*, Lars-Olof Grund, det. Lennart Söderberg, Jan-Olof Tedebrand

*Russula lutea*, Lars-Olof Grund, det. Lennart Söderberg, Jan-Olof Tedebrand

*Russula medullata*, Lars-Olof Grund, det. Lennart Söderberg, Jan-Olof Tedebrand

*Russula pelargonia*, Lars-Olof Grund, det. Lennart Söderberg, Jan-Olof Tedebrand, UPS

*Russula olivascens*, Lars-Olof Grund, det. Lennart Söderberg, Jan-Olof Tedebrand

1435366;7007592

## Park and forest at Sommarhagen

Not in the Excursion Guide

29 Aug. 2018

**Guide:** Karin Kellström, Bengt Pettersson

**Participants:** Slavomir Adamčík, Miroslav Cabon, Sona Jancovicova, Karin Kellström, Per Marstad, Bengt Petter-

son, Maj-Britt Sâthe, Jeanette Södermark, Jan-Olof Tedebrand and José Traba-Velay

Forest on limestone with *Picea abies* and *Populus tremulae*. Herbs like *Actaea spicata* and bushes like *Lonicera xylostium*. Kai and Slavomir told us that the grazed *Nigritella* meadow south of the house was full of *Entoloma*.

Here lived the famous Swedish composer Wilhelm Peterson-Berger (1867–1942), often called just ”Pebe”. Among the wellknown compositions of Pebe are ”Frösö kyrka”, ”Intåg i Sommarhagen” and the opera ”Arnljot”. Pebe himself was interested in botany and nature conservation. He often used to walk with friends in the alpine mountains of Jämtland. Sommarhagen is today one of the most famous Swedish tourist objects and also a botanical pearl with *Carex pediformis* under old *Picea* and *Populus* in earlier grazed forest. During *Russula* workshop in Borgsjö 2001 Hjärdis Lundmark took among others a group of French mycological friends from Oyonnax in the Jura mountains to Sommarhagen. The Belgian mycologist Guy Le Jeune found *Russula fulvograminea* under *Betula*-*Populus*, det. Juhani Ruotsalainen (GENT), (UPS), new for Sweden. Ruben Walley collected *Russula pelargonia* under big *Populus*. In 2018 we saw several groups of *Russula aurea* in front of Pebe’s house and also in the neighbouring forest with aspen and spruce. Kai Reschke collected *Entoloma* species on the meadow south of the house. We had lunch with the classic view on the lake Storsjön and the high alpine mountains. Pebe of course smiled in his heaven and was happy with our visit to his beloved Sommarhagen.

### Collections at exhibition table with field form

*Russula firmula*, *Picea*, *Pinus*, Per Marstad

### List by Jan-Olof Tedebrand

*Lactarius deterrimus*

*Phellinus tremulae*

*Russula aurea*, *Picea*, *Populus*

*Russula firmula*

*Russula medullata*

*Russula pelargonia* s.l.

### Collections, UPS

*Lactarius quieticolor*, *Pinus*, Jorinde Nuytinck

*Russula aurea*, *Picea*, *Populus*, Per Marstad





White form of *Gentianella campestris* var. *campestris* on the meadow Storvålen. Photo: Karin Kellström

## LOCKNE PARISH

1446590:6991200 +-200 meter

### 67 Storvålen, west of the village Änge, mossy old coniferous forest and meadow

Excursion guide pp. 190–192

27 Augusti 2018

**Guide:** Bengt Petterson, Jeanette Södermark

**Participants:** Ronny Boykens, Rolf-Göran Carlsson, Ursula Eberhardt, Stig Jacobsson, Kurt-Anders Johansson, Herbert Kaufmann, Gunilla Kärrfelt, Ruben de Lange, Ellen Larsson, Lars G. Ljungberg, Mathias Lüderitz, Jan Olsson, Kai Reschke, Nathan Schoutteten, Anita Stridvall, Jeanette Södermark

#### Among earlier records

*Lactarius aquizonatus, badiusanguineus, deliciosus, deterrimus, flexuosus, fuliginosus, glyciosmus, hysginoides, mammosus, necator, pubescens, quieticolor, rufus, scrobiculatus, torminosulus, torminosus, uvidus, vietus, zonarioides.*

*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:** *Arpinia fusispora, Boletopsis leucomelanea, Boletus edulis, Camarophyllopsis micacea s.l., Catathelasma imperiale, Clavaria purpurea, Cortinarius corrosus, malicorius, sanguineus, uraceus, venustus, Boletopsis*



*leucomelanea*, *Entoloma chloropolium*, *ianthinum*, *xanthochroum*, *Hebeloma sinapizans*, *Hygrophorus secretanii*, *Inocybe terrigena*, *Limacella guttata*, *Marasmius siccus*, *Sarcodon martioflavus*, *Stagnicola perplexa*, *Tricholoma atrosquamosum*, *olivaceotinctum*, *sulphureum*.

### **Lactarius "syringinus" from Storvålen 1997 does not exist any longer**

During *Lactarius* workshop in Borgsjö 1997 we had vivid discussions about the broad variation in *Lactarius vietus*. Jacob Heilmann-Clausen and Jan Vesterholt took several collections of a grey *Lactarius* species that seemed to be near *L. hysginioides*, *L. subcircellatus* and *L. vietus*. The Danish book "The genus *Lactarius*" (1998) by Jacob, Jan and Annemike Verbeken then presented at page 60 *Lactarius syringinus* Z. Schaef with photo of collection under *Betula* and *Picea* in calcareous coniferous forest at Storvålen. They wrote: "We recognize *Lactarius syringinus* as a distinct 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. A revision of the *L. vietus* complex is needed to find out how many taxa should be recognized at species rank. *L. pilatii* differs in habit, it has more dull colours, and its macrocystidia are slightly narrower than those of *L. syringinus*. *L. subcircellatus* and *L. hysginioides* have unchanging milk, a less acrid taste and longer macrocystidia." Annemike and Jan then wrote about *Lactarius* in *Funga Nordica* (2012) and did not mention *Lactarius syringinus* at all. Further DNA research will perhaps reveal hidden taxa within the *Lactarius vietus* complex.

### **Lactarius quieticolor-always on calcareous soil in mid Sweden**

During his visit to Storvålen in 1997 Morten Christensen found *Lactarius quieticolor* under *pine* on the meadow. Morten's photo from Storvålen on page 145 in "The genus *Lactarius*" shows beautiful indigo coloured fruitbodies. Annemike Verbeken said that she had found in Belgium fruitbodies from the same mycelia with and without blue colours. In the Danish book about *Lactarius* (1998) and in *Funga Nordica* (2012) the ecology for *L. quieticolor* says to be under *Pinus* on acid soil. But all our findings of *L. quieticolor* in the provinces of Jämtland, Medelpad and Ångermanland are from calcareous ground. *L. quieticolor* is a good edible mushroom like the close *Lactarius deliciosus*.

### **Collections at exhibition table with field form**

*Alloclavaria purpurea*, *Picea*, Lars G Ljungberg  
*Cortinarius callisteus*, *Picea*, Stig Jacobsson  
*Cortinarius caninus*, *Picea*, Jan Olsson, det. Stig Jacobsson

*Cortinarius corrosus*, *Picea* on calcareous soil, Jan Olsson  
*Cortinarius cyanites*, *Picea*, Gunilla Kärrfelt, det. Karl Soop  
*Cortinarius illuminus*, *Picea*, Gunilla Kärrfelt, det. Karl Soop  
*Cortinarius multiformis*, *Picea*, *Pinus*, Jan Olsson  
*Cortinarius renidens*, *Picea*, Gunilla Kärrfelt, det. Karl Soop  
*Cortinarius rusticus*, *Picea*, Gunilla Kärrfelt, det. Karl Soop  
*Cortinarius salor*, Jan Olsson  
*Hebeloma syrjense*, Stig Jacobsson  
*Hydnellum peckii*, *Picea*, *Pinus*, Lars G Ljungberg, Herbert Kaufmann  
*Hygrophorus erubescens*, *Picea*, Ellen Larsson  
*Hygrophorus secretanii*, *Picea*, *Pinus*, Stig Jacobsson  
*Lactarius aquizonatus*, *Picea*, *Pinus*, Jan Olsson  
*Lactarius zonarioides*, *Picea*, Anita Stridvall, Kurt-Anders Johansson, Rolf-Göran Carlsson  
*Lyophyllum fumosum*, *Picea*, *Pinus*, Lars G Ljungberg, det. Ellen Larsson  
*Russula aurea*, *Picea*, Ursula Eberhardt

### **List by Mathias Lüderitz**

**E**=eksikkate, **D**=digital photo,  
**MB**=determination with microscope,  
**MZ**=microscopical drawing

*Alloclavaria purpurea*, D, E, MB, MZ  
*Clavariadelphus ligula*, D, E, MZ  
*Hygrophorus piceae*, Ellen Larsson, D, E  
*Mycena septentrionalis*, MB  
*Spathularia rufa*, Mathias Lüderitz-Tanja Böhning, D, E, MB

### **List by Jan Olsson**

*Chroogomphus rutilus*  
*Collybia cirrhata*  
*Lactarius aquizonatus*  
*Mycena viridimarginata*  
*Russula atrorubens*  
*Spathularia rufa*

### **List by Ellen Larsson, Stig Jacobsson**

*Agaricus arvensis*  
*Amanita muscaria* var. *muscaria*  
*Amanita muscaria* var. *regalis*  
*Amanita vaginata*  
*Chroogomphus rutilus*  
*Clitopilus prunulus*  
*Cortinarius caninus*



*Cortinarius croceus*  
*Cortinarius cyanites*  
*Cortinarius microspermus*  
*Cortinarius renidens*  
*Cortinarius subbalaustinus*  
*Cortinarius tabularis*  
*Cortinarius venustus*  
*Infundibulicybe gibba*  
*Inocybe mixtilis*  
*Galerina clavata*  
*Gymnopus acervatus*  
*Hebeloma theobrominum*  
*Inocybe flocculosa*  
*Inocybe mixtilis*  
*Inocybe nitidiuscula*  
*Inocybe rimosa*  
*Laccaria bicolor*  
*Lactarius deterrimus*  
*Lactarius fenoscandicus*  
*Lactarius glyciosmus*  
*Lactarius torminosus*  
*Lycoperdon excipuliforme*  
*Melanoleuca cognata*  
*Mycena flavoalba*  
*Mycena leptcephala*  
*Panaeolus acuminatus*  
*Panaeolus sphrincrinus*  
*Pluteus cervinus*  
*Rickenella setipes*  
*Stropharia semiglobata*  
*Suillus granulatus*  
*Suillus luteus*

1447255;6991095

## Byn

Not in the Excursion Guide

**Old mossy Picea on limestone, earlier  
 grazed forest. East of highway E45  
 27 Augusti 2018**

**Guide:** Bengt Petterson, Jeanette Södermark

**List by Jan Olsson assisted by Rolf-Göran  
 Carlsson, Stig Jacobsson, Ellen Larsson**

*Albatrellus confluens*  
*Alloclavaria purpurea*  
*Amanita muscaria var. regalis*  
*Auriscalpium vulgare*  
*Chalciporus piperatus*

*Chroogomphus rutilus*  
*Chrysomphalina chrysophylla*  
*Clitocybe catinus, Rolf-Göran Carlsson*  
*Clitocybe gibba*  
*Collybia cookei*  
*Collybia tuberosa*  
*Cortinarius callisteus, Stig Jacobsson*  
*Cortinarius cinnamomeus*  
*Cortinarius collinitus*  
*Cortinarius croceus*  
*Cortinarius gentilis*  
*Cortinarius laniger*  
*Cortinarius mucosus*  
*Cortinarius multififormis*  
*Cortinarius rusticus*  
*Cortinarius salor*  
*Cortinarius stillatitius*  
*Crepidotus cesatii*  
*Cudonia confusa*  
*Cystoderma amianthinum*  
*Cystoderma granulatum*  
*Fomes fomentarius*  
*Fomitopsis pinicola*  
*Galerina marginata*  
*Goeophyllum sepiarium*  
*Gomphidius glutinosus*  
*Gymnopus dryophilus*  
*Hebeloma mesophaeum*  
*Inocybe geophylla*  
*Hebeloma crustuliniforme*  
*Hydnellum aurantiacum*  
*Hydnum repandum*  
*Hygrocybe acutoconica*  
*Hygrophorus erubescens, Ellen Larsson*  
*Hygrophorus piceae, Ellen Larsson*  
*Hygrophorus pudorinus, Ellen Larsson*  
*Hygrophorus secretanii, Ellen Larsson*  
*Inocybe rimosa, Ellen Larsson*  
*Lactarius badiosanguineus*  
*Lactarius deterrimus*  
*Lactarius pubescens*  
*Lactarius scrobiculatus*  
*Lycoperdon pyriforme*  
*Micromphale perforans*  
*Mycena flavoalba*  
*Mycena pura*  
*Mycena rubromarginata*  
*Russula clavipes*  
*Russula nitida*  
*Russula vinososordida*  
*Sarcodon imbricatum*  
*Spathularia rufa*  
*Suillus variegatus*  
*Trichaptum abietinum*





The orchid *Nigritella nigra* is province flower for Jämtland. Painting by Rolf Lidberg

*Tricholoma fulvum*

*Tricholoma sculpturatum*, Rolf-Göran Carlsson

*Tricholoma terreum*

*M. metata* but smells of *Pelargonium*. According to

Artportalen it is not earlier found north of Uppland.

See also pp. 186–187 in the Danish book "The Genus *Mycena*" by Aronsen-Læssøe (2016).

### Comment, site 67, Storvålen and Byn

*Hygrophorus secretanii*. Ellen Larsson was happy to find "nordvaxing", typical for northern old *Picea* forest with most findings on Artportalen from the province of Jämtland. We find *H. secretanii* in virgin *Picea* forests along the alps but also in the lime district of Jämtland.

*Mycena septentrionalis* is close to *M. filopes* and

### Collections, UPS

*Ramaria eosanguinea*, Ellen Larsson, det. Lennart Söderberg

*Russula aurea*, *Picea*, *Pinus*, Ursula Eberhardt



## Collections, Fungarium UPS

All collections with field notes taken from the exhibition table and dried by Hjördis Lundmark.

<p><b><i>Hebeloma aanenii</i></b> 30 Augusti 2018</p> <p>Borgsjö parish, Orrårsberget North <i>Picea, Pinus</i> Francesco Bellu</p>	<p><b><i>Lactarius fuliginosus</i></b> 28 Augusti 2018</p> <p>Torp parish, Långberget <i>Picea</i> Tero Taipale</p>
<p><b><i>Hebeloma geminatum</i></b> 30 Augusti 2018</p> <p>Borgsjö parish, Orrårsberget North-Husmyrbäcken <i>Picea</i> Francesco Bellu</p>	<p><b><i>Lactarius obscuratus</i></b> 28 Augusti 2018</p> <p>Torp parish, Långberget <i>Alnus incana</i> Tero Taipale</p>
<p><b><i>Hygrophorus inocybiformis</i></b> 28 Augusti 2018</p> <p>Bräcke parish, Bodtjärnsbäcken 6956562;1480279 <i>Picea</i> Kristoffer Stighäll Det. Ellen Larsson, Stig Jacobson</p>	<p><b><i>Lactarius olivinus</i></b> 27 Augusti 2018</p> <p>Borgsjö parish, Kullbäcken-Markbäcken nature reserve <i>Picea, Pinus</i> Tero Taipale</p>
<p><b><i>Lactarius auriolla</i></b> 27 Augusti 2018</p> <p>Borgsjö parish, Kullbäcken-Markbäcken nature reserve <i>Picea</i>, on calcareous soil with <i>Hepatica nobilis</i> along the brook Kullbäcken Jan-Olof Tedebrand</p>	<p><b><i>Lactarius quieticolor</i></b> 29 Augusti 2018</p> <p>Frösö parish, Sommarhagen <i>Pinus</i> Jorinde Nuytinck</p>
<p><b><i>Lactarius leonis</i></b> 28 augusti 2018</p> <p>Torp parish, Långberget <i>Picea</i> Tero Taipale</p>	<p><b><i>Lactarius resimus</i></b> 30 Augusti 2018</p> <p>Borgsjö parish, Orrårsberget North, Husmyrbäcken <i>Betula, Picea, Pinus</i> Robin Dost</p>
<p><b><i>Lactarius evosmus</i></b> 29 Augusti 2018</p> <p>City of Östersund, Lillskogen, park on limestone Under big <i>Populus</i> Jan-Olof Tedebrand Det. Annemieke Verbeken</p>	<p><b><i>Lactarius scoticus</i></b> 27 Augusti 2018</p> <p>Borgsjö parish, Kullbäcken-Markbäcken nature reserve Tero Taipale</p>
<p><b><i>Lactarius fennoscandicus</i></b> 29 Augusti 2018</p> <p>Borgsjö parish, Hermanboda <i>Picea</i> Tero Taipale</p>	<p><b><i>Lactarius tuomikoskii</i></b> 28 Augusti 2018</p> <p>Bräcke parish, Bodtjärnsbäcken <i>Picea</i> Anders Aronson, Mats Karlsson, Tony Svensson</p>
<p><b><i>Lactarius fennoscandicus</i></b> 27 Augusti 2018</p> <p>Kullbäcken-Markbäcken nature reserve <i>Picea</i> Tero Taipale</p>	<p><b><i>Lactarius uvidus</i></b> 28 Augusti 2018</p> <p>Bodsjö parish, Sidsjö <i>Picea, Pinus</i> Birgitta Wasstorp</p>
<p><b><i>Lactarius flavopalustris</i></b> 28 Augusti 2018</p> <p>Borgsjö parish, Dysjöberget <i>Betula, Pinus</i> Gunilla Kärrfelt</p>	<p><b><i>Lactarius vietus</i></b> 28 Augusti 2018</p> <p>Bodsjö parish, Sidsjö <i>Betula, Picea</i> Robin Dost</p>
	<p><b><i>Lactarius zonarioides</i></b> 29 Augusti 2018</p> <p>Borgsjö parish, Orrårsberget North, Husmyrbäcken <i>Picea, Pinus</i> Birgitta Wasstorp</p>





Rainbow over Borgsjö. Photo: Olga Morozova

***Ramaria eosanguinea*** 27 Augusti 2018

Lockne parish, Storvålen  
Örtrik kalkgranskog  
Ellen Larsson, det. Lennart Söderberg

***Ramaria karstenii*** 28 Augusti 2018

Bräcke parish, Bodtjärnsbäcken  
*Picea*  
Kristoffer Stighäll, det. Lennart Söderberg

***Ramaria pallida*** 27 Augusti 2018

Kullbäcken-Markbäcken nature reserve  
*Picea*  
Lennart Söderberg

***Ramaria testaceoflava*** 27 Augusti 2018

Borgsjö parish, Kullbäcken-Markbäcken nature reserve  
*Picea*  
Lennart Söderberg

***Russula amethystina*** 27 Augusti 2018

Borgsjö parish, Granbodåsen nature reserve  
*Picea, Pinus*  
Birgitta Wasstorp

***Russula anthracina*** 26 Augusti 2018

Borgsjö parish, churchyard  
*Betula*  
Mats Karlsson, Tony Svensson

***Russula atroglauca*** 28 Augusti 2018

Torp parish, Tubbobäcken  
*Betula*  
Elias Polemis

***Russula aurantioflammans*** 29 Augusti 2018

Borgsjö parish, Ensillre-Hermanboda  
Vid p-platsen nära E14  
Lennart Söderberg

***Russula aurea*** 27 Augusti 2018

Lockne parish, Storvålen  
*Picea, Pinus*  
Ursula Eberhardt

***Russula aurea*** 29 Augusti 2018

Frösö parish, Sommarhagen  
*Picea, Populus*  
Per Marstad

***Russula cessans*** 26 Augusti 2018

Borgsjö parish, hembygdsgården  
*Pinus*  
Mats Karlsson, Tony Svensson

***Russula chloroides*** 26 Augusti 2018

Borgsjö parish, churchyard  
*Betula*  
Tero Taipale

***Russula claroflava*** 26 Augusti 2018

Ljusdal parish, Hennan  
*Picea*  
Tero Taipale

***Russula clavipes*** 27 Augusti 2018

Borgsjö parish, Granbodåsen nature reserve  
*Betula, Picea, Pinus, Populus*  
Anders Aronson, Mats Karlsson, Tony Svensson



<b><i>Russula clavipes</i></b> 27 Augusti 2018 Borgsjö parish, Kullbäcken-Markbäcken nature reserve <i>Picea, Pinus</i> Tero Taipale	<b><i>Russula font-queri</i></b> 26 Augusti 2018 Borgsjö parish, hembygdsgården <i>Betula, Pinus</i> Mats Karlsson, Tony Svensson
<b><i>Russula consobrina</i></b> 28 Augusti 2018 Bräcke parish, Bodtjärnsbäcken <i>Picea</i> Birgitta Wasstorp	<b><i>Russula gracillima</i></b> 29 Augusti 2018 Borgsjö parish, Hermanboda <i>Betula, Picea</i> Tero Taipale
<b><i>Russula crassipes</i></b> 27 Augusti 2018 Kullbäcken-Markbäcken nature reserve Tero Taipale	<b><i>Russula grisescens</i></b> 26 Augusti 2018 Ljusdal parish, Hennan <i>Picea</i> Tero Taipale
<b><i>Russula delica</i></b> 27 Augusti 2018 Borgsjö parish, hembygdsgården	<b><i>Russula intermedia</i></b> 28 Augusti 2018 Borgsjö parish, Dysjöberget nature reserve <i>Betula, Picea, Pinus</i> Karl Soop, det. Herbert Kaufmann
<b><i>Picea, Pinus</i></b> 26 Augusti 2018 Mats Karlsson, Tony Svensson	<b><i>Russula intermedia</i></b> 26 Augusti 2018 Borgsjö parish, churchyard <i>Betula</i> Tero Taipale
<b><i>Russula exalbicans</i></b> Bodsjö parish, Sidsjö	<b><i>Russula lutea</i></b> 27 Augusti 2018 Borgsjö parish, churchyard <i>Betula</i> Tero Taipale
<b><i>Betula, Picea</i></b> 28 Augusti 2018 Elias Polemis Det. Slavomir Adamcik	<b><i>Russula medullata</i></b> 29 Augusti 2018 City of Östersund, Lillskogen park Old aspen Per Marstad
<b><i>Russula favrei</i></b> 27 Augusti 2018 Borgsjö parish, Kullbäcken-Markbäcken nature reserve <i>Picea, Pinus</i> Tero Taipale	<b><i>Russula nauseosa</i></b> 27 Augusti 2018 Borgsjö parish, Kullbäcken-Markbäcken nature reserve <i>Picea, Pinus</i> Tero Taipale
<b><i>Russula favrei</i></b> 27 Augusti 2018 Torp parish, Tubbobäcken <i>Picea</i> Elias Polemis, det. Felix Hampe "Smell of crabs or fishy, taste mild"	<b><i>Russula nitida</i></b> 26 Augusti 2018 Ljusdal parish, Hennan <i>Picea</i> Tero Taipale
<b><i>Russula fennoscandica</i></b> 27 Augusti 2018 Borgsjö parish, Kullbäcken-Markbäcken nature <i>Picea, Pinus</i> Tero Taipale	<b><i>Russula olivina</i></b> 27 Augusti 2018 Borgsjö parish, Kullbäcken-Markbäcken nature reserve <i>Picea</i> Lennart Söderberg
<b><i>Russula firmula</i></b> 27 Augusti 2018 Borgsjö parish, Granbodåsen nature reserve <i>Picea</i> Anders Aronson, Mats Karlsson, Håkan Sundin, Tony Svensson	<b><i>Russula olivobrunnea</i></b> 28 Augusti 2018 Torp parish, Långberget <i>Picea</i> Tero Taipale
<b><i>Russula foetens</i></b> 26 Augusti 2018 Borgsjö parish, churchyard <i>Betula</i> Mats Karlsson, Tony Svensson	





Olle Persson (1928–2014) was a *Russula* lover. He was also a close friend to Nils Suber (1890–1985), another famous Swedish *Russula* lover. Olle visited many workshops in Borgsjö, often singing and playing at banquet evenings. Photo: Hjärdís Lundmark (also *Russula* lover).

<b><i>Russula paludosa</i></b>	28 Augusti 2018	<b><i>Russula rhodopoda</i></b>	27 Augusti 2018
Bräcke parish, Bodtjärnsbäcken		Borgsjö parish, Kullbäcken-Markbäcken nature reserve	
Anders Aronson, Mats Karlsson, Tony Svensson		<i>Picea, Pinus</i>	
		Tero Taipale	
<b><i>Russula paludosa</i></b>	28 Augusti 2018	<b><i>Russula roseipes</i></b>	27 Augusti 2018
Bodsjö parish, Sidsjö		Borgsjö parish, Lombäcksheden	
J.M. Traba		<i>Picea, Pinus</i>	
		Anders Aronson, Mats Karlsson, Tony Svensson	
<b><i>Russula pelargonía</i></b>	28 Augusti 2018	<b><i>Russula turci</i></b>	27 Augusti 2018
Jämtland, Frösön, Frösö Strand		Torp parish, Tubbobäcken	
Gräsmatta med asp, sälg		<i>Pinus</i>	
Lars-Olof Grund		Jochen Girwert, det. Per Marstad	
Det. Lennart Söderberg			
<b><i>Russula queletii</i></b>	28 Augusti 2018	<b><i>Russula vinosa</i></b>	26 Augusti 2018
Borgsjö, Hermanboda		Ljusdal parish, Hennan	
<i>Picea</i>		<i>Picea</i>	
Tero Taipale		Tero Taipale	
<b><i>Russula rhodopoda</i></b>	27 Augusti 2018	<b><i>Tremiscus helvelloides</i></b>	28 Augusti 2018
Borgsjö parish, Lombäcksheden		Bodsjö parish, Sidsjö	
<i>Picea, Pinus</i>		Anders Aronson, Mats Karlsson, Tony Svensson	
Anders Aronson, Mats Karlsson, Tony Svensson			





## Redlisting of fungi

**The red listing is a global system developed by the International Union for Conservation of Nature (IUCN). Finds of many redlisted species have no legal significance but indicate a valuable nature type. Today many countries make up Red Lists of threatened species.**

China has begun to make up redlists. In 2019 Finland published a new redlists for fungi. Sweden publishes new redlists every fifth year (next time will be in 2020). New knowledge appears rapidly. At the Swedish Species Information Centre (ArtDatabanken) in Uppsala there are specialist handling data about species and nature types in Sweden. In September 2018 members of the Swedish red listing committees gathered in Uppsala, received information and discussed status and trends for the Swedish nature types. In June 2019 the Swedish Species Information Centre and the Swedish Environmental Protection Agency delivered data to the European Union about status for nature types in Sweden. The worst situation was for "semi-natural grasslands": <https://www.naturvardsverket.se/Nyheter-och-pressmeddelanden/Den-biologiska-mangfalden-ar-hart-trangd/>

Actual status and trends in 2015 for redlisted species and their nature types in Sweden is commented in the document "Artdatabanken rapporterar-17 (in Swedish, English summary at page 6): [https://www.artdatabanken.se/globalassets/ew/subw/artd/2.-var-verksamhet/publikationer/21.-tillstand-och-trender/rapport\\_tillstand\\_och\\_trender.pdf](https://www.artdatabanken.se/globalassets/ew/subw/artd/2.-var-verksamhet/publikationer/21.-tillstand-och-trender/rapport_tillstand_och_trender.pdf)

Next red list for Sweden will be published in springtime 2020. Norway will publish a new redlist for fungi in 2021, coordina-

tor is Tor Erik Brandrud. In the future the Nordic countries ought to coordinate their redlists more than today. Perhaps one red list for the "brother countries" Norway and Sweden could be a good idea? There is also underway with a Global Fungus Redlist. Anders Dahlberg and Michael Krikorev are involved and run a website: <http://iucn.ekoo.se/en/iucn/welcome>

The redlisting of fungi is based on many sources. Basic facts and statistics about situation for different nature types improves all the time and are delivered to European Union every 6th year, latest now in June 2019. Facts are available on Artportalen, [www.artportalen.se](http://www.artportalen.se)

See also sources like NILS, a Swedish program for landscape analysis: [www.slut.se/centrumbildningar-och-projekt/nils](http://www.slut.se/centrumbildningar-och-projekt/nils) and Riksskogstaxeringen: [www.slu.se/centrumbildningar-och-projekt/riksskogstaxeringen](http://www.slu.se/centrumbildningar-och-projekt/riksskogstaxeringen)

The redlisted species are categorized as follows: Regionally extinct (RE), Critically endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC). You can see Michael Krikorev's list of redlisted species found at *Russulales* 2018 in Excel file at the homepage [www.myko.se](http://www.myko.se) and link *Russulales* 2018.



# SVAMP UTSTÄLLNING



ARR:  
SUNDSVALLS MYKOLOGISKA SÄLLSKAP  
26 AUGUSTI – 13 SEPTEMBER

## Sundsvalls Museum





The beautiful mountain farm Myhrbodarna at Valsjöbyn, northern Jämtland. A wonderful photo by Ninni Nordlund!

## Fungi on old meadows

The famous Swedish author Kerstin Ekman lived 24 years at Valsjöbyn in northern Jämtland. Several of her novels have motives from Valsjöbyn like "Händelser vid vatten" and "Vargskinnet".

The photo above by Ninni Nordlund, employed at the county government of Jämtland. Ninni knows farmers all over Jämtland county who own seminatural grasslands. She loves grasslands with the orchid *Nigritella nigra*, the province flower of Jämtland. Jan-Olof and Ninni organized a wonderful "happening" in summertime 2019 on the *Nigritella nigra* meadow Nästmyren in Marieby parish, Jämtland. Also a good site for *Entoloma* species. You can see Jessica Andersson's photos from the memorable meeting at Nästmyren on the facebook page of Medelpads Botaniska Förening on 29 June 2019: <https://www.facebook.com/groups/1462577324035522/>

### Håkan Lindström wrote pioneering article about semi-natural grasslands in mid Sweden

During their work with a new province flora for Medelpad (finished in 2010) Håkan Lindström and Rolf Lidberg observed that the composition of vascular plants changed mostly in the cultural landscape compared with the latest province flora by Erik Collinder from 1909. Håkan studied about 50 years ago 15 old "hackslättmarker" (meadows) in Medelpad and published 1980 a pioneering article in *Svensk Botanisk Tidskrift* (31). He mentioned also the rich fungi of species in e.g. *Clavaria*, *Entoloma*, *Geoglossum* and





Bengt Larsson (at the camera) guides to the mountain farm Gammelbodarna in 2010: Photo: Anita Stridvall

*Hygrocybe*. In Norway and Sweden we have around 160 so called "ängssvampar", see article in Svensk Mykologisk Tidskrift 2017 (41). Today around 2020 Stefan Grundström has made inventories of limerich meadows at Alnö island and also of meadows in southern part of Sundsvall municipality. Stefan has also highlighted the biological values of poor, non fertilized hayfields (slätterravall), a common nature type in northern Sweden, see photo pp 224.

### Important to raise the compensation to farmers with semi-natural grasslands

We received in 1985 WWF a monetary contribution from WWF and could thus encourage farmers to continue with managing their old meadows. We sat at many kitchen tables and talked with owners of biological rich grasslands. Wonderful memories. In 1995 Sweden as a country joined the European Union (EU) and became part of the Common Agriculture Policy (CAP). There is now important for the Swedish government to raise the compensation to farmers for their biological rich meadows and pastures.

### Urban Ekstam – important fighter for old meadows and pastures

In 1988 Urban Ekstam at the Swedish Environmental Agency came to Borgsjö and arranged a course at Saint Olof inn for meadow experts at the county governments of northern Sweden. We prepared the course together with Urban and visited old grasslands in Jämtland and Medelpad. Björn Winberg from the Swedish National Heritage Board (Riksantikvarieämbetet) informed about the old culture landscape in Ljungan valley and the Storsjö area during the iron age, the Finnish colonization, the mountain farm

period and in present time. Around 1990 Eva Näsman made inventories of old meadows and pastures in Jämtland. Anders Viotti made similar inventories in the provinces of Medelpad and Ångermanland. Very informative documents about status for old grasslands in our both counties. Today European Union and Swedish state support farmers who own valuable grasslands. A big problem for semi-natural grasslands is fewer grazing cattles and less consumption of milk. 30 years ago there were about 2000 farms with cows all over the county of Västernorrland. Today there are only just about 100 farms left with cows in the county. This negative trend with fewer grazing cows will continue and is a big problem not only for the open culture landscape but also for hundreds of redlisted species. More and more grassland fungi will appear at the Swedish redlist. A positive trend for semi-natural grasslands is more of grazing horses.

### Old meadows in Finnish villages south of the Borgsjö valley

Hugo Sjors published in 1954 an ecological study of meadows in Grangärde finnmark in southwestern part of Dalarna. In the Finnish areas in southern part of the parishes Stöde, Torp, Borgsjö in Medelpad and also in Hassela parish in northern Hälsingland vaste areas were burnt ("svedjebruk" in Swedish) 3–400 years ago. Some old meadows have been managed until about 50-75 years ago. During the mycological weeks in Borgsjö we have visited many meadows in old Finnish villages among others Julåsen, Naggen, Finnsjön and Oxsjön. Machiel Noordeloos found *Entoloma kervernii* and *E. pratulense* on *Nardus stricta* meadow down by the lake at Finnsjön. The kind Kerstin Finnberg still lives with her cows and sheeps at Finnsjön.





"Massas" stuga vid Oxsjön 1920. Pappa står framför stugan. Photo: Gullik Gulliksson. Photo owner: Västernorrlands Museum.

### **Entoloma-important and speciesrich group on old grasslands**

We have about 160 "meadow fungi" (ängssvampar) in Norway and Sweden (71). *Entoloma* s.l. is the most speciesrich group. During the *Entoloma* workshop in Borgsjö 1985 Machiel Noordeloos identified 47 *Entoloma* species on meadows in Jämtland and Medelpad. 10 species were new for Sweden. We visited following meadows in Medelpad: Gammelbodarna, Julåsen, Grundsjön, Granbodåsen, Råabäcken, Västånåbodarna, Granboda, Oxsjön, Finnsjön. In Jämtland we visited meadows at Bodal and Torvalla. On the last evening Machiel made a summary of the fantastic *Entoloma* week in 1985.

### **Trollrödskivling (*Entoloma lidbergii*) has gone to heaven!**

Around 2020 there is a "revolution" in studies of *Entoloma* with many new names and combinations after DNA studies. *Entoloma bloxamii* has, as an example, been divided in three species and *E. prunuloides* in two species. *Entoloma*

*lidbergii* ("trollrödskivling"), named in honour of Rolf Lidberg and found at the meadow Julåsen, is no longer an accepted species. Hopefully we have a solid *Entoloma* nomenclature in some years of this important group of fungi on old grasslands. Several rare and threatened *Entoloma* species then will be added on redlists in Norway, Sweden and other countries.

### **Entoloma researchers visited Fredrik and Ulrika in Alsens Ede, Jämtland**

A group of *Entoloma* researchers uses DNA-methods to bring order in the *Entoloma* group (3): Egil Bendiksen, Tor Erik Brandrud, Balint Dima, Olga Morozova and Machiel Noordeloos. The group visited in 2016 old semi-natural grasslands in Jämtland and Medelpad, partly in full storm. They found following number of *Entoloma* species at sites in Jämtland: Alsen SW (13), Trång (11), Glösa (10), Tysjöarna (6), Torvalla (5). At Kullbodarna in Medelpad they identified 11 *Entoloma* species. See details and discussions of all finds by the *Entoloma* group in Svensk Mykologisk



Tidskrift 2017/3 pp. 25–35. The informative article contains a long summary in English at pp. 33–35 with comments on *Entoloma caesiellum* (photo), *violaceoserrulatum* (photo), *aff. brunneoserrulatum*, *atrocaeruleum* (photo) *griseocyanum*, *madidum* (photo), *aff. triste* (photo), *aff. korhonenii* (photo), *majaloides* (photo). A fantastic *Entoloma* hot spot was the courtyard of Fredrik Jonsson and Ulrika Nordin in Alsens Ede, Jämtland. The landowners and lichenologists Fredrik and Ulrika had marked every *Entoloma* occurrence on their lawn with wooden sticks. Fredrik joined us at the *Nigritella* happening at Nästmyren in summertime 2019 with the orchid researcher Marie Kristine Brandrud.

### Hygrocybe workshop in 1987

During the Hygrocybe week in Borgsjö 1987 Eef Arnolds, Johan Nitare, Erik Rald and others visited the following seminatural grasslands in Jämtland: Brunflo: Grytan and Opebacken, Oviken: Borgen, and Önsta. The findings were reported to the county government. We visited also in 1987 many old grassland in the Borgsjö area. In 1992 Lindström-Nitare-Tedebrand published the article "Ängens svampar" with detailed information about present knowledge concernig meadow fungi in mid Sweden (32). Lennart Vessberg made in 2018 an inventory of meadow fungi on many grasslands in Jämtland.

### Many meadow fungi in alpine part of Härjedalen

Östersund Mykologiska Förening and Myko arranged the Swedish mycological week 2006 in the alpine part of western Härjedalen. We found many meadow fungi on old meadows, in rich fens and on limerich heaths with *Dryas octopetala*. Pierre Arthur Moreau, Jan Vesterholt and others determined new meadow fungi for Sweden among others in *Entoloma*, see report: [www.myko.se/wp-content/uploads/2014/09/2006-08-14-20-Mykologiveckan-Hamra-Härjedalen.pdf](http://www.myko.se/wp-content/uploads/2014/09/2006-08-14-20-Mykologiveckan-Hamra-Härjedalen.pdf)

### Annica restores a montain farm

Annica Carlsson is a meadow expert at the county government of Västernorrland. She invite local botanists in summertime to visit old meadows in order to discuss managing matters. Annica also restore meadows from bushes and trees with the help of unemployed people for instance on the large grassland areas at the mountain farm Oxsjövallen. The state form of support "Nära till Naturen" has financed many excellent projects of nature conservation and should be reintroduced.

### Frida Turander and her Facebook group "Ängssvampar" (meadow fungi)

Frida Turander lives in the province of Värmland, owns some meadows and manage a Face book group on meadow fungi in Sweden: <https://www.facebook.com/>



Orchid researcher Marie Kristine Brandrud and Håkan Sundin on 28 Aug.2019 at meadow with *Nigritella nigra*, Nästmyren, Fugelsta, Jämtland. Jan-Olof and Tor Erik Brandrud made sensational find of a big group with *Calocybe graveolens* ("falsk vårmusseron" in Swedish) in *Picea* forest near the meadow. Photo: Hjördis Lundmark

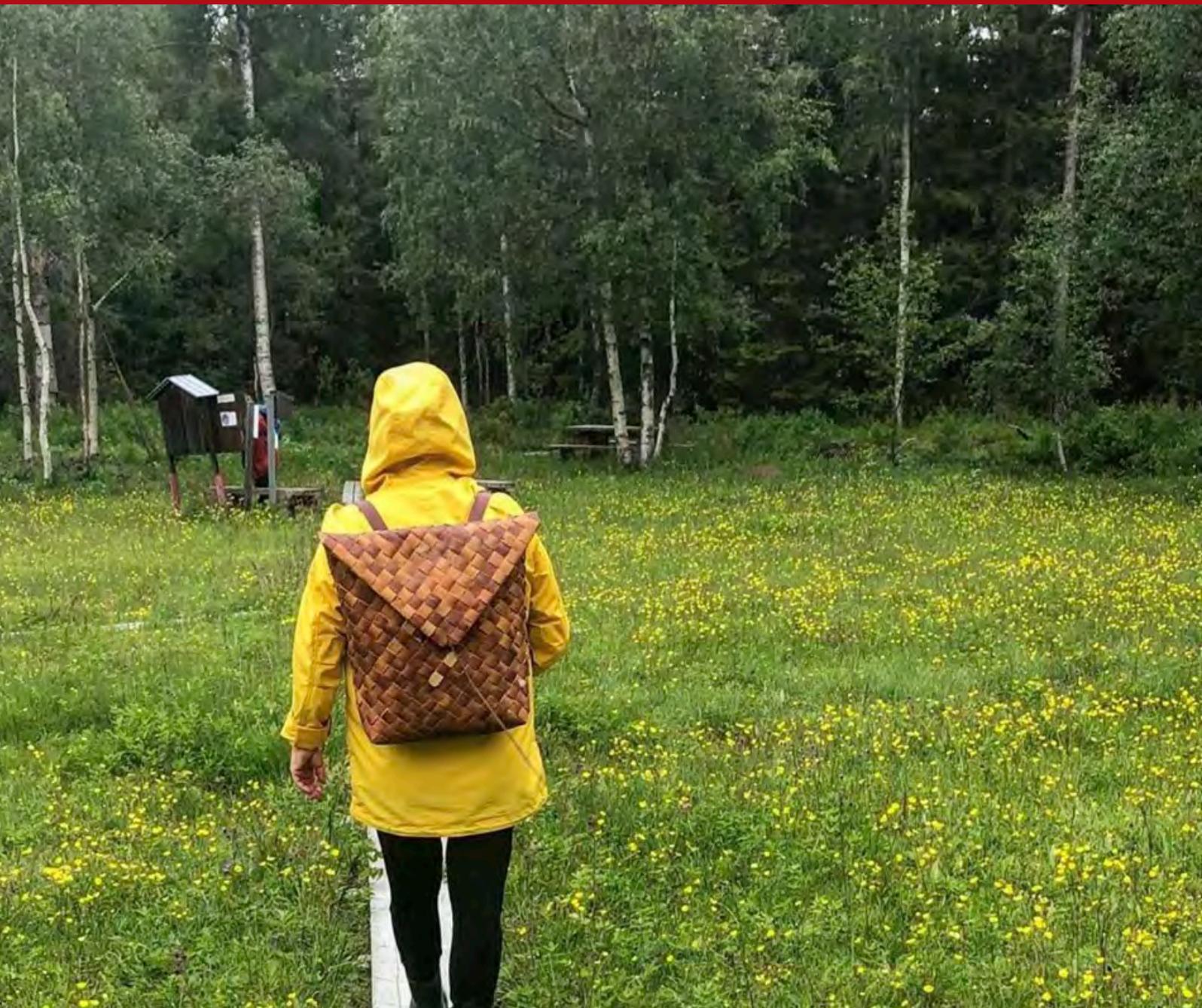
groups/514409175306489/ Frida also have done wonderful short films at Youtube about biological rich parts of the old Swedish culture landscape like "slätterängar" (meadows) and "fäboddar" (mountain farms").

### Kill Persson: "Burning may be good for biological diversity on old semi-natural grasslands"

Annika Carlsson at the county government burnt in may 2019 the wet calciphilous meadow at Råabäcken in Borgsjö with plants like *Primula farinosa*, *Sesleria uliginosa* and a rich meadow funga.

In May 2019, Kill Persson led a course on burning grasslands for the county government of Jämtland. Kill wrote together with Krister Larsson on "Naturvårdsbränning och ängssvampar" in Svensk Mykologisk Tidskrift 2013/2. They say: "The occurence of vascular plants, insects and fungi in unfertilized grasslands subject to different types (grazing, mowing and prescribed burning) was observed in sample plots in 2009–2012. The result show that grassland fungi increased in plots subject to burning compared with those managed with grazing and mowing, whereas vascular plants and insects maintained stable populations in all plots. Prescribed burning may turn to be an additional important measure to manage unfertilized grasslands in order to preserve their biological diversity." A conclusion is that burning in springtime is good for meadow fungi and other biological diversity on semi-natural grasslands. There are also a need of new, smart technical methods to manage old grasslands. Many areas with few stones can be managed with common lawn mowers, perhaps with grass collector!





Jessica Andersson walk slowly, like a pilgrim, among flowers at Nästmyren, Jämtland. Also a good site for *Entoloma* species. Photo: Hjördis Lundmark

### John Bjarne Jordal wrote "Action plan för meadow fungi"

John Bjarne Jordal has for the Swedish Environmental Protection Agency written "Åtgärdsprogram för svampar i ängs- och betesmarker 2011–1015" with focus on *Entoloma bloxamii*, *Hygrocy aurantiosplendens*, *H. splendidissima*: [www.naturvardsverket.se/Documents/publikationer/6400/978-91-620-6423-5.pdf?pid=3731](http://www.naturvardsverket.se/Documents/publikationer/6400/978-91-620-6423-5.pdf?pid=3731)

Anders Janol's book: "Ängssvampar i Dalarna"

An excellent book on meadow fungi is written by Anders Janols from the province of Dalarna: *Ängssvampar i Dalarna* (2012). The book can be ordered from the county government of Dalarna, also available as pdf-file: <https://www.lansstyrelsen.se/dalarna/tjanster/publikationer/2012/201210-angssvampar-i-dalarna.html>

### Anders Jacobson talked about present situation for Swedish seminatural grasslands

More than 60 percent of the vascular plants and also many fungi on the Swedish red list are bound to the old agricultural landscape. As a part of the preparation for the Swedish red list 2020 a seminar was arranged in September 2018 at the Swedish Species Information Centre (ArtDatabanken) for members of all redlisting groups with presentations of actual status for nature types in Sweden. Anders Jacobson talked about grasslands and sand dunes, see his and other presentations at <https://share.mediaflowpro.com/?RSARD8NEWX>





Kai Reschke, Entoloma researcher from Goethe University in Frankfurt, Germany. Photo: Annemike Verbeken

### **Maria Danvind arranged successful meeting about semi-natural grasslands**

The mycologist Hjalmar Croneborg is a leading person in "Nätverket Svenska Kulturlandskap", one of the organizers of a conference in Östersund 19–20 April 2018 on "The culture landscape in northern Sweden". Maria Danvind work for the Swedish Society for Nature Conservation in the counties of Jämtland and Västernorrland. She has a deep fascination for the biological diversity in forests and semi-natural grasslands. Maria was one of the organizers of meetings in Jämtland 2018 and in Härjedalen 2019 with the organization Protect The Forest. She also arranged 9–10 April 2016 a successful weekend seminar in Bräcke, Jämtland about old semi-natural grasslands in the counties of Jämtland and Västernorrland. At the seminar we received information from farmers and owners of old grasslands from the Bothnian coast to the alpine slopes. Håkan Lindström, Ninni Nordlund and Bengt Petterson informed about present situation for the orchid *Nigritella nigra*. Stefan Grundström talked about the biological values on the vaste areas with poor hayfields (hövallar) in northern Sweden. He suggested biological inventories of speciesrich hayfields. Gunilla Kjellson from the land owners organization LRF and agricultural researcher Anna Hessle had concrete views on grazing and on EU Common Agricultural Policy (CAP). A short summary in Swedish from the seminar can be received from: jan-olof.tedebrand@telia.com

### **Report on semi-natural grasslands from Riksantikvarieämbetet**

"Ängar och slåtter-historia, ekologi, natur- och kulturmiljövärd" (2019) by Tommy Lennartsson and Anna Westin is a good summary of research on Swedish semi-natural grasslands. Published by Riksantikvarieämbetet.

### **Kai Reschke- Entoloma researcher at Goethe University in Frankfurt, Germany**

Annemieke, Jan-Olof and Jorinde received on 22 July 2018 a mail from Machiel Noordeloos:

"Kai Reschke will be participating in the meeting in Borgsjö. He is a PhD student from Frankfurt, who is doing a study of *Entoloma* subgenus *Nolanea* with a multi-gene approach. He asked my supervision beside his promotor Meike Piepenbring. I suggested him to come to Borgsjö, and to collect and study *Entoloma* together, not knowing that I am unable to come. Could you be so kind (and I look at Jan-Olof) to assist him in finding the right collecting places, and (lookig at Mieke and Jorinde) check whether he needs any help in describing. I think his skills are good, but make a chat with him now and then to see whether he can use some help.

Best regards  
Machiel"



# Rune Backman and Anders Westling told us about the old cultural landscape of Borgsjö

**During the mycological workshops in Borgsjö the participants have often visited Rune and Vega Backman at Gammelbodarna and their old meadows with many rare butterflies, fungi and vascular plants. We have also met the farmer Anders Vestling in his home village Granboda and when he managed his sheeps on the mountain farm Granbodåsen.**



Now Rune, Vega and Anders are dead. Helene Öhrling from the county government of Västernorrland and Jan-Olof made on 28 Aug. 2009 a tape-recording with Anders and Rune in the kitchen of Rune at Gammelbodarna. Vega had left us at that time. Ulla-Britt, daughter of Rune and Vega, joined us at the end of the talk. Helene also made a tape-recording with Rune in August 1995. Here follows a very short summary of the talks with Anders and Rune about landscape and life in older times in Borgsjö and also some mycological memories.

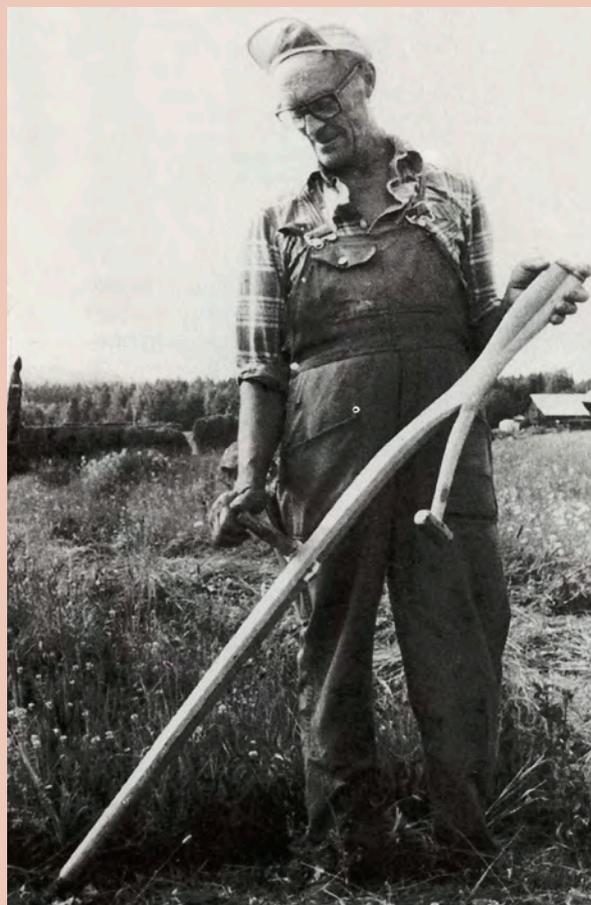
## More open culture landscape one hundred years ago

Rune Backman and Anders Westling told us that both Gammelbodarna and Granboda in older times were burnt places (svedjemarker) and mountain farms belonging to the big village Västernäset. Rune told us that his maternal grandfather's father Per Nilsson settled down at Gammelbodarna around 1860. In Rune's childhood the landscape around Gammelbodarna was open with few trees. Small "fjällkor" ("alpine cows", a cow race common in older times) grazed in summertime near the houses. Almost all landscape was used by farmers. People worked on their farms in summertime and as lumberers in wintertime. Many also worked with log-driving during some days at springtime in small rivers like Harrån and Täljeån and almost all summer in the big river Ljungan. A power station in Täljeån gave electric power to Gammelbodarna at Christmas eve 1922. That was a day of happiness!

## Mycologists have established a friendly relationship to vittra

Anders and Rune also told us about the mountain farms, often a long way from the home village. Rune said that his ancestors used to talk about small creatures (vittra) at the mountain farm Starrmyrbodarna. Daga Nyberg from Skärvången in Jämtland published in 1990 a book with folklore stories about "vittran" from different parts of Jämtland. During our visits to old mountain farms we have established a friendly relationship to vittra. Anders told us that the

mountain farm Granbodåsen was jointly owned by several farmers and that the whole slope hundred years ago was almost totally open without trees. Anders also remembered the exact place for the orchid *Nigritella nigra*. Today there is old forest at that place. Farmers at Granboda stopped using the forest farm Granbodåsen in 1946. Nowadays Granbodåsen is a nature reserve. We have many wonderful memories of meetings with the old farmers Axel and Judth Jonsson in their home village Granboda and at Granbodåsen. The system with forest farms disappeared almost totally around 1950 when milk could be sold to dairies. At that time there were small local dairies all over Sweden.



Rune Backman with his scythe. Photo: Anders Viotti. See also drawing above by Siw Muskos.





Eef Arnolds, Erik Rald, Johan Nitare and Jan-Olof Tedebrand outside our exhibition hall at *Hygrocybe* workshop in Borgsjö 1987 when we looked for fungi on old meadows from western Medelpad to *Nigritella nigra* meadows at the villages Borgen and Önsta in Oviken parish, Jämtland. Photo: Kjell Olofsson

### ***Hygrocybe aurantiosplendens*, "queen of the meadow"**

Rune remembered when the artist and botanist Rolf Lidberg visited Gammelbodarna for the first time around 1970. Rolf liked Gammelbodarna and their people very much. He told Rune and Vega about the special flowers on their meadows. During mycological workshops in Borgsjö since 1982 we have many times visited the meadows of Rune and Vega. During the *Tricholoma* workshop in 1995 we walked over the meadows of Gammelbodarna together with Barbara and Eef Arnolds, John Bjarne Jordal, Sonja Kuoljok and Erik Malm. They found ten big groups of colourful *Hygrocybe aurantiosplendens* with more than twenty fruitbodies in each group! We also found groups of *H. aurantiosplendens* on nitrogen poor hayfield (hövall). Eef and John Bjarne said that meadow fungi often appear on old hayfields 10-20 years after last ploughing.

Erik Malm took photos of *H. aurantiosplendens*, named at evening talk as "queen of the meadow"! Erik was very fond of waxcaps at meadows and in forests. At his funeral colourful waxcaps adorned the lawn outside the church. Sonja found *Stropharia inuncta* that wonderful autumn day in 1995. We found 12 species of *Hygrocybe* and also *Entoloma* species such as *caesiocinctum*, *infula*, *longistriatum*, *prunuloides*, *rhombisporum* and *turci*. Eef showed us the white form of

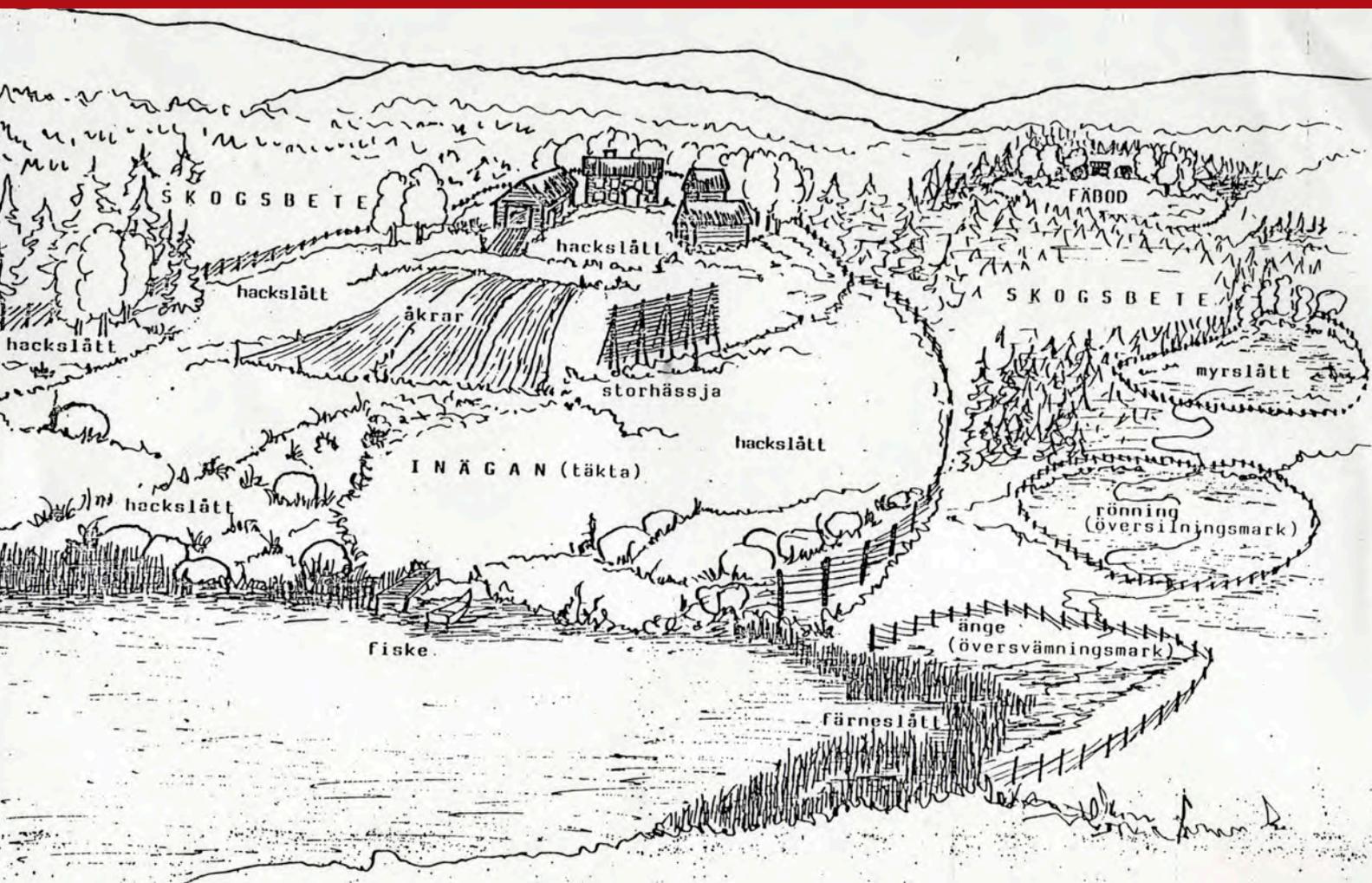
*Mycena epipterygia*, common and typical for calcareous meadows according to Eef. At a dry area dominated by *Nardus stricta* we found *Melanoleuca subbrevipes*, determined at evening by Gro Gulden. It is an alpine species but also found on some heathlike grasslands in Sweden. Gro also confirmed the *Lepista luscina*, found also on some *Nigritella nigra* meadows in Jämtland like Bodal and Nästmyren.

We also find the alpine *Russula nana* and *R. oreina*, bound to *Polygonum viviparum*, at Gammelbodarna. The butterfly *Lycaena helle*, also bound to *P. viviparum*, appears at Gammelbodarna. The whole owner family, Rune, Vega, daughter Ulla-Britt and grandchildren, walked together with us that autumn day 1995. They liked to hear our discussions about the colourful *Entoloma* and *Hygrocybe* species. The clouds disappeared, the sun was shining and we had a long lunch at the stony meadow. Sonja told about alpine mountains in Lappland, reindeers, life of sami people.

### **Kai visited Gammelbodarna in 2018**

Now in 2018 *Entoloma* researcher Kai Reschke from Goethe university in Frankfurt visited Gammelbodarna. Meadow fungi had not started to form fruitbodies, but Kai still found interesting meadow fungi like *Dermoloma jösserandii* and *Entoloma kristiansenii*, see below.





The old agriculture landscape in Mid Sweden. Drawing by Siw Muskos

## Medelpad

6939970; 1501620

8

**Gammelbodarna, Borgsjö,  
finds by Kai Reschke**

Excursion guide pp. 68-71

28 Aug. 2018

*Entoloma ameides*, KaiR1252, 1254, 1255  
*Dermoloma josserandii* s.l., KaiR1253, 1256  
*Entoloma kristiansenii* s. str., KaiR1258  
*Entoloma longistriatum*, s.l., KaiR1257  
*Entoloma sericeum* s.str., KaiR1259, 1260, 1262, 1263  
*Entoloma cf caesiellum*, KaiR1261  
*Entoloma rhombisporum* s.l., KaiR1264

### Comment

The meadow funga at Gammelbodarna is described in 1992 by Lindström-Nitare-Tedebrand (32). Leif Örstadius found 27 Aug. 1985 *Entoloma triste* and *E. velenovskyi*. *Dermoloma josserandii* was found here by Thomas Læssøe, Machiel Noordeloos and Erik Rald 25 Aug. 1986 (C, L) together with *Dermoloma phaeopodium* (C). Fantastic that Kai refound the rare and redlisted (VU) *D. josserandii* now in 2018! Congratulations Kai! Artportalen has 33 dots for *D. josserandii* in Sweden, among them 15 dots on the lime island of Öland. Erik Rald told us in his letter of 23 April 1990 that he had microscoped all 50 danish collections of *Dermoloma*. He said that he had problems to give them correct names. The differences were small but constant between the



Slåttarna vid Indalsälven. Painting by Rolf Lidberg

species. During the visit to Medelpad 25 Aug. 1986 the Danish group found "*Dermoloma phaeopodium*" on Granbodåsen, (C). Erik Rald also determined one of Håkan Lindström collections from Fären, Ljustorp parish as "*Dermoloma pragense*". Erik Rald said in his letter:

"*D. cuneifolium-pragense-phaeopodium* is a risky complex". Mikael Jeppson published in the review *Jordstjärnan* 1997/2 a revision of about 90 (mainly Swedish) collections of *Dermoloma*. Today Slavomir and others study *Dermoloma* with DNA-methods.

*Entoloma kristiansenii* s. str. has no point in Artportalen, four points and redlisted as VU in Norway. The Norwegian name is "roys rödspore", named after Roy Kristiansen. Holotypus: R. Kristiansen, 11 July 1982, Borge, Sjaerviken, Östfold, in swamp forest with *Alnus* and *Salix*.

## Erikslund, Borgsjö, grassland

Not in the Excursion Guide

27 Aug. 2018

*Entoloma ameides*, J. Traba, KaiR1249





Lunch hour at Kullbodarna. Photo: Annemieke Verbeken

6942325;1489604

## 27 Kullen, mountain farm grazed by sheeps and some horses

Excursion guide pp. 110-111

26 Aug. 2018

Kullbodarna is a beautiful, vast mountain farm with a wonderful view, perfect grazed by horses and sheeps. Håkan Sundin and Jan-Olof left Kai Reschke on Sunday morning 26 Aug. at Kullbodarna. Even though the meadow fungi had just started to form fruitbodies after the hot summer Kai found *Entoloma* species. There is no layer of old grass and mosses but much of open soil shaped by cattles. During

rainy and warm autumns we find species of *Clavaria*, *Entoloma*, *Geoglossum*, *Hygrocybe* in colours of blue, red and yellow. *Nardus stricta* is common. The northern *Botrychium lanceolatum* is found by Gösta Åslund. In 1997 Sören Gutén and Lennart Vessberg found *Entoloma corvinum* and *E. griseocyaneum*, confirmed by Machiel Noordeloos. Olga Morozova, Machiel Noordeloos and Lennart Vessberg found following *Entoloma* species here in 2016: *asprellum* (= *pseudocoelestinum*), *caesiellum*, *caesiotinctum*, *clandestinum* (= *papillatum* ss auct.), *fulvoviolaceum* (= *anatinum*), *mutabilipes*, *olivaceotinctum* (= *weholtii*), *sarcitulum* var. *majusculum*, *scabrosum*, aff *triste*, *weholtii*. More information in article by Brandrud-Bendiksen-Noordeloos-Dima-Morozova in Svensk Mykologisk Tidskrift 2017/3, (3). FTE (2019) say on *Entoloma anatinum*: "very good indicator of grasslands of high conservation value" and have photo of the similar *E. griseocyaneum* at the same page.



# Margita Sjöberg tells us in Swedish about Kullbodarna

Jag börjar med valda avsnitt ur min svärfar Fredrik Olssons berättelse om Boltjärns fåbodar, nedskrivna i lokala skriften Borgsjöbygden 1993:



Bengt Larsson and Margita Sjöberg at Kullbodarna late in September 2017 when meadow fungi in all colours of rainbow were shining all over the mountain farm. Photo: Håkan Sundin

"Troligen var det redan på 1700-talet som Boltjärnsborna bedrev fåbodliv, för min far rev en hölada på Kullen och tog tillvara en golvplanka där det med kniv var inskuret årtalet 1793. Fåbodlivet på Kullen upphörde 1929. Men fick sin renässans 1970-82. Jag erhöll efter omarronderingen 8 vallar. När jag slutavverkat timmerträden, huggit undan sly och bränt allt riset, återkom den forna floran. Vallgräset frodades, så även midsommarblomster, rölleka, riddarsporre och rallarros. Då tyckte jag och min fru Astrid att nu när det fanns bilväg till Kullen, varför inte pröva att ha våra fem jerseykor och får på skogen. Sagt och gjort, vi boförde och pendlade morgon och kväll för att mjölka. Försöket utföll så bra att vi 1978 utökade besättningen. Vår äldste sons hustru skaffade sig getter som hon hade där. Det otroliga hade hänt: en ungdom hade startat upp fåbodlivet. Efter sommaren 1982 upphörde jag med korna, så också med fåbodlivet.

Om man tänker tillbaka på 1920-talet så var det mycket arbete med hagastängning. Helt nödvändigt för att hålla hästar och kor som gick på skogsbete långt från vägar och bebyggelse. Bygatan slutade med en stadig grind "väst i byn", där bebyggelsen tog slut och övergick i fåbodstigen. Efter den stigen-vägen blev det rätt många namn som användes i dagligt tal. Om man tog bovägen från "Västa grina" kom man först till "Sompan", en fördjupning i vägen där regnvattnet samlade sig. Vidare till "Trångsten", två stenar rätt nära varandra på var sida vägen. Så passerades "Lövlåbäcken" och två kilometer längre bort "Vilsten" i västra

kanten av "Sotsvea" och ytterligare längre bort har vi "Källa västa Sotsvea", att släcka törsten i. Så kommer vi till den plats där bovägen korsar stigen från Ånge Gammelbodarna till Tallåsen och där stod "Sidensoffa", lämplig att sätta sig att vila i. Den var tillverkad i kraftig torrfura som någon kluvit i två hälften till botten och som ryggestöd. Sedan under åren har grön tät mossa bildats, därav namnet sidensoffa. Kommer så ut på "Slättmoan" där marken är så slät att man önskade ha cykeln med sig. Därefter är vi framme vid Bokällan i Frambodarna, som ligger intill en sten. Nu är det fyra kilometer kvar till Kullvallen, "Västra Bosvedja", "Skavåskälla" och till sist bron över Kullbäcken, och man är framme på Kullen."

Så började då vår egen tid med att ta över gården och Kullens fåbod... Nu finns knappast något kvar av den beskrivna stigen, men beskrivningen av denna är fascinerande att drömma sig in i. Med nya idéer om att öppna upp till den ursprungliga storleken på vallen, så lyckades vi köpa in den delen av SCA och privat ägare i ett markbyte. Vi tog ner all skog där, brände riset och krattade runt 5 ha. Folk måste trott vi var tokiga som tog ner växande produktiv skog. Då vår tid började så hade vi runt 80 tackor av en kötttras som betade fritt på vallen och skogen runtomkring på en radie om 1 mil. Men i början av 90-talet kom problemen med allhands rovdjur, som blev ett stort stresspåslag och stor skada i besättningen. Vi hade som mest 300 tackor som gick med lamm under sommaren. Mycket energi gick till att skapa förståelse hos myndigheterna om situationen och vikten av hjälp om vi skulle kunna fortsätta med djuren däruppe. Det kan jag och Mats berätta många vändor om. Vi tog beslut för att få någorlunda sinnesro. Vi tvingades tänka om vad vi prioriterar och brinner för. Så vi köpte helt enkelt in en gammal allmogeras av Åsenfår, med instinkterna kvar att hålla ihop flocken och försvara sig, och fasade ut våra köttproducerande får. Så numera är våra får kulturarbetare i första hand. Sedan har vi under åren sett att mer aktivitet på fåboden håller rovdjuret undan. Därför har vi varje sommar en flock hästar som då är enbart innanför rovdjursstängslet runt vallen. Det blir liv och rörelse även med hästägarna som hälsar på. Tillsammans hävdar fåren och hästarna fåboden så bra! Numer är fåboden till för sinnesro, stressa ner och något vackert att vila ögonen på. Samt givetvis en fin biologisk mångfald av växter och svampar.

**Margita Sjöberg**





Siv Norberg, Margareta Byström and Lennart Söderberg enjoy life at Kullbodarna. Photo: Annemieke Verbeken

### Jan-Olof, Kai and Håkan crawled like happy childs along mossy, forest road side

Roger Pihl presented in the journal *Jordstjärnan* 1992/1 meadow fungi on chalkrich roadsides in the county of Älvsborg, southwestern Sweden. In good mushroom years we also find meadow fungi along calcareous, mossy roadsides in Borgsjö. Mats Karström and Johan Nitare found *Geoglossum montanum* along the forest road to Kullbodarna. We also find groups of *Clavaria rosea* on mossy roadside south of the meadow. Jan-Olof, Kai and Håkan Sundin crawled like happy childs together along the roadside covered by *Entoloma* species. *Spinellus* sp. was common on *Entoloma* species. Gunilla Kärrfelt and Machiel Noordeloos collected *Pholiota lundbergii* in 2016

along the forest road side at Kullbodarna. *Clavulinopsis subtilis* and *Entoloma xanthochroum*

(J. Heilmann-Clausen 1997) is found on similar limerich roadside north of Getberget in Torp parish.

### Luncheon at Kullbodarna together with Mats and Margita

On monday 27 Aug. we had a long picnic luncheon together with Annemieke and her students among timber houses at the beautiful old mountain farm while the land owner Mats Olsson took care of his sheeps. His wife Margita opened the small timber houses for us and told about old times. The sun was shining from a blue heaven, a wind from the north told about coming autumn.



## Kullbodarna, mountain farm, finds 26 Aug. 2018 by Kai Reschke on the meadow

*Lichenomphalia umbellifera*, KaiR1200  
*Entoloma conferendum*, KaiR1201  
*Entoloma griseocyaneum*, KaiR1202, 1212, 1221  
*Entoloma sericellum*, KaiR1203  
*Entoloma clandestinum*, KaiR1204, 1213  
*Entoloma infula*, KaiR1205, 1211, 1215, 1218, 1220  
*Entoloma psedocoelestinum*, KaiR1219  
*Entoloma rhombisporum s.l.*, KaiR1206, 1207, 1208, 1209  
*Entoloma serrulatum*, KaiR1210  
*Entoloma clandestinum*, KaiR1213  
*Entoloma sericellum*, KaiR1214  
*Entoloma corvinum*, KaiR1216  
*Melanoleuca sp.*, (omphaloid), KaiR1217

## Kullbodarna, finds by Kai Reschke 26 Aug. 2018 on grassy, mossy stripe of gravel road

*Entoloma infula*, KaiR1222  
*Entoloma rhombisporum s.l.*, KaiR1223, 1224, 1226, 1232  
*Entoloma infula*, KaiR1225, 1227  
*Entoloma clandestinum*, KaiR1228  
*Entoloma corvinum*, KaiR1229  
*Entoloma longistriatum s.l.*, KaiR1230  
*Entoloma lividocyanulum s.l.*, KaiR1231

692502;1501371

## 29 Julåsen, meadow

Excursion guide pp. 114-115

29 Aug. 2018

During mycological workshops since 1982 we have visited the kind landowner Mats Arne Martinsson and his old meadows at Julåsen. During some years Jan-Olof managed the meadows of Julåsen. Late in August the meadows are shining in blue of late flowering *Gentianella campestris* var. *campestris* and in red and yellow of *Hygrocybe* species. Now around 2020 Annika Carlsson from the county government and her haymaker Patrik Tjärnström postpone the harvest of the the meadows to September because of late flowering *Gentianella*. Anita Stridvall found the beautiful *Clavaria zollingeri* on Julåsen. Here is also a rich *Entoloma* funga, among others *E. porphyrophaeum* (VU at Swedish redlist). The alpine *Russula nana* and *R. oreina* are found on the meadows. In summertime 2018 Jan-Olof, Bengt Larsson, Håkan Sundin found the orchid *Platanthera bifolia* subsp. *latifolia* on the meadows of Julåsen.



Olle Persson and Jean Lodge at Julåsen in 1991.  
 Photo: Hjördis Lundmark

## List by Mathias Lüderitz

**E**=eksikkate, **D**=digital photo,  
**MB**=determination with microscope

*Atheniella delectabilis*, E, B, Syn: *Hemimycena delectabilis* var. *typ*  
*Atheniella flavoalba*  
*Clitocybe squamulosa*, E, on the meadow edge, near *Picea*  
*Clitopilus scyphoides*  
*Collybia cookei*, D, E  
*Cotylidia cf undulata*, D, E, MB  
*Entoloma brunneoserrulatum*, D,E,MB  
*Entoloma conferendum*, MB  
*Entoloma corvinum*, D, E, MB  
*Entoloma formosum*, E, MB  
*Entoloma lepidissimum*, D, E, MB  
*Entoloma serrulatum*, D  
*Entoloma weholtii* (= *olivaceotinctum*), E, MB  
*Gliophorus irrigatus*, E, MB  
*Giophorus psittacinus*  
*Hygrocybe acutoconica*  
*Hygrocybe chlorophana*, MB  
*Hygrocybe coccinea*  
*Hygrocybe conica* var. *conica*  
*Multiclavula* sp., D, E, MB, MZ, will be sequenced later in 2019  
*Mycena aetites*  
*Mycena floridula*, E, MB, maybe only a pink form of  
*Atheniella flavoalba*  
*Neohygrocybe nitrata*, D E, MB  
*Rickenella fibula*  
*Stropharia aeruginosa*  
*Stropharia inuncta*



Old hayfield (gammal hövall) in central Sweden. Photo: Håkan Sundin

### List by Anita Stridvall

*Clitocybe gibba*  
*Entoloma prunuloides*  
*Hygrocybe acutoconica*  
*Hygrocybe conica*  
*Hygrocybe irrigata*  
*Hygrocybe nitrata*  
*Inocybe flocculosa*  
*Melanoleuca strictipes*

### Comment, site 27, meadows of Julåsen

Eight species of *Entoloma* and eight species of *Hygrocybe* is good considering the fact that meadow fungi had just started to produce fruitbodies and the meadows had not been cut.

***Entoloma lepidissimum*** was an interesting find. It grows according to *Funga Nordica* "in humus or fallen sticks and on rotten stumps in coniferous and deciduous forests, very rare in temp.-subalp. DK (EN), FO, NO." Artportalen has two finds in Skåne and Närke. Mathias Lüderitz in mail 11 May 2019: "This species is seldom

everywhere. We have only three actual finds in Schleswig-Holstein in meadows, but also in old-grown forest."

***Entoloma weholtii***, few finds in Sweden, proposed as VU on the Swedish redlist 2020.

***Macrotiphula sp.*** Mathias Lüderitz in mail 11 May 2019: "Interesting fungus. I have described it provisionally and the young Belgian mycologist took material from me for sequencing. We will see... I am very interested in *Multiclavula*. It is astonishing, but I found at least four species in Schleswig-Holstein, mostly in winter and in open loamy, water-soaked habitats (*M. hastula*, *M. corynoides*) and coastal heaths (*M. vernalis*). In northern Germany, these species seem to be glacial-relictic."

***Mycena floridula*** is just a white form of *Mycena flavoalba* according to research by Arne Aronsen and Ellen Larsson. During *Mycena* week in Borgsjö 1991 Jean Lodge and Thomas Læssøe collected *Roridomyces roridus* on the meadows of Julåsen. Jean Lodge lives in Puerto Rico and have published many articles about tropical biology and tropical forest ecosystems, see more about Jean: <https://www.fs.fed.us/inside-fs/northern-research-station-scientist-receives-distinguished-mycologist-award>





Patrik Tjernström and Annica Carlsson manage old meadow. Photo: Per Sander





Johan Nitare and Jan-Olof in 1989 at the old meadows in Vigge, formed already during the iron age.  
Photo: Nils Jansson

## 45 Vigge, Högänge nature reserve, Stöde parish

15456;69119

Excursion guide pp. 142–144

**Sheep grazed meadow**  
30 Aug. 2018

Högänge nature reserve has interesting vascular plants like *Gentianella campestris*. On the eastern stony part of the meadow *Euphrasia officinalis* subsp. *officinalis* and *Hygrocybe spadicea* were found 2 Sept. 1989 during a course on meadow fungi led by Johan Nitare. Johan also identified the rare *Hygrocybe helobia* with smell of garlic. *Porpoloma metapodium* was later found in the same area by Jan-Olof and Lennart Vessberg. *Euphrasia officinalis* subsp. *officinalis* is today extinct from Högänge nature reserve but was found in 2019 by Anette and Patrick Glamsjö at their farm in Indal parish, Medelpad. Smaller areas at old meadows with many rare and high redlisted species should be kept in a special

way. Nowadays the county government care of this part of the meadow in a good way. *Entoloma griseocyaneum* and *Hygrocybe ingrata* occur in areas with *Nardus stricta*. Some years we collect much of *Cuphophyllus pratensis*. There are also many species of earth tongues, mostly in the wet depression: *Geoglossum fallax*, *G. glutinosum*, *G. starbaeckii*, *G. umbratile*, *Trichoglossum hirsutum*, *T. walteri* and *Thuemenidium atropurpureum*.

### Records by Kai Reschke on Högänge nature reserve

*Entoloma exile* var. *pyrospilum*, KaiR1284, 1285  
*Entoloma sericeum* s.str., KaiR1286  
*Entoloma chalybaeum*, KaiR1287  
*Entoloma* aff. *lividocyanulum*, KaiR1288  
*Entoloma prunuloides*, KaiR1289  
*Entoloma cuspidiferum*, KaiR1290  
*Entoloma* aff. *caesiocinctum*, KaiR1291  
*Entoloma clandestinum*, KaiR1292





*Clavaria sphagnicola*. Tanja found more than one hundred fruitbodies in the wet depression just above the road where we sometimes also find earth tongues. Photo: Mathias Lüderitz

### Finds by Kai Reschke on open forest, grassland with cows

*Tricholoma raripes*, KaiR1295

### Finds by Mathias Lüderitz

**E**=eksikkate, **D**=digital photo,  
**MB**=determination with microscope

*Arrhenia retiruga*, on mosses

*Atheniella flavoalba*

*Clavaria sphagnicola*, D, E, MB, leg Tanja Böhning, among sphagnum

*Clitocybe gibba*

*Collybia cookie*

*Cotylydia undulata*, E, MB, on moss-covered erratic block

*Crucibulum laeve*, on culmes (grasses)

*Entoloma conferendum*, MB

*Entoloma affgriseocyanum*, D,E, MB

*Galerina pseudomycenopsis* (=moelleri), E, MB, among *Carex* and *Sphagnum*

*Hygrocybe conica* var. *coniciopalustris*, D, E, MB, among sphagnum

*Mycena floridula* (=flavoalba) E, MB

*Mycena metata*

*Mycena olivaceomarginata*

*Mycena septentrionalis*, MB

*Omphalina demissa*, Mathias Lüderitz, D, E, MB, open gravelly path

*Rickenella fibula*

### Comment, site 45, Vigge, Högänge nature reserve

*Galerina pseudomycenopsis* (=moelleri) is an alpine species and earlier found on the meadow in Vigge. According to Funga Nordica "among grass and moss in snow-beds, marshes, fens, arctic wet tundra, possible parasitic (dead brown moss observed)." One of many



*Omphalina demissa*, Högänge nature reserve. Photo: Mathias Lüderitz

alpine fungi on fine meadows in the lowland that have similarities with alpine heaths. Artportalen show about ten finds in the high alps from Härjedalen to Lappland. Mathias Lüderitz in mail

11 May 2019: "This is a Nordic-montaneous species, but we have it also in the northernmost parts of Germany in wet meadows with *Carex* and *Juncus* spp. (also with *Sphagnum*). It is relictic or not so restricted to alpine areas....."

***Omphalina demissa***. Mathias Lüderitz in mail 11/5 2019: "A very rare *Omphalina* everywhere, also in

Schleswig-Holstein. Unfortunately, the lilac tints are not so prominent in the photo (the lilac tints are often only clear in very young specimens)." *Omphalina demissa* is according to *Funga Nordica* very rare in temp.-hemib zone in Nordic countries.

***Tricholoma raripes*** was also found by Morten Christensen during Borgsjö workshop in 1997 (MC97–152) and is a species near *T. saponaceum*. Information and discussion about *T. raripes* in the Danish book about "Ridderhatte" (2013). Mentioned in Artportalen as *Tricholoma saponaceum* var. *raripes*.





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

## Jämtland

"Fagert är landet som blev vår lott och arvedel" ("A beautiful country-our heritage and fate"). Painting by Nils Forshed showing the old culture landscape around lake Storsjön in the province of Jämtland. The county of Jämtland has many old meadows in the culture landscape, on mountain farms and in the alpine mountains. The Swedish government has an aim until 2030 to reach 30 percent of ecological farming without poison and artificial fertilizing. In Jämtland more than 40 percent of the farming is already ecological.

1446590;6991200 +-200 meter

### 67 Storvålen, west of the village Änge, horse grazed mountain farm

Excursion guide pp. 190-192

27 Aug. 2018.

**Guides:** Bengt Petterson, Jeanette Södermark

#### Bengt and Jeanette looked in vain for huldror and huldreskålar

Storvålen is a hot spot for meadow fungi. In 1997 Leif Andersson, Rolf-Göran Carlsson, Erhard Ludwig, Jan Vesterholt and others found 20 *Entoloma* species and 16 *Hygrocybe* species on the old grasslands of Storvålen! Jan found

*Entoloma ianthinum*, a rare *Entoloma* with few findings in the Nordic countries. FTE pp. 464 say about *E. ianthinum*: "perhaps an aberrant colour form of one of the blue species of *Entoloma*". Rolf-Göran found *Arpinia fusispora* along the small brook near the meadow. Erhard Ludwig made a painting of *Arpinia fusispora* and the sensational finding was presented by Rolf-Göran Carlsson and Leif Andersson in the review *Jordstjärnan* 1998/2. There are few findings of *Arpinia fusispora* with the Swedish name "huldreskål". "Huldra" (or vittra) are invisible female forest creatures in Nordic folklore, related to "troll". Bengt and Jeanette looked in vain for huldror and huldreskålar during their visit to Storvålen in 2018.

#### Finds by Rolf-Göran Carlsson

*Entoloma asprellum* det. Jan Olsson  
*Entoloma prunuloides*



*Entoloma atrocaeruleum* was found at Julåsen by *Entoloma* researchers in 2016. Photo: Olga Morozova

### Finds by Ellen Larsson and Stig Jacobsson

*Entoloma atrocaeruleum*  
*Entoloma griseocyaneum*  
*Entoloma lazulinum*  
*Entoloma prunuloides*  
*Hygrocybe acutoconica*  
*Hygrocybe colemanniana*  
 Finds by Mathias Lüderitz  
 E=eksikkate, D=digital photo, MB=determination with microscope  
*Clavaria fragilis* agg, no typical specimen  
*Clitopilus scyphoides*  
*Entoloma brunneoserrulatum*, E, MB  
*Entoloma caesiocinctus*, MB  
*Entoloma griseocyaneum*, D, E, MB  
*Entoloma poliopus* agg., D, MB  
*Entoloma sericeum* var. *sericeum*  
*Galerina graminea* (=laevis), MB  
*Gliophorus europaerplexus*, D, E, MB  
*Glioporus psittacinus*  
*Hygrocybe acutoconica*  
*Hygrocybe aurantiosplendens*, D, E, MB  
*Hygrocybe conica* var. *conica*  
*Hygrocybe insipida*, D, E, MB  
*Hygrocybe nigrescens*, MB

*Hygrocybe subpapillata*, D, E, MB  
*Lepista luscina* (*panaeolus*), D, E, MB, MZ  
*Mycena aetites*  
*Mycena olivaceomarginata*

### Finds by Kai Reschke

*Entoloma cf xanthochroum*, KaiR1233  
*Entoloma rhombisporum* s.l., KaiR1235  
*Entoloma corvinum*, KaiR1236  
*Entoloma clandestinum*, KaiR1237,1238  
*Entoloma asprellum*, KaiR1239  
*Macrocystidia cucumis*, KaiR1240  
*Entoloma serrulatum*, KaiR, 1241, 1245  
*Entoloma velenovskyi*, KaiR1242,1243  
*Entoloma infula*, KaiR1244  
*Entoloma serrulatum*, KaiR1245

### Comment, site 67, Storvålen

*Entoloma velenovskyi* was a sensational record. Also found in 1985 by Leif Örstadius at the meadow Gammelbodarna in Medelpad. Artportalen has some records in Västergötland and Öland. Listed as VU at the redlist in Norway.  
*Gloeoporus europaerplexus*. Mathias Lüderitz in





Olga Morozova and Lennart Vessberg at Storvålen in 2016. Photo: Karin Kellström

mail of 11 May 2019: ” This is a new, genetically and morphologically defined species of the *G. psittacina*-group. It has brownish-orange to orange, often more conical fruitbodies. See: Ainsworth, A.M. & al.: DNA barcoding and morphological studies reveal two new species of waxcap mushrooms (Hygrophoraceae) in Britain. The find from Storvalen meadow is typical”.

***Hygrocybe subpapillata*** is a rare species. It is small, has red-orange cap, named ”knoppvaxing” in Swedish and is redlisted as NT in Sweden, EN in Denmark, VU in Finland and Norway.

***Lepista luscina*** (”ängsmusseron” in Swedish) has few records in Jämtland and Medelpad. Rolf Lidberg and Rune Thörngren found *L. luscina* in 1978 on the limerich hills at Alnö, Smedsgården. We also found *L. luscina* in 1985 at the *Nigritella nigra* meadow Bodal, Jämtland.

1442370;7008394

## Park of Björkbacka, Östersund

Not in the Excursion Guide

Park at limestone with big, old  
*Betula, Picea, Pinus, Populus*  
*balsamifera* ***Elongata***  
29 Aug. 2018

### Finds by Kai Reschke

*Entoloma sericeum* str., KaiR1267

*Entoloma prunuloides*, KaiR1265

*Entoloma ameides*, KaiR1271, 1272, leg. S. Adamçik





*Entoloma incanum* at Tysjöarna nature reserve. Photo: Olga Morozova

1435366;700759

## Sommarhagen, Frösön, horse pasture and meadow

Not in the Excursion Guide

29 Aug. 2018

### Finds by Kai Reschke on horse grazed pasture

*Entoloma clandestinum*, KaiR1273  
*Entoloma neglectum*, KaiR1274  
*Entoloma undatum*, KaiR1275

### Finds by Kai Reschke on *Nigritella* *nigra* meadow south of the building

*Entoloma corvinum*, KaiR1276, 1277  
*Entoloma clandestinum*, KaiR1278, 1282

*Entoloma korhonenii*, KaiR1281  
*Entoloma longistriatum* s.l., KaiR 1279  
*Entoloma rhombisporum* clade, KaiR1283

### Comment

*Entoloma korhonenii*. Kai wrote in a mail 12 Aug. 2019:  
"I have overlooked *Entoloma korhonenii* before and I'm  
happy to know it now."

### Unkown site

*Entoloma callichroum* var. *venustum*, KaiR1275b, *Picea*  
forest in needle litter, leg. Nathan Schouetteten, NS2018–  
118  
*Entoloma querquedula*, KaiR1293, 30 Aug. 2018, C. Manz,  
F. Hampe



# Literature

Here you can find some, but not all, literature mentioned in the report. Reports from mycological workshops in Borgsjö 1995, 1997, 1999, 2001, 2003, 2010, 2016, 2018 are digitally available at the homepage of Sundsvall Mycological Society, [www.myko.se](http://www.myko.se)

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# Some Abbreviations in the Report

BCE	Before Current Era
County	Län, region
County government	Länsstyrelse
FLAN7	Flora Agaricina Neerlandica, volume 7, Boletales, Russulales, 2018
Field form	Fältblankett
FTE	Fungi of Temperate Europe (2019)
Hjördis	Hjördis Lundmark
Jan-Olof	Jan-Olof Tedebrand
Mountain farm (shieling)	Fäbod
Municipality	Kommun
Myko	Sundsvalls Mykologiska Sällskap
Parish	Församling, socken
Province	Landskap
SMT	Svensk Mykologisk Tidskrift
<i>Alnus</i>	<i>Alnus incana</i>
<i>Betula</i>	<i>Betula pendula/pubescens</i>
<i>Picea</i>	<i>Picea abies</i>
<i>Pinus</i>	<i>Pinus sylvestris</i>
Populus	<i>Populus tremulae</i>
UPS	The fungarium at the museum of Evolution, Uppsala university

## Coordinates, scientific names, Swedish distribution

Coordinates in the report are according to Swedish RT 90. Many fungi and other species today, in the DNA ERA, are changing scientific names. The famous Swedish author Kerstin Ekman writes in her book "Livets väv": "Nu kommer forskare och välter blomsterkonungen Linnés system. Likheterna ligger på mikronivå. De är genetiska. I Elsa Beskows "Blomsterfesten i täppan" var brännässlan en häxa och djupt antagonistisk till den vackra och ädla rosen. Men nu har dom blivit släkt. Häxa och jungfru är outrotligt sammanflätade av ett system. Ett nytt system". Stefanie picked as an example many collections of *Lactarius necator* and will soon describe a new species in "L. necator group". Scientific names in the report mostly follows Artportalen, [www.artportalen.se](http://www.artportalen.se) (2019). For species in *Boletales* and *Lactarius* we follow names in Flora Agaricina Neerlandica 7 (2018). Dyntaxa have maps with current information on the Swedish distribution for all fungi in the report.



Tanja Böhning and her daughter Hjördis. Tanja already participated in the European *Cortinarius* meeting in Härnösand in 1997. Photo: Hjördis Lundmark



# Locality numbers explained

No.	Locality name
1	Västanå
1B	Träporten inn
2	The lake forest of Henri Romagnesi
3	Borgsjö churchyard
4	Borgsjö old historic yard and youth hostel (hembygdsgrård)
4B	Näset village, near road cross highway E14 and west of the road to Änge (we called the place for "Hermanboda")
6	Lönnån, rich brook ravine & Pilgrim road with holy spring at the southern slope of mount Bergåsen
8	Gammelbodarna nature reserve
10	Jämtgaveln, Svarttjärn, Fettjorna & Bringmyrbäcken
11	Rankleven nature reserve
12	Södra Sillre
14	Ormberget northwest, classical forest slope visited in 1983 by Henri Romagnesi
15	Orråberget North, forest north of pilgrim road, Husmyrbäcken
15B	Husmyrbäcken where the brook is crossing the forest road
15C	about 3–400 meters north-northeast of Orråsen slakteri (abbatoir)
17	Granboda, Skarpbäcken, Habitat protection area
19	Ensillre kalkbarrskog, nature reserve
21	Balbodbäcken, west of Nedertjärn
21B	about 3 km south of Nedertjärnens southern point
21C	Täljehällorna, Nedertjärn, along road
23	Lombäcksheden and Harrån, partly habitat protection areas
24	Granbodåsen, mountain farm, nature reserve
26	Kullbäcken-Markbäcken nature reserve
27	Kullen, mountain farm grazed by sheeps and also some horses
28	Kullbäcken south of Kullen mountain pasture
29	Julåsen
30	Alby cemetary
32	Dysjöberget nature reserve
36	Tubbobäcken + forest west of Mörberget (Habitat Protection Area)
39	East of Långberget, Habitat Protection Area
40	Sågåstjärn, Svartberget
45	Vigge, Högänge nature reserve
55	Bräcke cemetary
56	Bodtjärnbäcken
59	Djupdalsbäcken
60	Sidsjö, north of Sidsjöån, Bodsjö parish
66	Wonderful parks on limestone in the city of Östersund and on Frösö Island
67	Storvålen, west of the village Änge, mossy old coniferous forest and meadow
H	Hennan, Ljusdal



# Russula olivina

The map shows observations from Artportalen and does not reflect the exact distribution.



*Russula olivina* is bound to *Picea* and typical for calcareous, moist brooksides in the lime district of Jämtland and western parts of Medelpad and Ångermanland.



**RUSSULALES BORGSJÖ 2018  
FORM FOR EXHIBITION**

Species *Russula olivina*  
 Locus 36  
 Biotop Picea Pinus  
 Dies 27.08.2018  
 Leg. Tero Taipale Jochen Girwet  
 Det Tero Taipale Conf  
 Smell, write at next side



# 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, then 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.



# Research of Stefanie De Schrijver (Research Group Mycology, Ghent University) reveals two new *Lactarius* species for Sweden!

The aim of Stefanie's master's thesis was to unravel the cryptic diversity present in some species of milk caps from the genus *Lactarius*. This cryptic diversity was exposed earlier by a former master student (Quinten Bafort), who proved that *Lactarius evosmus*, *Lactarius necator*, *Lactarius glyciosmus* and *Lactarius stephensii* each mask two species. To delineate two species within each species, we used an integrative taxonomical approach meaning that we looked into the morphology and ecology of each species complex and tried to find characteristics concordant with molecular data. Several small excursions in Belgium were made to collect fresh specimens of our target species and of closely related or morphologically similar species. On top of this filedwork could be done in Sweden during this *Russulales* meeting, where all participants were asked to pay special attention to the milkcaps mentioned before, and kindly did so! All available collections at the GENT herbarium were also selected for research and Asian and American herbaria were contacted to obtain material of the target species from all over the Northern hemisphere.

Molecular data was retrieved using Illumina MiSeq Next-Generation sequencing (NGS). This is a fairly new technique that is now mainly used for community analysis. In this study, we will attempt to use the Illumina sequencing for taxonomical purposes. Next-Generation sequencing uses a sequencing-by-synthesis (SBS) technology in a massively parallel fashion which means that the process can produce thousands of sequences at the same time so that all haplotypes present in all samples can get picked up. This approach makes it possible for us to sequence a lot of markers from a lot of fruiting bodies in one run. We believe that doing this instead of the traditional Sanger sequencing will provide benefits in terms of cost and time efficiency as cited repeatedly in the literature. This has additional advantages, the first one being that it can overcome that we retrieve a sequence from a contaminant, as this can happen with Sanger sequencing. A second advantage is that this can give us insight into the variation within each species as different haplotypes might get sequenced.

The collected morphological data and the retrieved molecular data made it possible to describe two new species (*Lactarius incognitus* nom. prov. and *Lactarius pseudoglyciosmus* nom. prov.) and one already discovered species in America for Europe (*Lactarius sordidus*). During the process of this master's dissertation, the cryptic diversity within *Lactarius stephensii* was unravelled by Vidal et al. (2019), who described the new species as *Lactarius populicola*. There are several reasons as to why it took so long to discover and des-

cribe these new species. The main reason is of course their misleading appearance, each new species was comprised in a morphologically very similar species. Without molecular data, the genetically isolated clusters within each traditional morphological species wouldn't have been revealed. A second reason, which applies for *Lactarius incognitus* nom. prov. and *Lactarius populicola*, is that these new species are fairly rare. *L. populicola* is also often overlooked because of its sequestrate form. We aim to fully morphologically document the new species so that they become recognisable for mycologists without the need to use molecular data.

*Lactarius incognitus* nom. prov. can easily be distinguished from *Lactarius evosmus* by the colour of its pileus and the shape and ornamentation of its spores. The pileus of *L. incognitus* is a lot paler in comparison to the pileus of *L. evosmus* and the spores are more globose and have a higher and denser ornamentation that is more zebra-like. As far as ecology goes, *L. evosmus* is associated with *Populus* whilst *L. incognitus* is always recorded close to *Fagus* and *Quercus*.

Two of these new species for Europe occur in Sweden and were collected during the *Russulales* workshop: *L. pseudoglyciosmus* nom. prov. and *L. sordidus*.

*Lactarius glyciosmus* and *Lactarius pseudoglyciosmus* nom. prov. are not as easy to distinguish from one another. Our research proved that the latter had a slender and small fruiting body in comparison to *L. glyciosmus*. *L. glyciosmus* often





*Lactarius pseudoglyciosmus* nom.prov. Photo: Stefanie De Schrijver

has yellowish tones in its stipe whilst *L. pseudoglyciosmus* has a stipe that is more pinkish and more concolourous to the pileus. The latter feature can't be used to unambiguously identify the two species because of the observed variation. The spore deposit of *L. pseudoglyciosmus* is almost always white and the spore deposit of *L. glyciosmus* is off white, beige or pale yellow. The spore ornamentation of *L. glyciosmus* is higher (up to 0.9 Qm) than the spore ornamentation of *L. pseudoglyciosmus* (up to 0.7 Qm high but on average around 0.5 Qm). No differences in ecology were discovered.

*Lactarius necator* and *Lactarius sordidus* are also hard to tell apart from each other. The pileus and stipe of *L. sordidus* are paler and more yellow toned whilst the pileus and stipe of *L. necator* are darker and browner. *L. sordidus* spores are more globose and bear a higher ornamentation (0.7–0.8Qm) with

big warts, *L. necator* spores are more ellipsoid and bear a lower ornamentation (av. 0.5Qm). The ornamentation height is more heterogeneous in *L. sordidus* than in *L. necator*. *L. sordidus* is found in association with coniferous trees, *L. necator* is found in association with deciduous trees, especially *Betula*.

The features described above to delimit *L. glyciosmus* from *L. pseudoglyciosmus* and *L. necator* from *L. sordidus* show variability which makes unambiguous recognition in the field difficult but for both complexes, molecular evidence that shows a clean genetic boundary is provided which gives us ground to describe them as separate species. We do describe these as pseudo-cryptic species, the species are distinctive, but would have been considered merely cryptic without a re-evaluation of the morphology.

**Annemieke Verbeken**





***Russula olivina.***

Photo: Hjördis Lundmark