Biological Internship at Station Linné Öland, Sweden from 2013-02-01 to 2013-06-21

Swedish Malaise Trap Project

Report

International Degree Course Industrial and Environmental Biology B.Sc., Hochschule Bremen, University of Applied Sciences Bremen, Germany

Springterm 2013

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Cover Photo: Sorting tray with wasps sorted into the family Ismaridae and the two subfamilies Belytinae and Diapriinae. (Photo: Mareike Kiupel)

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1. Abstract

This report is based on results and experiences received from an internship in the Swedish Malaise Trap Project (SMTP) at Station Linné on Öland in Sweden.
During the main part of the spring term of 2013, entomology in its basics has been studied which started with morphology studies and order sorting of all the insects for obtaining the requested knowledge.
The second part of the internship included morphology studies and high level sorting of the order Hymenoptera (wasps).
The focus of the third and final part was set on sorting Hymenoptera on an advanced level followed by a modern classification of Diapriidae *sensu lato*.
Ismaridae used to be a subfamily of Diapriidae, but due to new taxonomic and genetic studies they raised to family level (SHARKEY et al., 2012).
To follow the modern classification, the 1180 samples of diapriid wasps which were collected so far in the SMTP have now been sorted up to the subfamilies Diapriinae, Belytinae and to the new family Ismaridae. Additionally, studies have been conducted about this group and new knowledge is obtained and will be presented in this report.
Therefore, the following questions were waiting to be answered: Which species of Ismaridae can be found in Sweden? Where in Sweden do Ismaridae occur (geographical distribution)? In which months were they found (flight time)? What do the locations look like (habitat)?

2. Introduction

2.1 General information

During the studies in the International Degree Course Industrial and Environmental Biology B.Sc. at the University of Applied Sciences Bremen, Germany an internship abroad is required. The internship lasts at least 18 weeks and needs to be done in a biological research project, institution or company.
These conditions have been fulfilled at Station Linné on Öland in Sweden from the 1st of February 2013 to the 21st of June 2013.

2.2 Station Linné

The main part of South Öland is covered by the Great Alvar (Stora Alvaret), which is a 25000 hectare big limestone area. It provides a habitat for many special plants and animals. It is also included in the UNESCO World Heritage which applies for the whole southern part of Öland for its cultural history combined with the adaption to the geological and topographical constraints. Approximately 75% of all Swedish insect species are found on Öland. Due to these circumstances a lot of visitors, scientists as well as other interested people, are coming to this area every year. Therefore Öland was deliberately chosen for the localisation of the field station 50 years ago. Since the construction of the station in 1963, Uppsala University was the manager of the station. But since 2010 it is owned by a private foundation and the name of the field station was changed from “The Ecological Research Station of Uppsala University” to “Station Linné”. (URL 1) (Fig. 1)

Fig. 1: Station Linné on Öland during summer time. (Photo: Mareike Kiupel)

The intention of Station Linné is to provide an institution where interested people can meet, exchange experiences and learn more about the unique environment. The research institution focuses on popular science and research combined with environmental education, culture and tourism. It has also the ambition to become a demonstrator for the application of green technologies and solutions and a market place for local and green products in the future. (URL 1)

Today, Station Linné is a private and independent research station. (URL 1)

Dave Karlsson is the head of Station Linné which is administered by the foundation “Stiftelse Station Linné”. “Föreningen Station Linné” is a supporting association which among a lot of other things collects money for the Station. (Personal comment Dave Karlsson)

Station Linné is financed by overhead fees from different scientific projects and by gainings from rental costs paid by visitors of varying kind, but also by pure crowd funding. At present, more than 50 sponsors and facilitators are involved. (Personal comment Dave Karlsson)

The financial turnover is approximately around three and four million Swedish crowns per year, but is predicted to rise substantially within the next couple of years. (Personal comment Dave Karlsson)

There are about ten employees in different scientific projects and three administrators working at Station Linné the whole year. Especially during the summer period the station is providing a lot of environmental educational courses, so that there are in total 25 employees working for Station Linné. And of course a lot of researchers visit the station to work on their own projects and to take advantage of the station's equipment. Therefore there can be up to 100 people from ten to 15 different countries and ten to 15 different scientific projects working at Station Linné around the year. (Personal comment Dave Karlsson)

The qualification of the biologists working at Station Linné varies between former students, who want to work in the period between school and university and well-trained professors. (Personal comment Dave Karlsson)

The by far biggest project at present is the Swedish Malaise Trap Project (SMTP). Within this project, the main task of a biologist working at Station Linné is doing taxonomic work or genetic analyses. Apart from that, environmental education in different subjects is another working area for biologists. However, there are a lot of biologists working in own projects, like ecology studies, which are also very important for Station Linné. (Personal comment Dave Karlsson)

2.3 The Swedish Malaise Trap Project (SMTP)

In 2002 Thomas Pape, formerly employee at the Museum of Natural History of Stockholm (NRM) and now associate professor and curator at the Museum of Natural History in Copenhagen, and Fredrik Ronquist, formerly professor at Uppsala University and now professor at the Museum of Natural History in Stockholm (Naturhistoriska riksmuseet = NRM), started an immense inventory project on Swedish hymenopterans and dipterans. (Personal comment Dave Karlsson)

From the beginning in 2003 the project was owned by NRM and founded by the Swedish Taxonomy Initiative (STI). The primary aim was to make an inventory, covering the Hymenoptera and Diptera fauna of Sweden and to contribute new data to the encyclopaedia on the Swedish flora and fauna (Nationalnycklen). (URL 2)
Although the project was owned from the beginning by NRM, the actual job and the sorting efforts were performed at Station Linné on Öland and in 2010 the station became the leader of the project (Personal comment Dave Karlsson).

To achieve the aforementioned goal, 75 Malaise traps were placed at 54 different localities in varying habitats all over Sweden (Fig. I) for an uninterrupted three-year period between 2003 and 2006 (URL 2).
The localities were chosen after a list of the Swedish Environment Protection Agency which shows places in Sweden with a comparatively high insect diversity (URL 3).
Every trap got a unique Trap ID and every period of trapping a unique collection ID. Latitude and longitude, locality and habitat descriptions were carefully noted as well.
The traps were emptied regularly almost every second week in the snow-free time by voluntary entomologists. (URL 3)
A Malaise Trap is a tent-like structure with a vertical wall in the middle and slanted sides which is made of mosquito net, created by the Swedish entomologist René Malaise in the 1930's. (Fig. 2)
It works like follows: The insects are flying or crawling against the middle wall and then instinctively crawl up. There is a narrow opening at the top where they fall into a tin which is filled with 96% ethanol. (URL 3)
This trap is known to be very efficient to catch especially hymenopterans and dipterans and nowadays, this type of trap has almost become a standard for insect inventory projects all over the world (URL 3).


Fig. 2: A Malaise trap in front of the laboratory of Station Linné. (Photo: Mareike Kiupel)

Approximately around 80 million insects have been collected with this method in almost 2,000 samples (URL 3). The samples are stored in 500 ml preserving jars at NRM or at Station Linné (URL 3).

They are sorted up into almost 300 different groups in three steps and with an accuracy of above 99 % one specimen shall be determined within three seconds to its group (Personal comment Dave Karlsson).

In the first step, the samples are sorted to orders. After that, most of the insect orders are sent to experts in Sweden and other countries for the determination into species. Exceptions are the dipterans and the hymenopterans. These are already sorted further at Station Linné into families, subfamilies and some also into tribes or even genera before they are sent away to the experts. (URL 2)

The experts produce data lists and send representative specimens back to Station Linné, where they are sent to the Swedish Museum of National History in Stockholm or stored as reference objects or for further studies. Some of the specimens are mounted either at Station Linné or by the expert. (Personal comment Dave Karlsson)

To date, approximately 300 interested persons from more than 20 countries spread over four different continents supported the work in SMTP with their knowledge and efforts. This makes SMTP to one of the largest insect biodiversity inventory projects

on earth. Before the start of SMTP, the biggest insect collection in the world could be found at the Smithsonian Institution in Washington with about 40 million insects. (Personal comment Dave Karlsson)

In August 2012, 50% of the whole SMTP material has been sorted so far in the first step sorting. This means that more than 40 million insects are available for further studies now. Additionally, more than 200,000 specimens are already determined to species. (URL 2)

Within this material over 1,000 species were already identified new to Sweden, whereat 500 of them were also new to science. (URL 3)

2.4 Insects

Insects inhabit almost every environment on earth and are by that all around us every day.

With about 1 million described species, they are the species-richest class of organisms and thereby form more than half of all known living species on the planet. Even so, estimates claim that this is just a fraction of the actual number. The main part of all known insect species is reported from tropical regions, but even so, about 100,000 insect species are known to occur in Europe. (CHINERY, 2012)

An insect has a **chitinous exoskeleton**, three body segments (head, thorax and abdomen), one pair of jointed legs per thorax segment (three in total), one pair of antennae and compound eyes. Many of them have two pairs of wings (Fig. 3) (CHINERY, 2012) (Note: all terms in **bold** refer to a glossary in the appendix.)

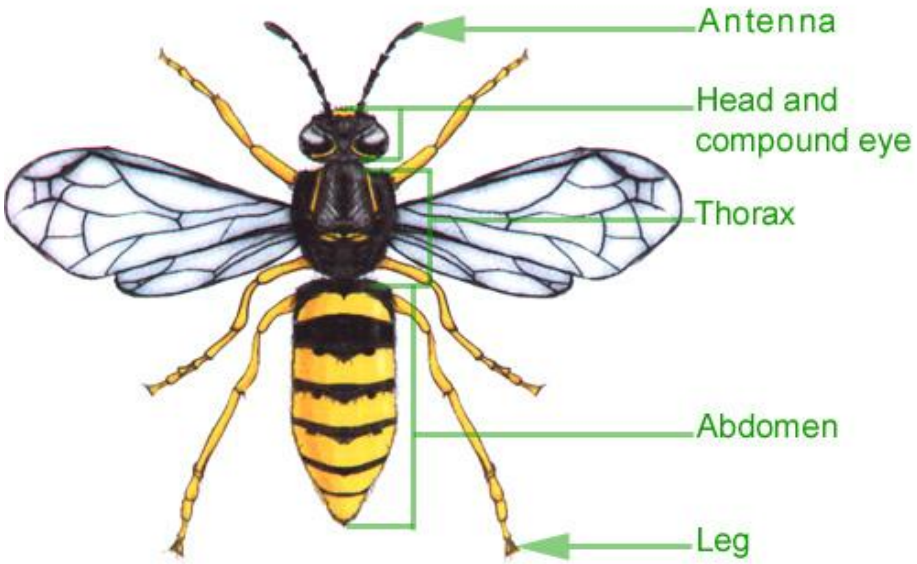

Fig. 3: Schematic representation of an insect with its most important characters: One pair of antennae, three pairs of legs, two pairs of membranous wings and the three body segments head, thorax and abdomen. (Source: http://www.nicksspiders.com/insects/anatomy.htm)

Within the class of insects, the orders Hymenoptera (Bees, Wasps, Ants, Bumble Bees, etc.) and Diptera (True Flies) form the main part of the terrestrial biodiversity. In Sweden two thirds of all insects are hymenopterans and dipterans. However, there is poor knowledge about their distribution and biology and since they are so abundant and also in some kind important vectors for diseases it becomes a necessity to conduct deeper research on them. (URL 3)

2.5 Hymenoptera

2.5.1 General information

Hymenopterans are quite diverse considering their morphology.

The following characters can be used, but only in combination, to describe a wasp.

A typical member of Hymenoptera can be described with a slender and well segmented body, long antennae with many segments and two pairs of membranous wings; usually the hind wings are much smaller than the fore wings and in some cases difficult to spot. Important to note is that there are some taxa in Hymenoptera, for example some ants, which show a complete lack of wings. (CHINERY, 2012)

In contrast to many other insect orders, the wings of hymenopterans show only few veins, usually four longitudinal veins combined with only a few crossveins. However, these crossveins can interfere with the longitudinal veins that the latter do not appear to be continuous.

The wing venation in species with a very small body size is usually much reduced. (GOULET and HUBER, 1993)

The fore- and hind wings are locked to each other by hamuli, which are a row of minute hooks at the anterior margin of the hind wings in practice creating one functional unit of the two wings. (CHINERY, 2012)

The head of hymenopterans is often rather hard and mobile, equipped with two compound eyes and almost always with three ocelli on top of the head, as seen in figure 5 (CHINERY, 2012).

The order Hymenoptera is divided into the two suborders of Symphyta and Apocrita. Symphyta (Saw-Flies) includes hymenopterans which are mainly vegetarians and living and feeding on plants. A typical character to distinguish them from the apocritans is the lack of the typical wasp waist. (Fig. 4) (CHINERY, 2012)

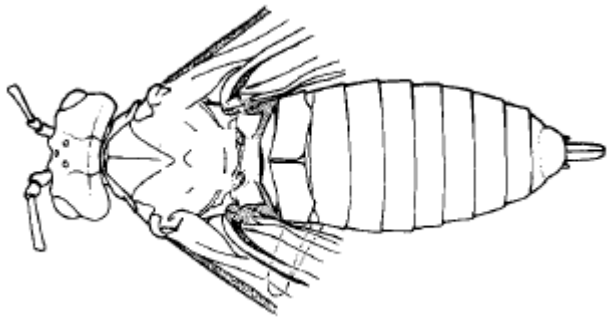

Fig. 4: Schematic representation of a typical member of Symphyta with the lack of the wasp waist (from: GOULET and HUBER, 1993).

The body of Apocrita is also separated into three different parts, but due to a fusion of the first segment of the abdomen with the rest of the thorax another terminology is used for Apocrita than for other insects: head, **mesosoma** and **metasoma**. (Fig. 5)

Mesosoma is thereby described by thorax plus first abdominal segment. This first abdominal segment is called **propodeum**. (GOULET and HUBER, 1993)

Every mesosomal segment is separated in a dorsal area (**notum**), lateral area (pleuron), and ventral area (**sternum**) (GOULET and HUBER, 1993).

Right after the propodeum resides the narrow waist which is called **petiole**. This is the first metasomal or second abdominal segment. (CHINERY, 2012)
The complete part after the propodeum is called **gaster**. (CHINERY, 2012)
The metasoma is subdivided into segments, at which each of the segments are consisting of a dorsal plate (**tergum**) and a ventral plate (sternum). The subdivisions of terga into smaller sclerites are called **tergites** and for sterna they are called **sternites**. (GOULET and HUBER, 1993)

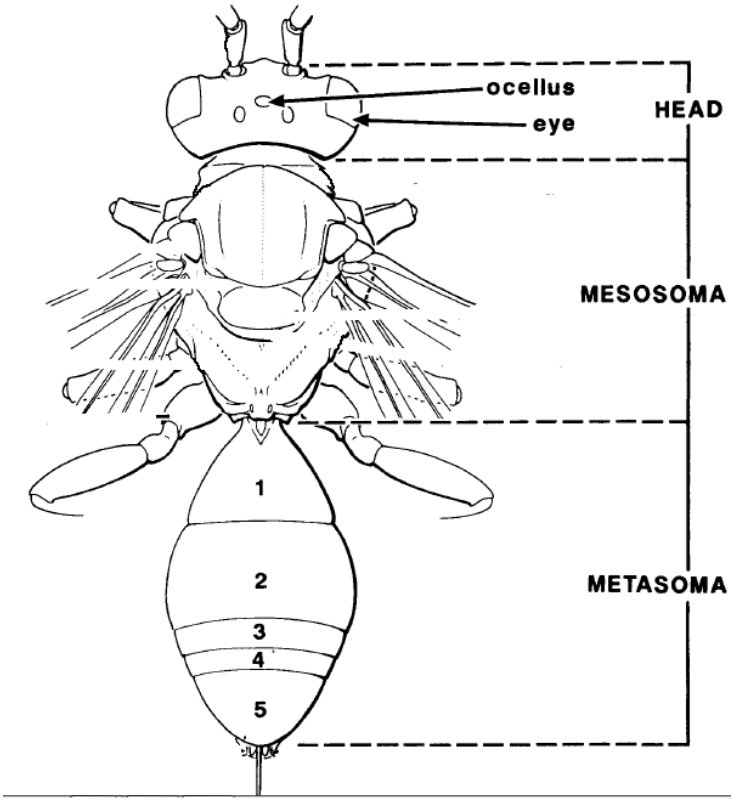

Fig. 5: Schematic representation of a typical member of Apocrita with head, meso- and metasoma and the ocelli as an addition to the compound eyes (modified from: GOULET and HUBER, 1993).

Apocrita contains hymenopterans which are living mainly carnivorous, but the variation is huge. The sub-order can be subdivided into Aculeata (stinging wasps) and Terebrantes (parasitic wasps). Aculeata comprises bees, wasps and ants, which are living mainly sociably, however some members of Aculeata are also parasitic (e.g. Dryinidae, Betylidae and Chrysididae). The **ovipositor** of the females in this group is usually modified to a sting to paralyse prey or to defend themselves. (CHINERY, 2012)

Terebrantes includes parasitic wasps, in which the female's ovipositor is used to pierce the skin of the hosts to put their eggs underneath. Almost all other insect orders and even spiders are used as hosts. (CHINERY, 2012)

Some special terms are important to describe a parasitic lifestyle in Hymenoptera. Firstly, there is the differentiation into ecto- and endoparasitoids. Ectoparasitoids feed in their larval stadium from an external position from the host, whilst endoparasitic larvae feed from the inside from their hosts.

Another term which is important in conjunction with parasitoids is the relationship of the parasitic organism to its host. There are idiobionts, which feed on corpses or paralysed hosts and prevent any activity or further development of the hosts after attacking them.

On the other hand there are the koinobionts, which live with a host that continues to develop, feed and move around. These parasitoids need to have the ability to adapt to the continuing life of the host and need to deal successfully with any physiological defences of their hosts.

Usually, idiobionts can attack a wider range of hosts than koinobionts and idiobionts are almost without exception ectoparasitoids whereas koinobionts are often endoparasitoids. (SHAW and HUDDLESTON, 1991)

2.5.2 Diapriioidea

Diapriidae are a wasp family within Terebrantes. They are typically between two and four millimetres in length, but vary between one and eight millimetres. The body colour varies between black and white, but the surface is almost always shiny. The antennae protrude from a prominence on the frontal region of the head (Fig. 6). They have a cylindrical petiole and the second metasomal tergum is typically very large (Fig. 7). The wing venation is quite reduced with a subcostal vein lying along the edge of the forewings and often ending in a thickening with a vestigial marginal and stigmal vein, but in some cases with a short marginal vein and well developed stigmal vein. Sometimes a postmarginal and a basal vein are visible. (Fig. 8) (NIXON, 1980 and GOULET and HUBER, 1993)

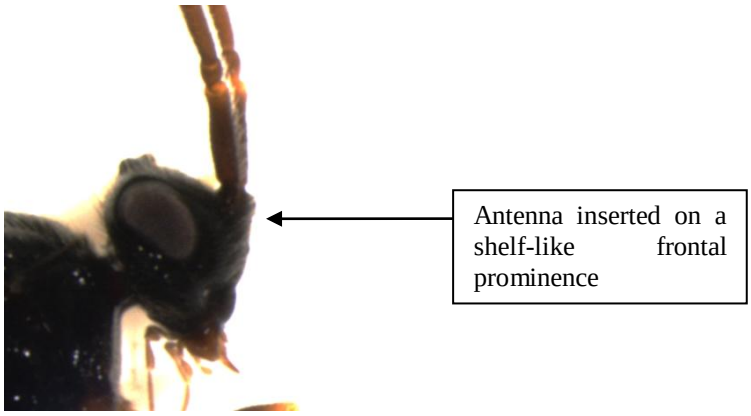

Fig. 6: Head of Belytinae (Diapriidae). Note the frontal prominence. (Photo: Mareike Kiupel)

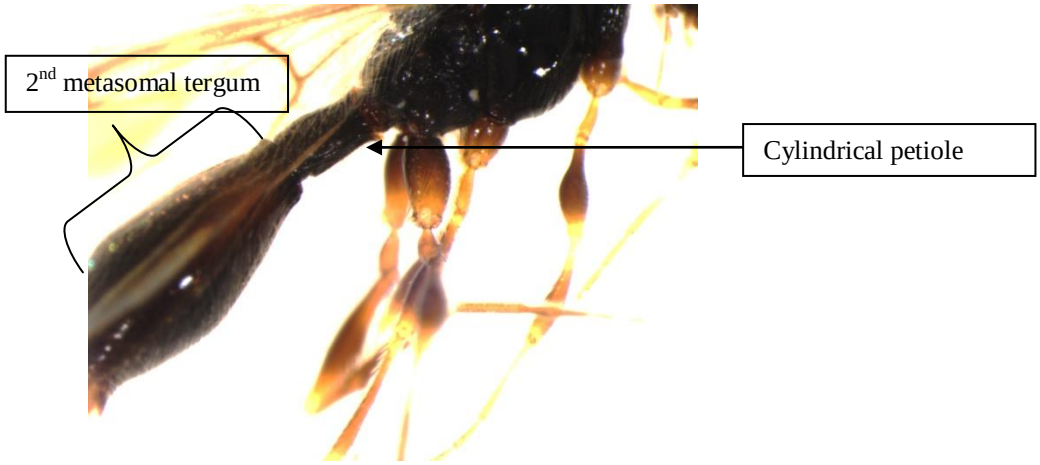

Fig. 7: Metasoma of Belytinae (Diapriidae) with a cylindrical petiole and large second metasomal tergum. (Photo: Mareike Kiupel)

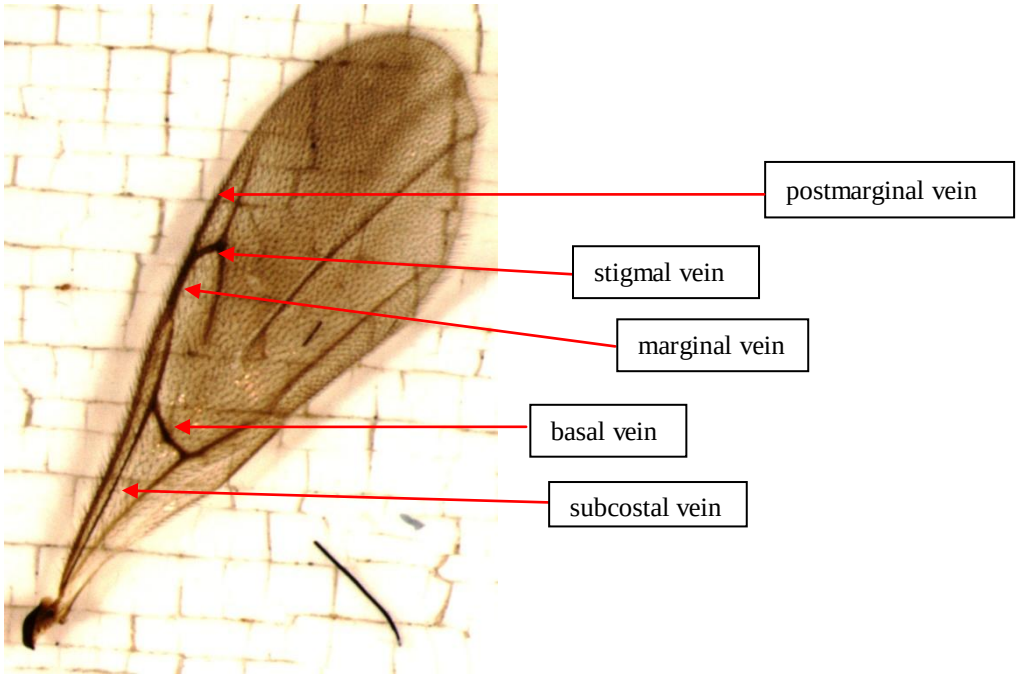

Fig. 8: Forewing of Belytinae (Diapriidae) with typical venation with subcostal vein, basal vein, marginal vein, postmarginal vein and stigmal vein. (Photo: Mareike Kiupel)

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Diapriidae were formerly divided into four subfamilies: Belytinae, Diapriinae, Ismarinae and Ambositrinae.

A revision of SHARKEY et al. (2012) based on taxonomic and genetic studies raises the subfamily Ismarinae to family status and sorted them into the new superfamily Diapriioidea.

To keep up with the latest classification it was necessary to re-sort the out sorted Diapriidae samples in SMTP. Finally, a determination to species level of Ismaridae was conducted.

2.5.3 Ismaridae

Before the start of the Swedish Malaise Trap Project there were only a few specimens of Ismaridae available in Swedish entomological institutions. While performing SMTP, the, most likely, largest collection of Ismaridae in the whole world was created.

Only limited knowledge of the biology of Ismaridae exists.

But they are reported to be hyperparasitoides (NIXON, 1957), meaning that they attacking only hosts which are already parasitized (SULLIVAN, 1987).

It is though reported that Ismaridae attack Dryinidae larvae on Homopterans. (NIXON, 1957)

JERVIS summarized in 1979 all available host records for four of the *Ismarus* species. In the following overview the species and their hosts are shown:

Tab. 1: Overview about *Ismarus* species and their primary and secondary hosts (based on JERVIS, 1979)

Species	***Ismarus dorsiger***	***Ismarus flavicornis***	***Ismarus halidayi***	***Ismarus rugulosus***
Primary host	*Aphelopus* sp.	*Anteon flavicorne; Anteon jurineanum*	*Anteon brevicorne*	*Chelogynus lucidus*; *Prenanteon* sp.
Secondary host	*Fagocyba cruenta*; *Ribautiana ulmi*, adults	*Ideocerus* sp., nymphs	*Oncopsis* sp., nymphs	*Streptanus sordidus*, adults

Worldwide there are only two genera of Ismaridae so far: *Ismarus* Haliday, 1835 and *Szelenyioprioides* Szabó, 1974. In Sweden is at present only *Ismarus* reported. (LIU et al., 2011 and URL 5)
According to Fauna Europea eight known *Ismarus* species are found in Europe:
Ismarus abdominalis Marshall (1874),
Ismarus campanulatus Herrich-Schäffer (1840),
Ismarus dorsiger Haliday in Curtis (1831),
Ismarus flavicornis Thomson (1858),
Ismarus halidayi Förster (1850),
Ismarus longicornis Thomson (1858),
Ismarus moravicus Oglobin (1925) and
Ismarus rugulosus Förster (1850) (URL 4).

According to the Swedish Taxonomic Database (Dyntaxa) five registered *Ismarus* species are found in Sweden:
Ismarus dorsiger Haliday in Curtis (1831),
Ismarus flavicornis Thomson (1858),
Ismarus halidayi Förster (1850),
Ismarus longicornis Thomson (1858) and
Ismarus rugulosus Förster (1850) (URL 5).

Ismarus abdominalis is only recorded in Britain, whilst *Ismarus campanulatus* is only found in Germany so far and *Ismarus moravicus* is only known to appear in Slovakia. (URL 4)

2.6 Education

Students who are working in SMTP have access to scientists and private teachers almost all the time.
An introduction is the essential base for obtaining the requested knowledge for sorting the insects in SMTP. For that Kajsa Glemhorn, person responsible for SMTP, explains the whole sorting process and shows all orders, which are occurring in Sweden at a discussion microscope.

This special microscope is equipped with two pairs of oculars, so that the student is able to see the same things as the teacher and vice versa.
Usually, the introduction takes about one intensive week and after that the student is supposed to be able to recognise all Swedish insects to an order level. Now, the student gets an own work-place with an own microscope.
The student can be offered a second educational step, when the first step sorting proceeded very well and competent. This means a deeper study of either Diptera or Hymenoptera; both of them the most mega diverse insect orders in the world. Included in this step are a more advanced and specialized sorting process plus theoretical lectures about insect morphology, the latter given by Dave Karlsson, managing director at Station Linné. The education for the second sorting process are conducted either by Jon Tinnert (specialist on Diptera) or by Pelle Magnusson (specialist on Hymenoptera), both scientists in the SMTP crew.

3. Material and Methods

3.1 Sorting into orders

The first and most important part of sorting the caught insects was the first step sorting, where all specimens were sorted into orders.

After a successful introduction, the samples were sorted under a Stereolupp Binoculär microscope of Sagitta, Sweden with a ten-fold wild field and a seven to 45-fold magnification and by the use of common spring steel forceps and hard acuate 5-Carbon-H forceps of Durmont, Switzerland.

The material of the samples was sorted in 35 different taxa as shown in table 1. Important to mention though, is that not all caught specimens were insects due to the fact that Malaise traps catch other arthropods such as spiders or myriapods as well.

Tab. 1: Overview about all relevant taxa for the first step sorting within the Swedish Malaise Trap Project

Scientific name	**English**
Acari	Mites, Ticks
Araneae	Spiders
Auchenorrhyncha (Hemiptera)	Cicadas, Treehoppers
Blattodea	Cockroaches
Coleoptera	Beetles
Collembola	Springtails
Dermaptera	Earwigs
Diptera: Brachycera	True Flies: Short-horned Flies
Diptera: Nematocera	True Flies: Long-horned Flies
Diptera: Phoridae	True Flies: Humpback Flies
Diptera: Syrphidae	True Flies: Hoverflies
Diptera: Asilidae	True Flies: Robber Flies
Diptera: Sepsidae	True Flies: Ensign Flies
Ephemeroptera	Mayflies
Heteroptera	True Bugs
Hymenoptera	Bees, Wasps, Sawflies, Ants
Isopoda	Woodlice, Pill Bugs
Lepidoptera	Butterflies, Moths
Mecoptera	Scorpion Flies
Megaloptera	Alder Flies, Dobson Flies, Fish Flies
Myriapoda	Millipedes, Centipedes
Neuroptera	Lacewings
Odonata	Dragonflies
Opiliones	Harvestmen
Orthoptera	Grasshoppers, Crickets
Phthiraptera	Lice
Plecoptera	Stoneflies
Pseudoscorpionida	Pseudoscorpiones
Psocoptera	Booklice, Barklice
Raphidioptera	Snakeflies
Siphonaptera	Fleas
Sternorrhyncha (Hemiptera)	Aphids, White Flies, Scale Flies
Strepsiptera	Stylopoids
Thysanoptera	Thrips
Trichoptera	Caddies Flies

The sorting process was conducted as followed:

Three to five tablespoons of insects were pulled out from the 500 mL preserving jar and filled in an 11 cm x 11 cm sorting tray, which in turn was filled up with ethanol. During the sorting process every specimen had to be determined and put in a seven

mL tube, which was filled with ethanol. The tubes were organised after a certain sorting scheme on a rack with one tube per order (Fig. 9).

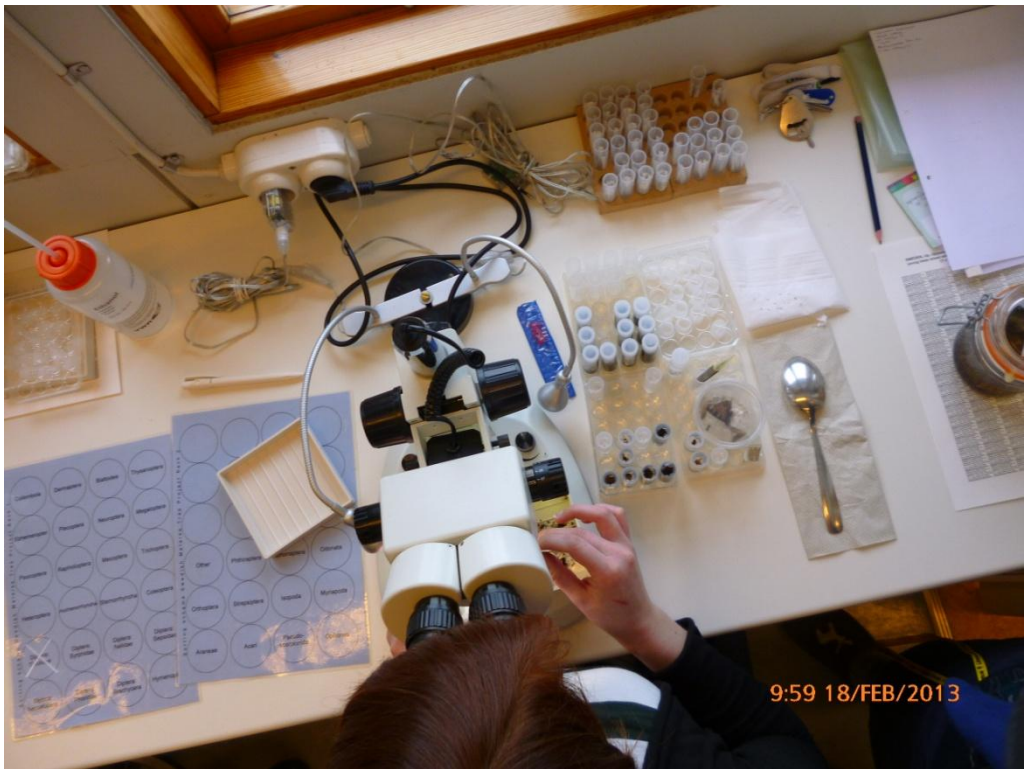

Fig 9: Working place in the Swedish Malaise Trap Project. The sorting scheme can be seen on the left side and on the right side the rack with tubes filled with ethanol for the different found taxa. (Photo: Mareike Kiupel)

After finishing a sample, all tubes were provided with two data labels; one with the information about the trap (Fig. 10) and one additionally with information about the insect order and the name of the determiner. After this, all tubes were closed with a lid and received a label on it with trap ID, taxon name, emptying date and collection ID.

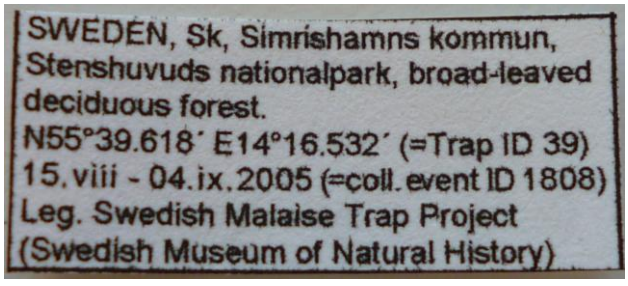
SWEDEN, Sk, Simrishamns kommun,
Stenshuvuds nationalpark, broad-leaved
deciduous forest.
N55°39.618´ E14°16.532´ (=Trap ID 39)
15.viii - 04.ix.2005 (=coll.event ID 1808)
Leg. Swedish Malaise Trap Project
(Swedish Museum of Natural History)

Fig. 10: Trap label with information about the specific spot, the habitat, coordinates, sampling period, Trap ID and collection ID (Photo: Mareike Kiupel)

To keep track of the whole sorting process all tubes were noted in a table with the number of tubes per order and the total amount of tubes and found taxa.
After completing the sorting process, the tubes were stored in paper boxes, at which 49 tubes fit in one box. For a better conservation these boxes were stored in a cool and dark room.
Estimated-time needed to sort up a big sample, which means a densely filled 500 mL preserving jar, was one full week. 100-60,000 specimens could be found per sample, which means 20,000 specimens occurred on average per sample.

3.2 Sorting into families of Hymenoptera

To get proper-sized groups and at the same time support the contributing taxonomists in their voluntary efforts with Hymenoptera and Diptera these orders are treated in further sorting steps at Station Linné into superfamilies, families and subfamilies (Tab. 2).
The sorting procedure was otherwise roughly the same as described in the order sorting process.

Tab. 2: Overview about all relevant taxa of Hymenoptera
for the second step sorting within the Swedish Malaise Trap Project

Scientific names	**English**
Apoidea	Bees, Bumble Bees
Aulacidae	Aulacids
Bethylidae	Bethylid Wasps
Braconidae	Braconid Wasps
Ceraphronidae	Ceraphronid Wasps
Chalcidoidea	Chalcidoids
Chrysididae	Cuckoo Wasps
Cynipoidea	Cynipoids, Gall Wasps
Diapriidae	Diapriids
Dryinidae	Pincher Wasps
Embolemidae	no common name
Eumeninae	Potter Wasps
Evaniidae	Ensign Wasps
Figitidae	no common name
Formicidae	Ants
Gasteruptiidae	Gasteruptiid Wasps
Heloridae	Helorids
Ichneumonidae	Ichneumonid Wasps
Megaspilidae	Megaspilids
Mutilidae	Velvet Ants
Mymarommatidae	no common name
Platygastridae	Platygasterids
Platygastridae: Scelioninae	no common name
Pompilidae	Spider Wasps
Proctotrupidae	Proctotrupids
Sapygidae	Sapygid Wasps
Scoliidae	Scoliid Wasps
Sphecidae sensu lato	Digger Wasps
Symphyta	Saw-Flies
Tiphiidae	Tiphiid Wasps
Vanhorniidae	Vanhorniids
Vespidae	Social Wasps

3.3 Sorting of Diapriioidea

Due to changes in the classification a re-sorting of the diapriids in SMTP was needed.

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At present, no one in Sweden is working on this group and due to this help was offered by the SMTP crew to get in contact with world-leading scientists to obtain information about Diapriidae.

By using NIXON (1957), LIU et al. (2011), some information of GOULET and HUBER (1993) and borrowed specimen from the Museum of Natural History in Stockholm and from the Museum of Zoology at Lund University the studied specimens could be determined into species.

After determination, the specimens were glued to preserve them better for the future. For this task starch-based glue was used, because it is easy to dilute, cheap, environmental friendly and does not cause any harm to the organism's DNA which is very important for future genetic studies.

The specimens were placed on 11 mm x 5 mm triangular paper sheets from Ento Sphinx s.r.o., Pardubice, Czech Republic, and then pinned with black enamelled needles, size 3, also from Ento Sphinx s.r.o., on Styrofoam.

They were stored in several Unit-Boxes in a wooden box with a glass lid.

Additionally, a table with all relevant data (Gender, Trap ID, Collection ID, Province, Start, End, Day of Start, Day of End, Date of Determination, Type of Landscape, Part of Country and Localisation) for each species was created to get a better overview about the distribution of Ismaridae in Sweden and to do some further researches on their biology on the basis of these facts (Tab. V to XVI).

4. Results

4.1 Sorting into orders

In the first part of the internship, the first eight weeks, twelve different samples of the SMTP material had been sorted in the first sorting step, which were calculated to be approximately 240,000 specimens.

Within these samples the taxa Acari, Araneae, Auchenorhyncha, Coleoptera, Collembola, Brachycera, Nematocera, Phoridae, Hymenoptera, Lepidoptera and Sternorrhyncha were found every time.

Syrphidae were found in eleven samples, whilst Heteroptera were found ten times and Trichoptera occurred in eight samples.

In six samples there had been Neuroptera and Psocoptera.

Sepsidae, Opiliones, Plecoptera and Thysanoptera could be found in four samples.

In very low abundances (one to three times) occurred Blattodea, Dermaptera, Asilidae, Isopoda, Mecoptera, Myriapoda, Odonata, Orthoptera and Phthiraptera.

Ephemeroptera, Megaloptera, Pseudoscorpionida, Raphidioptera, Siphonaptera and Strepsiptera were found none at all. (Fig. 11)

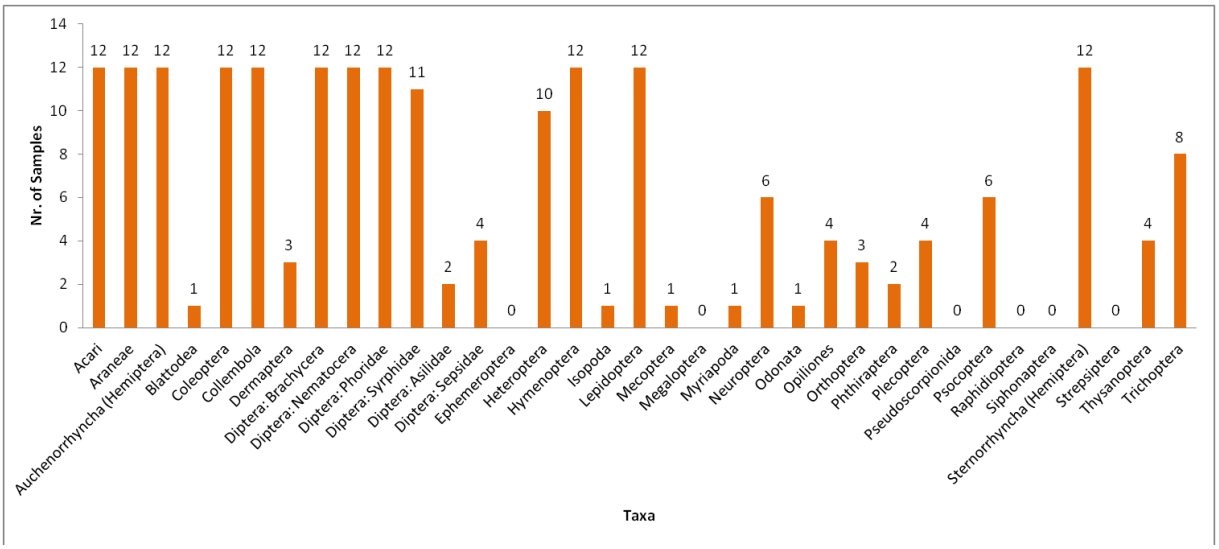

Fig. 11: Overview about the occurrence of the different taxa in the first sorting step in all 12 sorted samples during the internship in the Swedish Malaise Trap Project.

4.2 Sorting Hymenoptera to families

Ten different samples of the SMTP Hymenoptera were sorted within the two weeks of the second sorting step during the internship. This should correspond to approximately 5,000 specimens.

Within these samples the taxa Braconidae, Chalcidoidea, Diapriidae and Ichneumonidae were found every time.

Cynipoidae and Scelioninae were found in nine samples, whilst Formicidae, Platygastridae and Proctotrupidae were found eight times and Megaspilidae occurred in seven samples.

In six samples there had been Ceraphronidae and Apoidea; Symphyta and Vespidae were found five times.

Dryinidae and Sphecidae sensu lato could be found in four samples.

In very low abundances (one to three times) occurred Chrysididae, Eumeninae, Evaniidae, Heloridae, Mymmaromatidae, Pompilidae and Sapygidae.

Aulacidae, Bethylidae, Embolemidae, Figitidae, Gasteruptiidae, Mutilidae, Scoliidae, Tiphiidae and Vanhorniidae were found none at all. (Fig. 12)

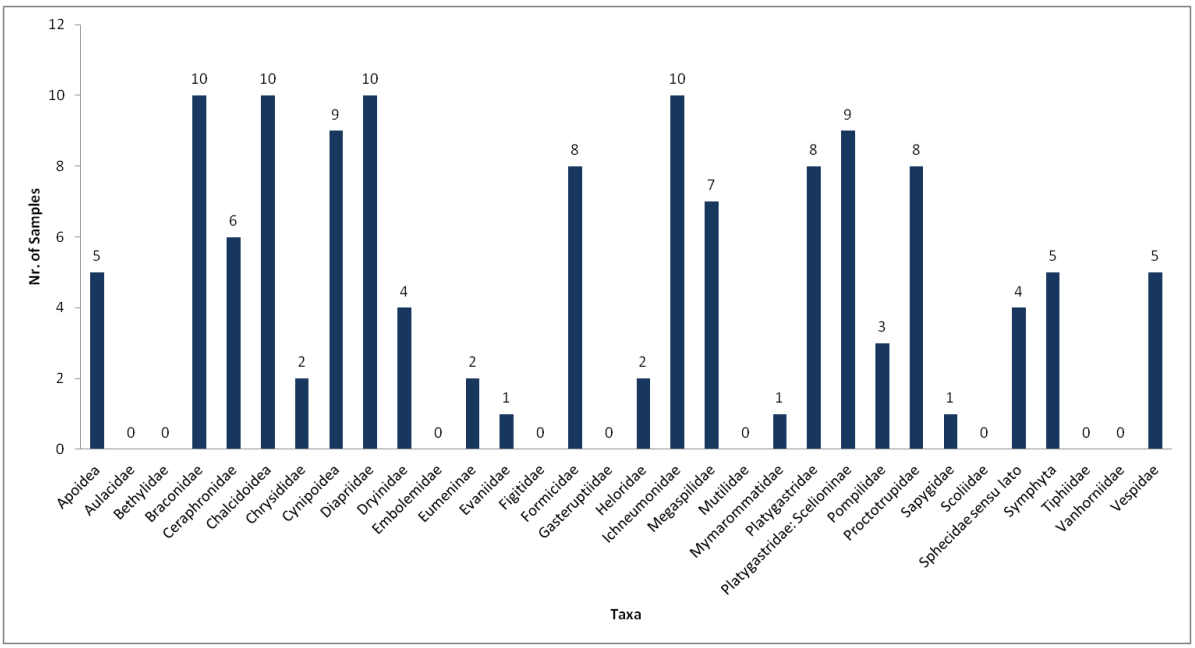

Fig. 12: Overview about the occurrence of the different taxa in the second sorting step in all 10 sorted samples during the internship in the Swedish Malaise Trap Project.

4.3 Sorting of Diapriioidea

By using the determination key of NIXON (1980), some information of GOULET and HUBER (1993) and URL 6 it was possible to create a determination key for an easier separation of the subfamilies Belytinae and Diapriinae and the family Ismaridae. The main distinctive feature is the way the antennae are positioned at the head. The antennae of Diapriinae and Belytinae are inserted on a frontal prominence while this prominence is lacking in Ismaridae. Due to this character Ismaridae was sorted out easily.

To sort Diapriioidea to the two families of Diapriidae and Ismaridae the following key has been created.

Determination key to families Ismaridae and Diapriidae
with its subfamilies Belytinae and Diapriinae
(*modified from NIXON (1980), GOULET and HUBER (1993), URL 6 and own material)*

1 Antennae inserted on a frontal prominence, far away from **clypeus**, body colour black or brown.....Diapriidae
2

Antennae not inserted on a frontal prominence, very near to clypeus, body colour mainly black or brown, but in some cases pale white-yellowish (Fig. 13).....Ismaridae

2 Petiole overlies the second metasomal tergum (Fig. 14), fore wings showing complete typical venation, usually three closed wing cells are visible (costal, medial, radial), hind wings with a closed basal cell, 4 visible segments posterior to the second metasomal tergum.....Belytinae

Petiole grows into the second metasomal tergum (Fig. 15), fore wings with reduced venation, sometimes completely veinless, hind wings without a closed basal cell, only 3 visible segments posterior to the second metasomal tergum *or* the frons ornamented with projections (Fig. 16) *or* the distal edge of the subcostal vein remote from the edge of the wing.....Diapriinae

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Fig. 13: Typical appearance of an individual of the family Ismaridae. (Photo: Mareike Kiupel)

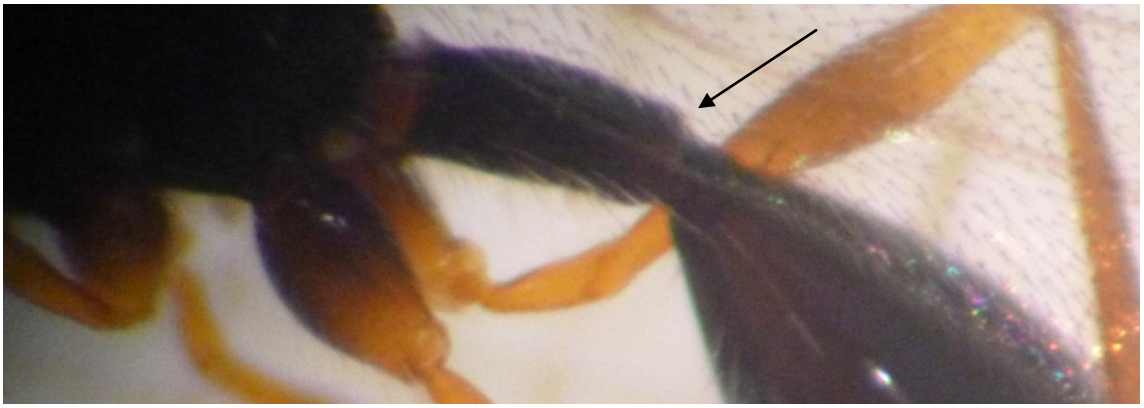

Fig. 14: Petiole of a Belytinae, overlying (see arrow) the second metasomal tergite. (Photo: Mareike Kiupel)

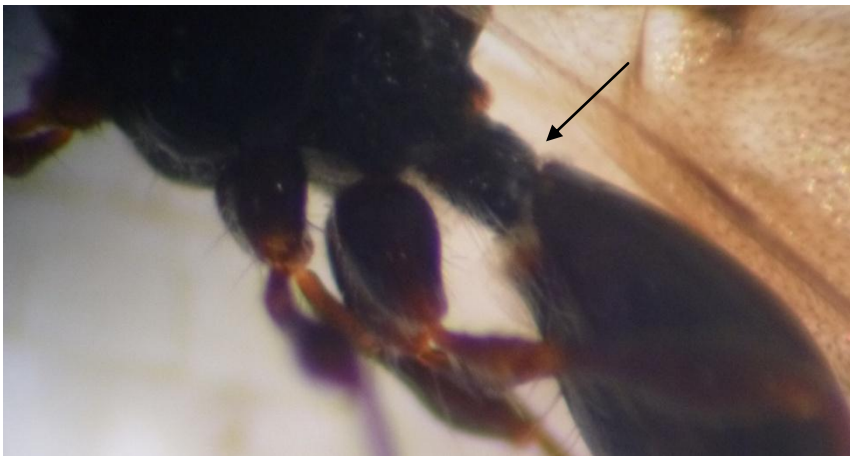

Fig. 15: Petiole of a Diapriinae growing into (see arrow) the second metasomal tergite. (Photo: Mareike Kiupel)

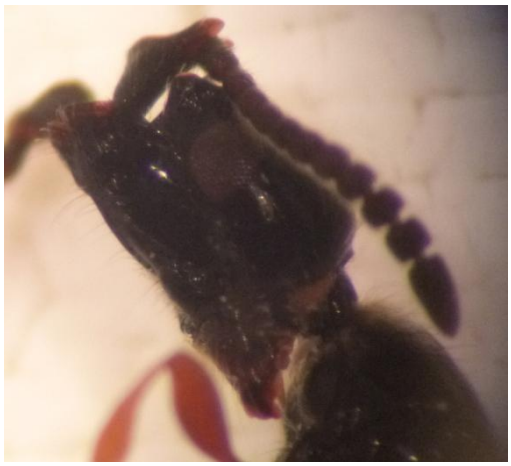

Fig. 16: Specimen of Diapriinae with ornamented frons. (Photo: Mareike Kiupel)

For the sorting of Ismaridae into species the following key has been created. Important to state is that the gender of the specimens need to be determined before determining the species. Females of Ismaridae possess antennae with 13 **flagellomeres** whilst males have twelve flagellomeres and a sexual modification on the second flagellomere (Fig. 17).

Fig. 17: Male of *Ismarus halidayi* with apparent sexual modification (see arrow) on second flagellomere (Photo: Mareike Kiupel)

Determination key to species of Ismaridae

(modified from NIXON (1957), GOULET and HUBER (1993),

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LIU et al. (2011), KIEFFER (1916), specimen copies and own material)

Key to species (females)

1 Most parts of the body pale yellowish, **meso**- and **metapecta** almost white, only **mesoscutum** and **scutellum** dark brown.....*Ismarus dorsiger* Haliday

Whole body black or blackish.....2

2 Scutellum densely **rugose**, dorsal surface of gaster rough and dull, evenly scaly-reticulate; antennae completely black, first flagellomere distinctly shorter than second.....*Ismarus rugulosus* Förster

Scutellum smooth, dorsal surface of gaster smooth and shiny; at least the last 4 basal segments of antennae yellowish.....3

3 Antennae completely bright yellowish; lower half of mesopecta with a continuous zone of sculpture from front **coxa** to posterior margin.....*Ismarus flavicornis* Thomson

Only the last 4-5 basal segments of antennae yellowish, the rest almost black.....4

4 Marginal vein in forewing almost longer than radial cell, veins black, strong venation, Metatarsus of all legs brown-black, antennae longer than mesosoma.....*Ismarus longicornis* Thomson

Marginal vein in forewing shorter than radial cell, veins brown, 5th tarsomere brownish, but metatarsus of all legs yellow, antennae shorter than mesomsoma, ventrolateral and ventral area of mesopecta shining and unsculptured over a large median area.....*Ismarus halidayi* Förster

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Key to species (males)

1 Mandibles pale white-yellow with only the tips reddish; body entirely blackish, first flagellomere hardly shorter than second.....*Ismarus dorsiger* Haliday

Mandibles in most parts dark reddish.....2

3 **Scape** darkened along its upper surface; hind **tarsus** with at least its basal segment blackened; antennae thicker, first flagellomere less short and less thin than in proportion to second than in *I. halidayi*.....*Ismarus flavicornis* Thomson

Scape entirely yellowish; hind tarsus completely yellowish or at most the apical **tarsomere** faintly darkened; remote punctures on gaster less evident than in *I. flavicornis*.....*Ismarus halidayi* Förster

Four basal antennal segments ventrally reddish-yellow, femur and tibia black, metatarsus black.....*Ismarus longicornis* Thomson

In total the material of 350 different samples of Diapriidae were sorted within the last four weeks of the internship into Diapriinae, Belytinae and Ismaridae, which were estimated to be approximately 150,000 specimens.
Belytinae was found the most within 328 samples, whereat Diapriinae was found in 276 samples. (Fig. 14)

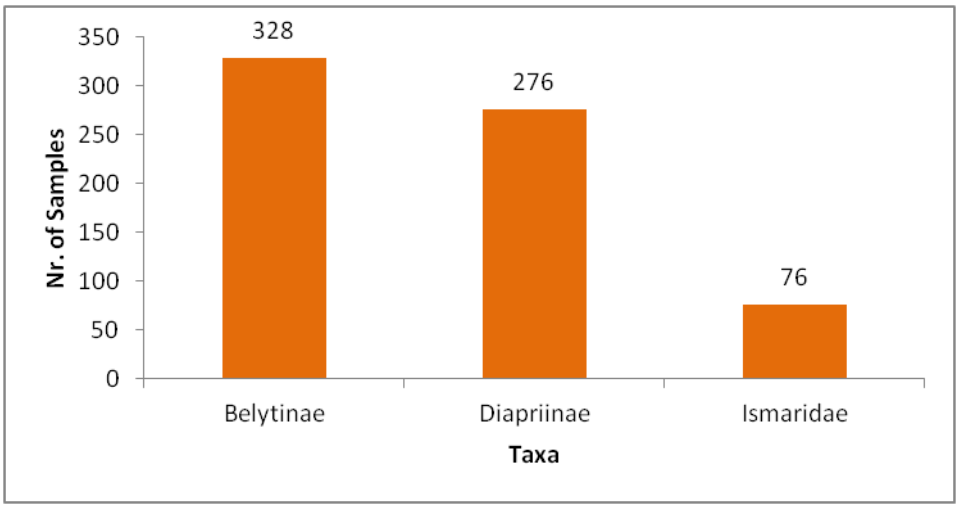

Fig. 14: Overview of the occurrence of the three different taxa in Diapriidae. Result based on all 350 sorted samples during the internship in the Swedish Malaise Trap Project.

195 specimens of Ismaridae were found in 76 of the Diapriidae samples within 31 different traps. Out of these samples four species were found: *Ismarus dorsiger*, *Ismarus flavicornis*, *Ismarus halidayi* and *Ismarus rugulosus*.

148 female specimen of *Ismarus dorsiger* were found.

Ismarus flavicornis was found 9 times whereat all of them had been female.

Ismarus halidayi was found 21 times, whereat 11 specimens had been females and 10 had been males.

17 female specimens of *Ismarus rugulosus* were found. (Fig. 15)

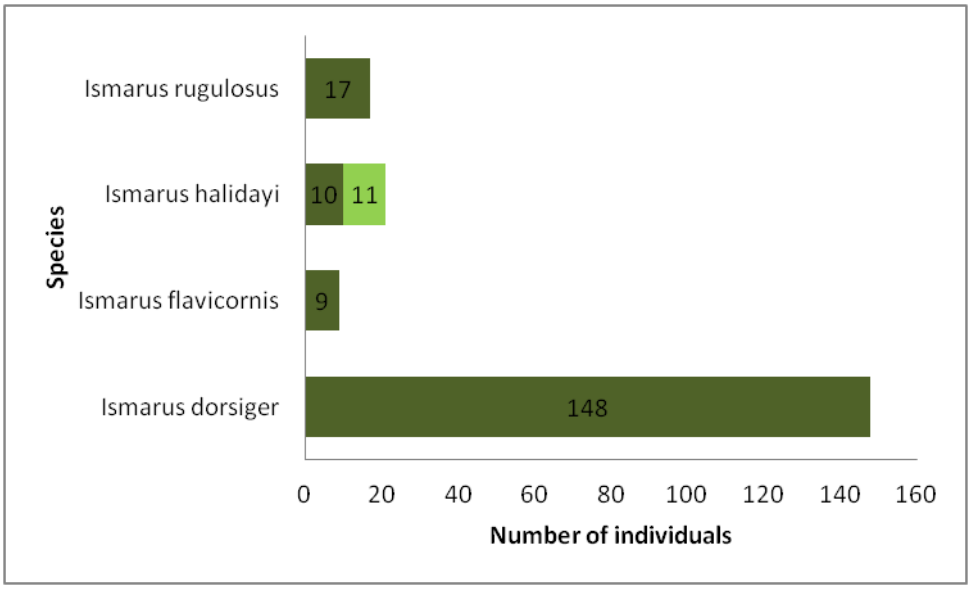

Fig. 15: Number of individuals and the distribution of the gender of the four found *Ismarus* species within the so far sorted samples of the Swedish Malaise Trap Project, whereat the light green bar indicates males and the dark green bars show females.

Generally, there were found more females than males in the sorted samples.
The only males of *Ismarus* encountered in the SMTP samples belonged to *Ismarus halidayi*. These males were mainly caught in Västmanland (Trap 11) and three at any one time in Uppland (Trap 27), Småland (Trap 1001) and Södermanland (Trap 2003).
Ismarus dorsiger occurs with the highest abundance compared to the other three species in the SMTP samples, whilst *Ismarus flavicornis* shows the lowest abundance.
Due to the close morphological relation to *Ismarus longicornis* it is important to note that all the found specimens that had been determined as *Ismarus halidayi* showed a radial cell in the fore wing which was at least 1.4 times longer than the marginal vein and none of them showed a dark metatarsus. This means that they clearly had not been *Ismarus longicornis*.

There had been found a few mistakes in the reference objects from the Museum of National History Stockholm which are listed in the following paragraph.
Specimen Nr. 2597 was determined as *Ismarus halidayi* female; corrected to *Ismarus flavicornis* male.
Specimen Nr. 2605: determined as *Ismarus longicornis* male, sorted as *Ismarus rugulosus*; corrected to *Ismarus flavicornis* male.
Specimen Nr. 2606: determined as *Entomius longicornis*; corrected to *Ismarus halidayi* female.
Specimen Nr. 2586: *Ismarus longicornis* female, sorted as *Ismarus flavicornis*; and it was *Ismarus flavicornis* male.

By looking carefully at all glued specimens and compare them with the determination key of NIXON (1957) and the specimens borrowed from NRM and the University of Lund, accurate morphological descriptions of each species were made.
Out of the gathered data in the tables V to XVI an overview about the occurrence of each species in the different provinces in Sweden was created as well as a distribution map with the number of found specimens per trap. The habitats in which the specimens were found were collected as well.
Additionally, the flight time of each species was calculated.

In the following pages, all these data were summed up as short characteristic descriptions for each of the four species.

Ismarus dorsiger Haliday in Curtis 1831

Description
(Data only based on females)

Fig. 16: Habitus picture of *Ismarus dorsiger* (photo: Mareike Kiupel).

- Body pale-yellow
- Antennae golden-yellow, sometimes upper surface slightly brown
- **Tegula** yellow
- Legs pale-yellow
- **Mesonotum** dark brown and shiny without **notauli**
- Scutellum dark brown and shiny and smooth
- **Pronotum** and Mesopecta either shiny and smooth or rough and furrowed
- Gaster shiny, but surface a little bit furrowed
- Furrow on second metasomal tergum hardly visble, very short and shallow
- **Radial cell** in forewings only half as long as marginal vein
- First two flagellomeres longer than thick, second longer than first, all others almost same size, thicker and shorter compared to first ones

Biology

- **Habitats**: Coniferous forest, deciduous forest, meadow, meadow with bushes, heath, garden.

- **Flight time**: June to September, peak in July and August (Fig. 17)

- **Distribution**: *Ismarus dorsiger* was found in the traps in Blekinge (15 individuals), Gotland (8 individuals), Halland (1 individual), Öland (17 individuals), Östergötland (13 individuals), Skåne (28 individuals), Småland (20 individuals), Södermanland (23 individuals), Uppland (17 individuals), Värmland (6 individuals) and Västmanland (1 individual) (Fig. 18).

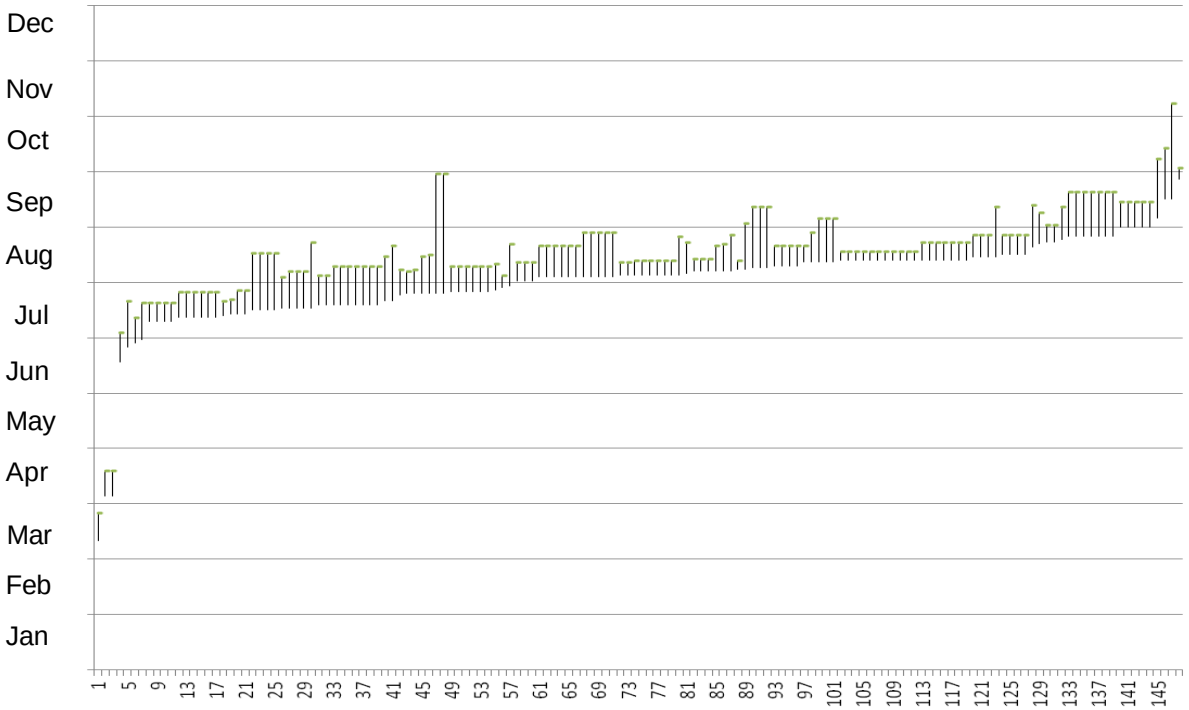

Fig. 17: Calculated flight time of *Ismarus dorsiger* based on n = 148 specimens from the Swedish Malaise Trap Project.

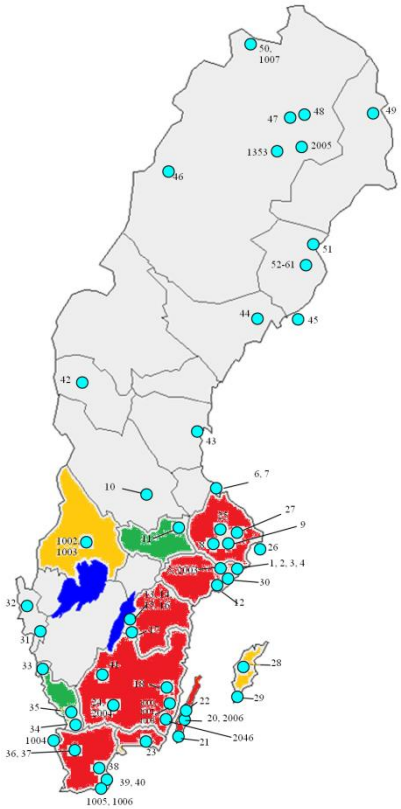

Fig. 18: Distribution map of *Ismarus dorsiger* based on specimens from the Swedish Malaise Trap Project; the colours indicate the number of found individuals per province with grey = 0 ind., green = 1-5 ind. (rare), yellow = 5-10 ind., red = more than 10 ind (common).

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Ismarus flavicornis Thomson 1858

Description

(Data only based on females)

Fig. 19: Habitus picture of *Ismarus flavicornis* (photo: Mareike Kiupel).

- Body black-brown
- Antennae golden-yellow
- Tegula golden-yellow
- Legs yellow
- Mesonotum shiny with notauli
- Scutellum shiny and smooth
- Lower 2/3 of Pronotum densely spotted and middle 1/3 of Mesopecta roughly furrowed, but followed by a smooth and shiny area
- Gaster shiny
- Furrow on second metasomal tergum more than half of tergite, strong and deep
- Radial cell in the fore wings as long as marginal vein
- First two flagellomeres longer than others, 3 times longer than thick, other flagellomeres shorter and thicker

Biology

- **Habitats**: Deciduous forest and meadow.

- **Flight time**: June to August, peak in July (Fig. 20)

- **Distribution**: *Ismarus flavicornis* were found in the traps in Uppland (8 individuals) and Värmland (1 individual) (Fig. 21).

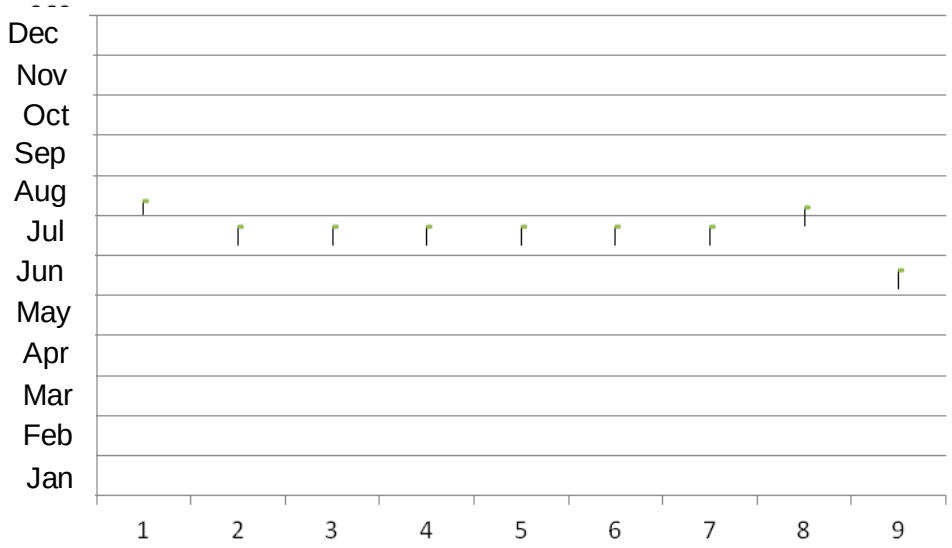

Fig. 20: Calculated flight time of *Ismarus flavicornis* based on n = 9 specimens from the Swedish Malaise Trap Project.

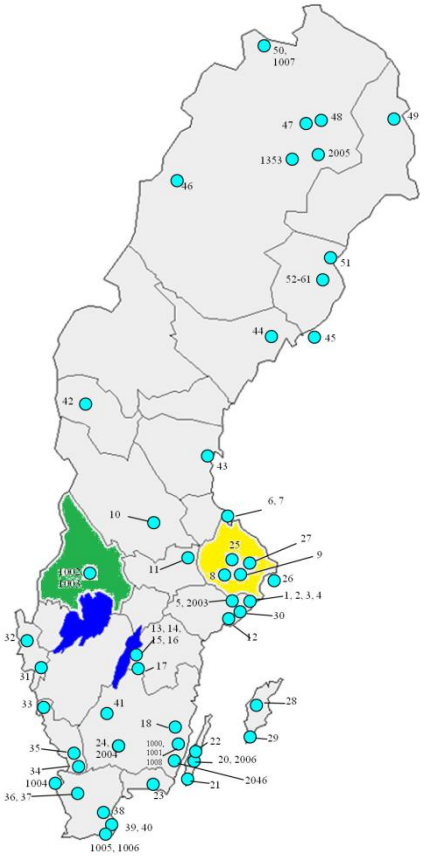

Fig. 21: Distribution map of *Ismarus flavicornis* based on specimens from the Swedish Malaise Trap Project; the colours indicate the number of found individuals per province with grey = 0 ind., green = 1-5 ind. (rare), yellow = 5-10 ind., red = more than 10 ind (common).

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Ismarus halidayi Förster, 1850

Description Females

Fig. 22: Habitus picture of a female *Ismarus halidayi* (photo: Mareike Kiupel).

- Body black-brown
- 4 basal segments of antennae yellow, rest black
- Tegula golden-yellow
- Legs yellow
- Mesonotum shiny with notauli
- Scutellum shiny
- Pronotum rough and hairy except from a shiny area in the middle, Mesopecta in the most parts shiny and smooth, only ventral area rough
- Gaster shiny
- Petiole more cylindric and broader than in *I. flavicornis*
- Furrow on second metasomal tergum at maximum half of gaster, but strong and deep
- Radial cell in the fore wings hardly shorter than marginal vein, venation not as strong and visible as in *I. flavicornis*

Description Males

Fig. 23: Habitus picture of a male *Ismarus halidayi* (photo: Mareike Kiupel).

- Scape yellow
- Tegula brown
- Hind tarsus at least at its apical segment darkened
- other morphological characters the same as in females

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Biology

- **Habitats**: Cadaver dump, Coniferous Forest, Deciduous Forest, Meadow, Meadow with bushes.

- **Flight time**: June to October, peak in August (Fig. 24)

- **Distribution**: *Ismarus halidayi* could be found in the traps in Blekinge (1 individual), Gotland (1 individual), Småland (1 individual), Södermanland (2 individuals), Uppland (3 individuals) and Västmanland (13 individuals) (Fig. 25).

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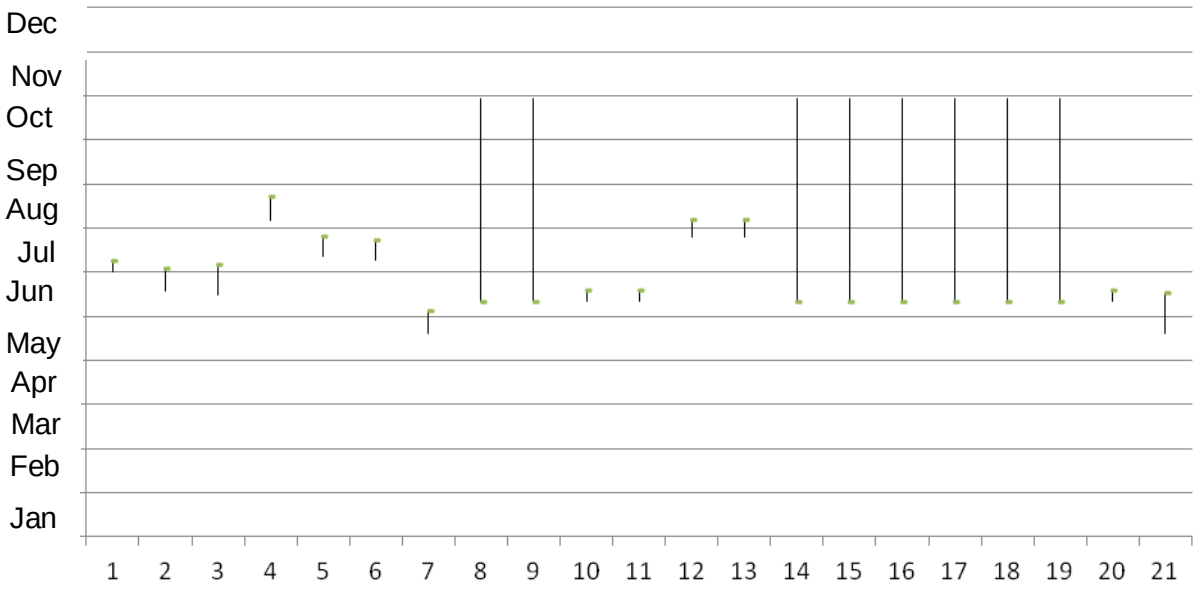

Fig. 24: Calculated flight time of *Ismarus halidayi* based on n = 21 specimens from the Swedish Malaise Trap Project.

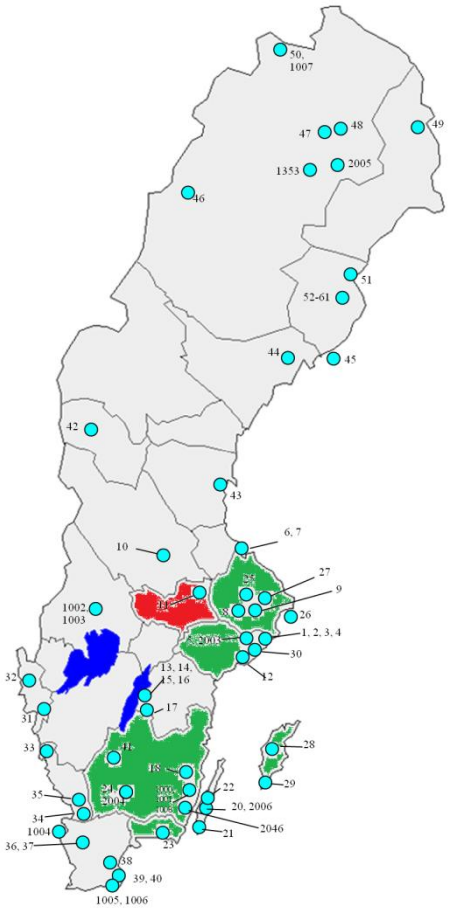

Fig. 25: Distribution map of *Ismarus halidayi* based on specimens from the Swedish Malaise Trap Project; the colours indicate the number of found individuals per province with grey = 0 ind., green = 1-5 ind. (rare), yellow = 5-10 ind., red = more than 10 ind (common).

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Ismarus rugulosus Förster, 1850

Description

(Data only based on females)

Fig. 26: Habitus picture of *Ismarus rugulosus* (photo: Mareike Kiupel).

- Body black-brown
- Antennae black-brown
- Tegula brown-black
- Legs yellow-brown
- Mesonotum shiny and with notauli
- Scutellum densely rugose
- Pronotum and Mesopecta rough
- Gaster dull and scaly
- Furrow on second metasomal tergum hardly visible and very short
- Radial cell in the fore wings shorter than marginal vein
- Second flagellomere slightly longer than first, all others same size

Biology

- **Habitats**: Alpine Birch and Spruce Wood, Bog, Coniferous Forest, Deciduous Forest, Meadow with bushes and Heath.

- **Flight time**: April to September, peak in July and August (Fig. 27)

- **Distribution**: *Ismarus rugulosus* could be found in the traps in Gotland (2 individuals), Hälsingland (2 individuals), Härjedalen (1 individual), Östergötland (5 individuals), Skåne (1 individual), Uppland (2 individuals) and Värmland (1 individual) (Fig. 28).

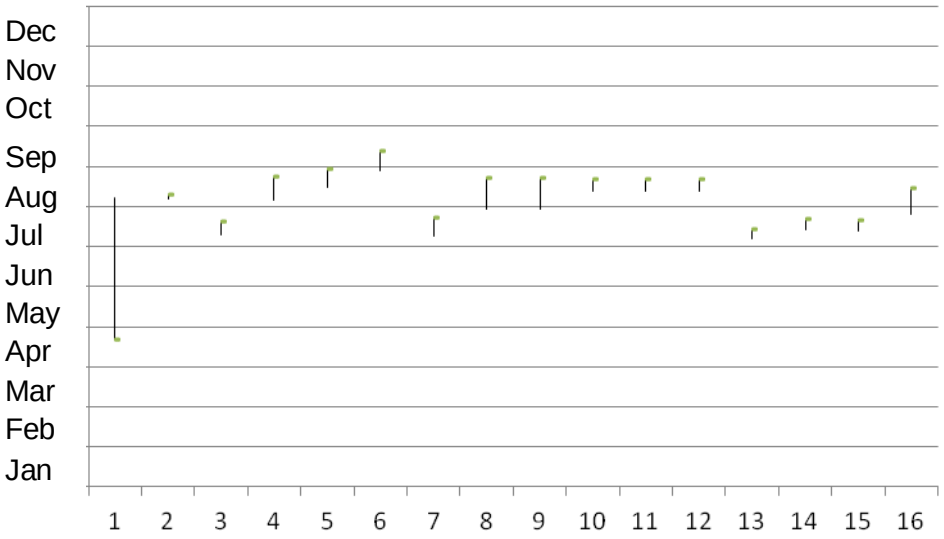

Fig. 27: Calculated flight time of *Ismarus rugulosus* based on n = 17 specimens from the Swedish Malaise Trap Project.

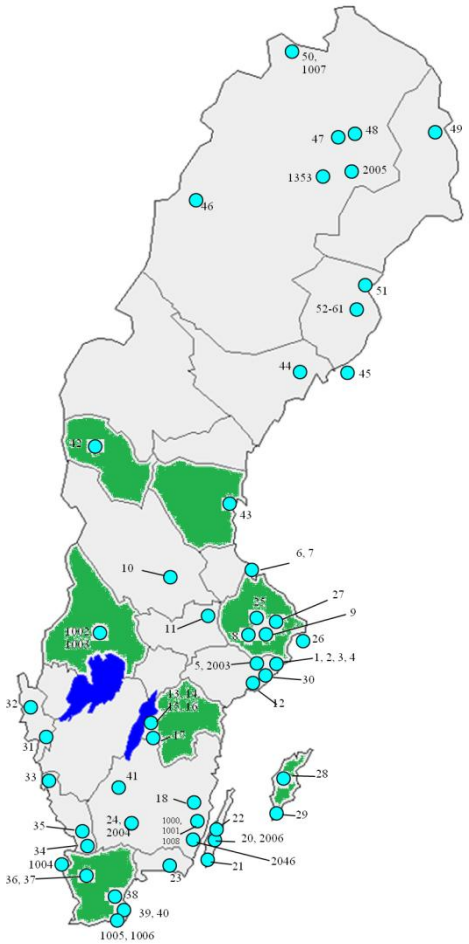

Fig. 28: Distribution map of *Ismarus rugulosus* based on specimens from the Swedish Malaise Trap Project; the colours indicate the number of found individuals per province with grey = 0 ind., green = 1-5 ind. (rare), yellow = 5-10 ind., red = more than 10 ind (common).

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5. Discussion

5.1 First and second step sorting

The expectations of this internship had been that it will gain a good insight to the work of an entomologist and to the world of insects. Apart from that, it was expected to give a quite good knowledge about taxonomy of insects.
Because of the unique type of education, which is practised in the Swedish Malaise Trap Project, it gave quickly a very good overview and long lasting knowledge about insect orders in general and particularly about Hymenoptera.
All the received knowledge is unique and applicable to all kinds of entomological questions all over the world.
The outcomes of this teaching were that an insect can be distinguished competent within three seconds into its order or a Hymenoptera into its family. A huge knowledge about the morphology as well as the classification and phylogeny of insects was received. Apart from that the importance of SMTP as an inventory project and thereby a base for further studies of ecosystem functions or the results of the climate change became clear.
The best outcome was by far the achievement and unique expert status of a poorly known Hymenoptera family and of course the up-dated new gained fascination and understanding of the diversity and beauty of insects.

The first and second step sorting within this internship were important pre-steps to the project about Ismaridae and to obtain the requested knowledge about insects and hymenopterans in general and in a pure taxonomical context.
The results of these sorting processes showed that some insect orders as well as some hymenoptera families are very common in the SMTP samples and others are very rare.
The high occurrence of some taxa in the order sorting could be explained by the circumstance that they occur in high abundances in the probed areas.
It could also be assumed that these taxa are generalists referring to their habitats and thereby occur in every trap.
Additionally, Malaise traps are known to be the most efficient kind of trap when collecting the mega diverse orders of Diptera and Hymenoptera.

The huge amount of Acari could maybe be explained with the fact that they reside in huge amounts on their hosts, which are usually other insects, not the least Diptera and Hymenoptera.
Odonata are known to possess a very good visual sense and are known to be very good flyers, so they are caught seldom in Malaise traps.
Within the Hymenoptera samples some of the aforementioned reasons could apply as well.
Another important reason for the high or low occurrence of a special taxon of Hymenoptera could be the host availability. Many hymenopterans are known to be parasitoids and thereby their occurrence is limited by the occurrence of their hosts. If the host is already rare, the parasitoid cannot be abundant.

5.2 Ismaridae

There were some difficulties in finding adequate literature about the *Ismarus* species, simply because there had not been much studies conducted about Ismaridae since the 1950's.
MORLEY (1923) was the first found literature, but after some trials it turned out to be not very useful. The key of NIXON (1957) could be used to figure out only four of the five occurring species in Sweden. The self made key combined all information which could be found in the available literature and which could be figured out with the own material.

In general hyperparasitoids are rare organisms compared to other insects due to the fact that they are depending on the availability of their hosts which in turn are already limited by the availability of their hosts. Therefore, the SMTP collection is unique and one of its kind in the world and gives therefore a unique opportunity to study the group.

The SMTP batch of *Ismarus* was caught in a wide range of different habitats from forests to open meadow areas.
But it was difficult to state which habitat exactly the *Ismarus* species inhabit. Due to the fact that the traps were placed in a different amount in many different habitats, a

survey spot could include an open meadow as well as a nearby forest at the same time.
However, since they live on dryinids which in turns live on homopterans it can be assumed that they prefer open areas even though they obviously occur in almost any habitat.

Notable is that according to the Swedish Taxonomic Database (Dyntaxa) five different species of *Ismarus* occur in Sweden.
But it was not possible to find any morphological difference between *Ismarus halidayi* and *Ismarus longicornis*. It could be assumed that these two taxa might be synonyms of the same species.
The available specimens from Stockholm contained one so called *Ismarus longicornis*. However it turned out to be a female of *Ismarus. halidayi*.
According to these circumstances, it was assumed that there are only four species in the SMTP material so far.

Usually, male hymenopterans possess more flagellomeres than females The number of flagellomeres in males and females of the *Ismarus* species is though unusual compared to other hymenopterans in that females have one more flagellomere than males.

Due to the low abundance of males in the SMTP samples, it could be assumed that males of *Ismarus* are less mobile than females, but the reason to this still remains to understand.

The main flight time was the same for each species with a peak in July and August.
However, a problem in calculating the flight time was that the traps were emptied in different time periods. The running times per trap deviated over the months and years, which made a comparison of the different species more difficult. Additionally, the stated flight times show only the periods in which the traps had been running, but it does not say at which time the specimens were caught exactly. Especially the traps which had a running time from August until October adulterate the actual flight time.

But generally it can be summarised that the four *Ismarus* species are only flying during summer time.
One dataset of *Ismarus dorsiger* needs to be comment concerning the flight time; trapID 24, collection ID 821 had a running time from 10th of October 2003 to 25th of March 2004 which created an uncertainty in the diagram of the flight time. However, the first three spots from March to April in the flight diagram are only three single specimens and compared to the others they appeared quite early. Therefore, it is assumed that the main flight time are the three summer months.

It is difficult to make a definitive statement about the general distribution of Ismaridae in Sweden; however SMTP gives a unique opportunity to approximate the distribution of all known *Ismarus* species. It is new knowledge that they all occur at least in almost all provinces of southern and middle Sweden. *Ismarus rugulosus* was the only species that was found further north of this.
Additionally, there are different amounts of traps in each province; which makes it even more difficult to say something about an exact distribution of the different species.

Another interesting speculation about the geographical distribution could be that normally parasitic wasps are very host specific; thereby they are only occurring in one region. But when there is a “gap” between two distribution areas of one species, these may be two different species or one species which is just in a speciation process. However, this can only be proved with DNA-Analyses, because the differences may not be visible in the morphology, which are called “cryptic species”.
This could perhaps be the case for *Ismarus flavicornis* and *Ismarus rugulosus*. Very conspicuous is that no available description of male *Ismarus rugulosus* exists. If the reason for this is due to a more or less immovable male linage or if the species has a partenongenetic life still remains to find out, but so far have never any males been caught.

Further studies could find out if there occur still unknown species of *Ismarus* in Sweden. Complementary DNA studies could reveal still unknown species and help to

eventually find out if *Ismarus longicornis* and *Ismarus halidayi* are synonyms of the same species or if they actually are two good species.

Futhermore; it would also be very interesting to study the occurrence of Ismaridae, Dryinidae (host of Ismaridae) and Auchenorrhyncha (host of Dryinidae) and to compare their abundance in the different SMTP samples. As a bonus, this could help to find out more about the biology of Ismaridae and to complete the overview of JERVIS (1979), and may give the answer to which species of Dryinidae are parasitized by the different *Ismarus* species. Additionally, it would definitively help to achieve new knowledge about one of the world's many inglorious and unknown group of organisms; the Ismaridae.

6. Acknowledgements and Confirmation

I am very grateful for the great opportunity to work in the Swedish Malaise Trap Project and to live at Station Linné during my internship.
I would like to thank Kajsa Glemhorn for her unique way of teaching the insect orders and her support and help during the whole time.
Special thanks are also given to Dave Karlsson for the idea of my Ismaridae project and as well his support and help to conduct the project.
My thanks are of course also given to the whole SMTP Crew for their support and great integration into the team.
I would like to thank Hege Vårdal from the Swedish Museum of National History Stockholm and Christer Hansson from the Lund University for the allocation of the specimen copies of Ismaridae.
Additionally, my thanks apply also for Matthias Forshage, Norman Johnson and Dr. Gavin Broad for the support in finding appropriate literature for my Ismaridae studies.

Hereby is confirmed that we, Dave Karlsson and Kajsa Glemhorn, as supervisors for this project work, are supporting the work of Mareike Kiupel and confirming this internship report as accredited.

Dave Karlsson (Station Linné)

Kajsa Glemhorn (Project Leader for SMTP)

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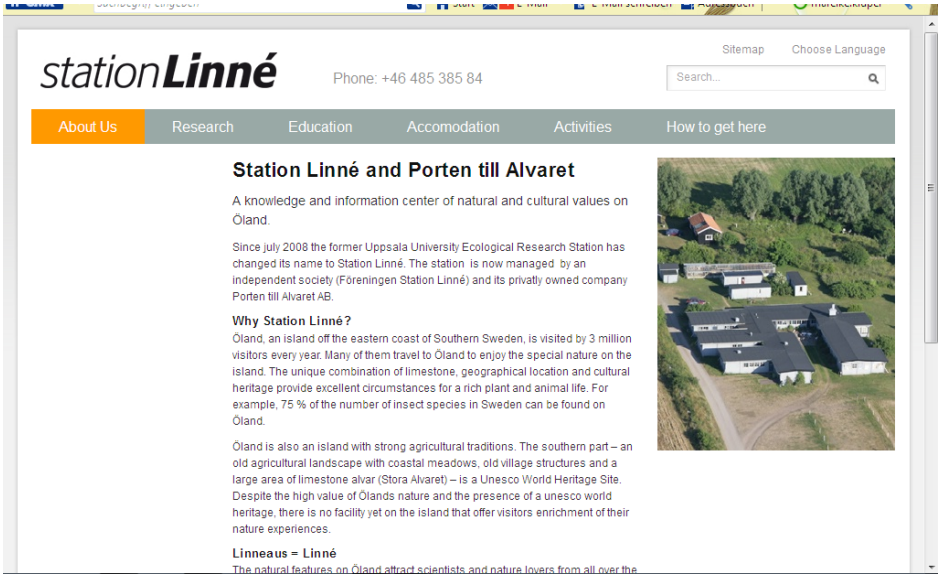
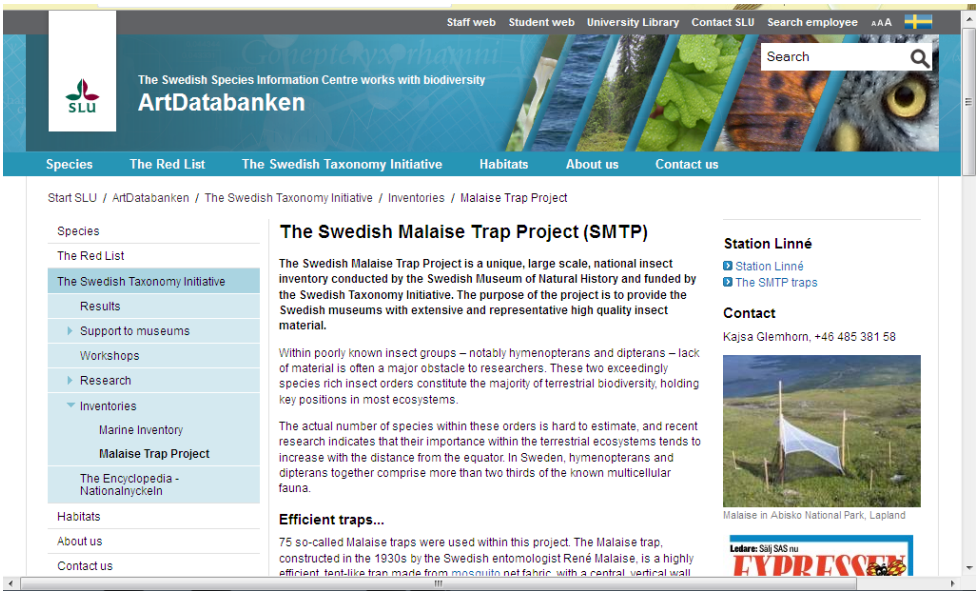
7.2 Links

URL 1: http://www.stationlinne.se/en/about-us/ [2013-05-24]

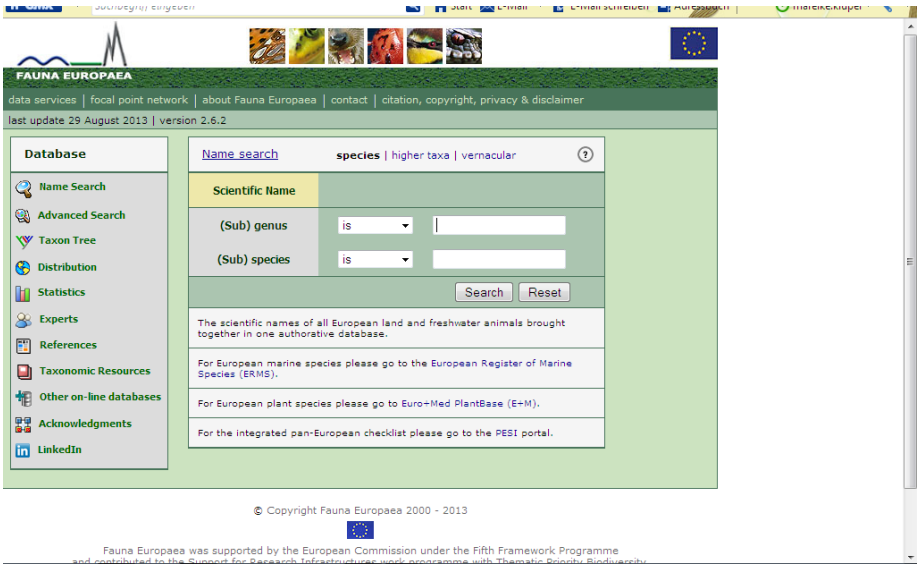


URL 2: http://www.stationlinne.se/en/research/the-swedish-malaise-trap-project-smtp/ [2013-05-24]

URL 3: http://www.slu.se/en/collaborative-centres-and-projects/artdatabanken/the-swedish-taxonomy-initiative/inventories/the-swedish-malaise-trap-project/ [2013-05-24]



URL 4: http://www.faunaeur.org/index.php [2013-05-24]



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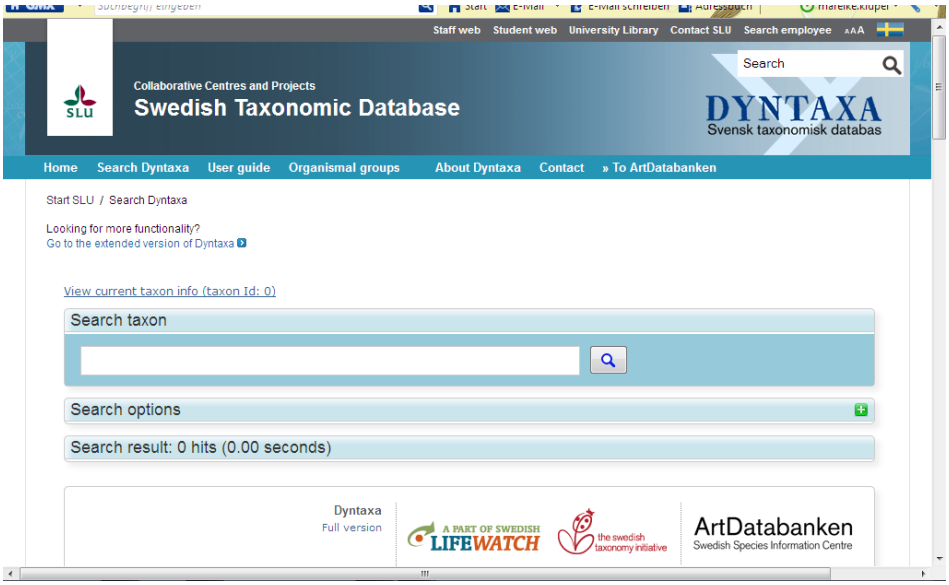
URL 5: http://www.slu.se/en/collaborative-centres-and-projects/dyntaxa/search/ [2013-05-24]



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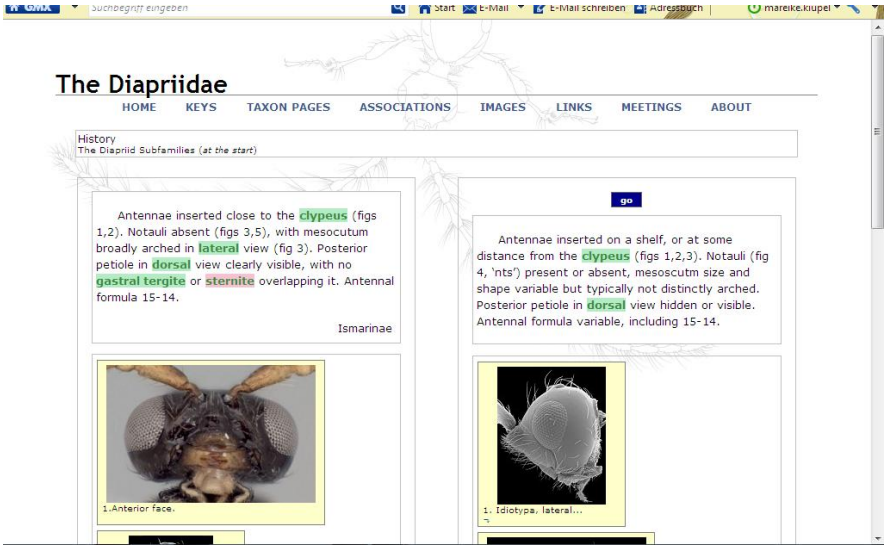

7.3 Specimen Copies

Specimen copies from Museum of Natural History of Stockholm:

One exemplar of *Ismarus (Entomius) longicornis* Thomson

Five exemplars of *Ismarus dorsiger* Haliday

Eleven exemplars of *Ismarus flavicornis* Thomson

Six exemplars of *Ismarus halidayi* Förster

Six exemplars of *Ismarus rugulosus* Förster

Specimen copies from Museum of Zoology of Lund University:

One exemplar of *Ismarus dorsiger* Haliday

One exemplar of *Ismarus flavicornis* Thomson

One exemplar of *Ismarus halidayi* Förster

One exemplar of *Ismarus rugulosus* Förster

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Appendix

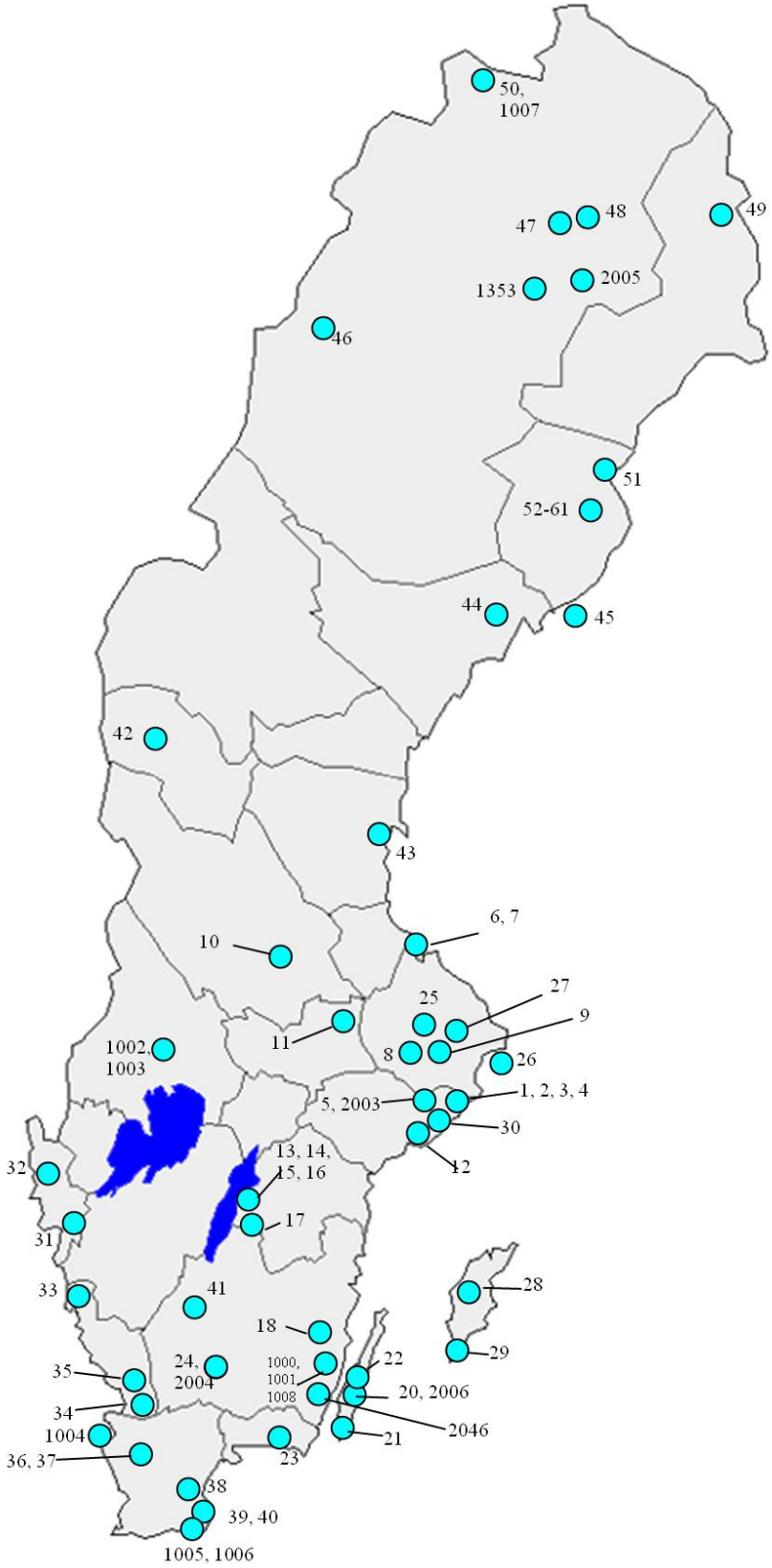

Fig. I: Map of Sweden with all locations of Malaise Traps and their trap ID's.

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Glossary (based on GOULET and HUBER (1993) and information from http://www.diapriid.org/projects/32/public/ontology [2013-09-09])

Antenna: A paired structure which consists of three segments (starting from the base): scape, pedicel, and flagellum; usually the flagellum is further deviated into two or more flagellomeres (Fig. II)

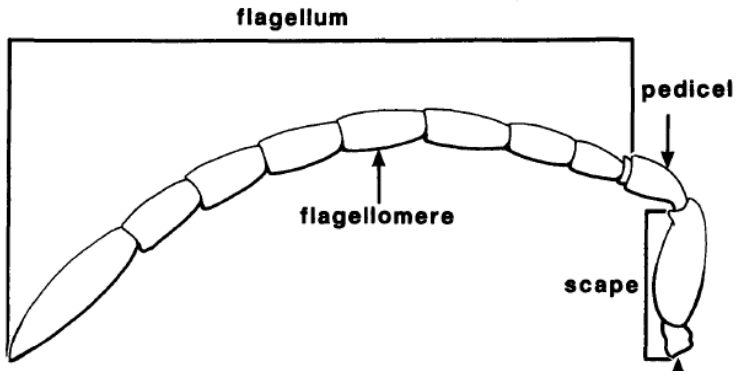

Fig. II: Antenna with its subdivisions in scape, pedicel, flagellum and flagellomeres. (From GOULET and HUBER, 1993

anterior: Front, frontal; structure or body part that points towards the head end of the organism. Opposite → *posterior*

apical: Structure or body part that is located the farthest away from the body (apex); at or towards the tip (distal)

basal: Structure or body part that is located the closest to the body (base); at or towards the base (proximal)

chitinous: Made of chitin; a long-chain polymer, which is a derivative of glucose, main component of the → *exoskeleton* of arthropods

Clypeus: Part on the head, below the frons and above the labrum and mandibles (see arrow in Fig. III)

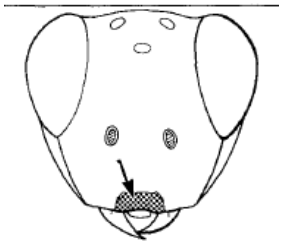

Fig. III: Head of an insect with the area of the clypeus (shaded grey, arrow). (From GOULET and HUBER, 1993)

Coxa: The first segment of a leg

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Exoskeleton: A skeleton that surrounds the organism (external) and supports and protects the organism's body from the outside

Flagellomeres: → *Antenna*

Gaster: Composes all abdominal segments behind petiole

meso-: middle

Mesonotum: The dorsal part of the mesothorax, usually subdivided into →*mesoscutum* and mesoscutellum and axillars (Fig. IV)

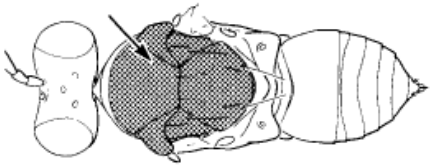

Fig. IV: Area of mesonotum (From GOULET and HUBER, 1993)

Mesoscutum: Mesonotum excluding the →meso*scutellum* and axillars (Fig. V)

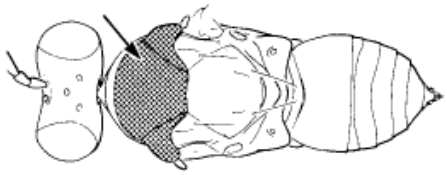

Fig. V: Area of mesoscutum. (From GOULET and HUBER, 1993)

Mesosoma: In the suborder Apocrita name for the middle body, whereat in contrast to other insects this includes the first segment of the abdomen; thorax + first abdominal segment = mesosoma

meta-: hind

Metanotum: Dorsal part of metathorax (Fig. VI)

Fig. VI: Area of metanotum. (From GOULET and HUBER, 1993)

Metasoma: In the suborder Apocrita name for the hind body, whereat in contrast to other insects this excludes the first segment of the abdomen; abdomen - first abdominal segment = metasoma

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Notaulus: Longitudinal groove on the mesoscutum, which holds the flight muscles; often oblique, but can also only exist as holes; often dividing the mesoscutum into medial and lateral parts

Notum: Terga of mesosoma, usually subdivided into scutum and → *scutellum*

Ovipositor: In female hymenopterans, a slender, paired and interlocking, saw-like or tubular structure which is used to lay eggs or to sting or for both; either concealed or extended beyond the apex of the body

Pectus: In Hymenoptera the mesosomal sclerites of pleura and sterna are merged to pecta

Petiole: Usually first metasomal segment or second abdominal segment; the stalk which connects the metasoma to the propodeum/mesosoma

posterior: Rear, back; structure or body part that points towards the hind end of the organism. Opposite →*anterior*

pro-: Front part of a body part or segment or structure

Pronotum: Dorsal sclerite of prothorax; in some cases also dorsolateral or lateral part of prothorax

Propodeum: In Apocrita, first tergum of abdomen, which is fused with metanotum and with each metapecta of thorax, and usually narrowly and flexibly connected to the rest of the abdomen

Radial cell: (For Ismaridae) Cell in forewing that is located right after stigmal vein (Fig. VII)

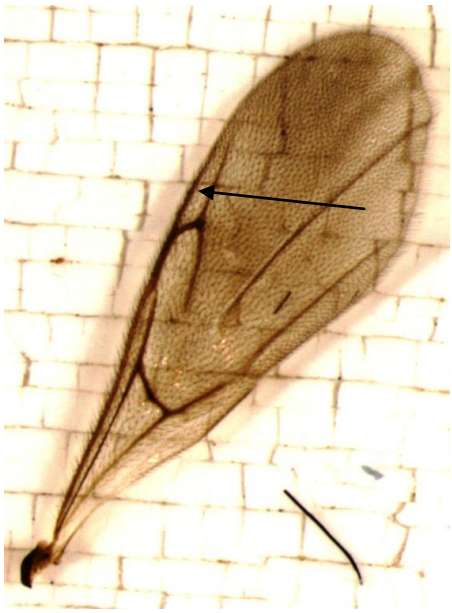

Fig. VII: Location of radial cell (arrow) on a forewing of Belytinae (Photo: Mareike Kiupel)

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rugose: wrinkled or wrinkly

Scape: → *Antenna*

Scutellum: Posterior and often raised part of mesonotum, behind scutum; in Apocrita, only mesoscutellum is evident and is simply called scutellum (Fig. VIII)

Fig. VIII: Area of scutellum. (From GOULET and HUBER, 1993)

Sternites: → *Sternum*

Sternum: Ventral division of a body segment, which in turn is subdivided into sternites; usually only refers to the segments of the abdomen/metasoma and to the prothorax. Sterna of mesothorax and metathorax are invaginated within the thorax. See also: *Pecta*

Tarsomere: → *Tarsus*

Tarsus: Fifth segment of a leg, attached basally to tibia and subdivided into tarsomeres

Tegula: A small, scale-like sclerite covering the base of the fore wing (Fig. IX)

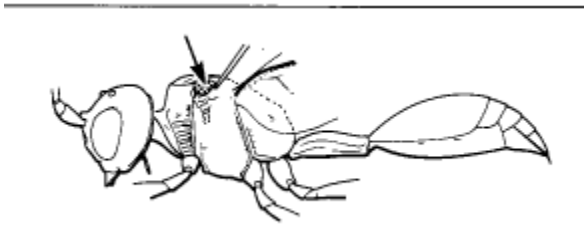

Fig. IX: Position of tegula on the mesosoma. (From GOULET and HUBER, 1993)

Tergites: → *Tergum*

Tergum: Dorsal sclerite of abdomen/metasoma, which is subdivided into tergites

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Tab. I: Overview of all sorted samples during the period of the internship, with Trap ID, Collection ID, Collection Date, found taxa, number of tubes and the sorting period.

Trap ID	Coll. ID	Coll. Date	Taxa	No. of Tubes	Sorting period
13	906	2003.x.14	Acari	1	2013-02-12
			Acari+Auchenorrhyncha	1	2013-02-13
			Acari+Brachycera	1	
			Acari+Phoridae	1	
			Acari+Nematocera	1	
			Araneae	1	
			Auchenorrhyncha	1	
			Coleoptera	1	
			Collembola	1	
			Dermaptera	1	
			Diptera: Brachycera	2	
			Diptera: Nematocera	3	
			Diptera: Phoridae	1	
			Diptera: Syrphidae	1	
			Hymenoptera	1	
			Lepidoptera	1	
			Sternorrhyncha	1	∑ Taxa: 14
			Trichoptera	1	∑ Tubes: 21
27	486	2004.vi.02	Acari	1	2013-02-14
			Acari+Auchenorrhyncha	1	2013-02-19
			Acari+Nematocera	1	
			Araneae	1	
			Auchenorrhyncha	1	
			Coleoptera	1	
			Collembola	1	
			Diptera: Brachycera	6	
			Diptera: Nematocera	5	
			Diptera: Phoridae	3	
			Diptera: Syrphidae	1	
			Diptera: Sepsidae	1	
			Heteroptera	1	
			Hymenoptera	6	
			Lepidoptera	1	
			Orthoptera	1	
			Sternorrhyncha	1	∑ Taxa: 16
			Thysanoptera	1	∑ Tubes: 34

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Continuance of Tab. I: Overview of all sorted samples during the period of the internship, with Trap ID, Collection ID, Collection Date, found taxa, number of tubes and the sorting period.

Trap ID	Coll. ID	Coll. Date	Taxa	No. of Tubes	Sorting period
27	469	2003.ix.01	Acari	1	2013-02-20
			Acari+Auchenorrhyncha	1	2013-02-21
			Acari+Nematocera	1	
			Acari+Phoridae	1	
			Araneae	1	
			Auchenorrhyncha	1	
			Coleoptera	1	
			Collembola	1	
			Diptera: Brachycera	5	
			Diptera: Nematocera	3	
			Diptera: Phoridae	2	
			Diptera: Syrphidae	1	
			Diptera: Asilidae	1	
			Heteroptera	1	
			Hymenoptera	4	
			Lepidoptera	1	
			Neuroptera	1	
			Orthoptera	1	
			Psocoptera	1	
			Sternorrhyncha	1	
			Thysanoptera	1	∑ Taxa: 19
			Trichoptera	1	∑ Tubes: 32
8	394	2004.vi.01	Acari	1	2013-02-22
			Acari+Brachycera	1	2013-02-27
			Acari+Nematocera	1	
			Araneae	2	
			Auchenorrhyncha	1	
			Coleoptera	2	
			Collembola	1	
			Diptera: Brachycera	6	
			Diptera: Nematocera	4	
			Diptera: Phoridae	3	
			Diptera: Syrphidae	1	
			Heteroptera	1	
			Hymenoptera	11	
			Lepidoptera	1	
			Neuroptera	1	
			Sternorrhyncha	1	∑ Taxa: 15
			Trichoptera	1	∑ Tubes: 39

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Continuance of Tab. I: Overview of all sorted samples during the period of the internship, with Trap ID, Collection ID, Collection Date, found taxa, number of tubes and the sorting period.

Trap ID	Coll. ID	Coll. Date	Taxa	No. of Tubes	Sorting period
8	1599	2005.iv.30	Acari	1	2013-02-27
			Araneae	1	2013-03-01
			Auchenorrhyncha	1	
			Coleoptera	1	
			Collembola	1	
			Diptera: Brachycera	14	
			Diptera: Nematocera	3	
			Diptera: Phoridae	1	
			Diptera: Syrphidae	1	
			Diptera: Sepsidae	1	
			Heteroptera	1	
			Hymenoptera	2	
			Lepidoptera	1	∑ Taxa: 14
			Sternorrhyncha	2	∑ Tubes: 31
27	1037	2004.ix.06	Acari	1	2013-03-01
			Acari+Nematocera	1	2013-03-07
			Araneae	1	
			Auchenorrhyncha	1	
			Colep	1	
			Collembola	1	
			Diptera: Brachycera	10	
			Diptera: Nematocera	6	
			Diptera: Phoridae	3	
			Diptera: Syrphidae	2	
			Diptera: Sepsidae	1	
			Heteroptera	1	
			Hymenoptera	5	
			Lepidoptera	1	
			Neuroptera	1	
			Psocoptera	1	
			Sternorrhyncha	1	∑ Taxa: 17
			Trichoptera	1	∑ Tubes: 39

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Continuance of Tab. I: Overview of all sorted samples during the period of the internship, with Trap ID, Collection ID, Collection Date, found taxa, number of tubes and the sorting period.

Trap ID	Coll. ID	Coll. Date	Taxa	No. of Tubes	Sorting period
15	1756	2004.v.25	Acari	1	2013-03-07
			Araneae	1	2013-03-08
			Auchenorrhyncha	1	
			Coleoptera	1	
			Collembola	1	
			Diptera: Brachycera	3	
			Diptera: Nematocera	3	
			Diptera: Phoridae	1	
			Diptera: Syrphidae	1	
			Heteroptera	1	
			Hymenoptera	2	
			Lepidoptera	1	
			Opiliones	1	
			Plecoptera	1	
			Psocoptera	1	
			Sternorrhyncha	1	∑ Taxa: 17
			Thysanoptera	1	∑ Tubes: 22
13	915	2004.x.27	Acari	1	2013-03-11
			Acari+Auchenorrhyncha	1	2013-03-13
			Araneae	2	
			Auchenorrhyncha	1	
			Coleoptera	1	
			Collembola	1	
			Dermaptera	1	
			Diptera: Brachycera	5	
			Diptera: Nematocera	4	
			Diptera: Phoridae	1	
			Diptera: Syrphidae	1	
			Diptera: Asilidae	1	
			Heteroptera	1	
			Hymenoptera	3	
			Lepidoptera	1	
			Odonata (*Aeshna mixta*)	pinned	
			Opiliones	1	
			Orthoptera	1	
			Plecoptera	1	
			Psocoptera	1	
			Sternorrhyncha	1	∑ Taxa: 21
			Trichoptera	1	∑ Tubes: 31

Continuance of Tab. I: Overview of all sorted samples during the period of the internship, with Trap ID, Collection ID, Collection Date, found taxa, number of tubes and the sorting period.

Trap ID	Coll. ID	Coll. Date	Taxa	No. of Tubes	Sorting period
7	1596	2005.xii.05	Acari	1	2013-03-14
			Araneae	1	2013-03-18
			Auchenorrhyncha	1	
			Blattodea	1	
			Coleoptera	1	
			Collembola	1	
			Diptera: Brachycera	10	
			Diptera: Nematocera	5	
			Diptera: Phoridae	1	
			Diptera: Sepsidae	1	
			Heteroptera	1	
			Hymenoptera	4	
			Lepidoptera	1	
			Mecoptera	1	
			Neuroptera (only larvae)	1	
			Opiliones	2	
			Phthiraptera	1	
			Plecoptera	1	
			Psocoptera	1	
			Sternorrhyncha	1	∑ Taxa: 21
			Trichoptera	3	∑ Tubes: 40
47	696	2003.ix.02	Acari	1	2013-03-18
			Araneae	1	2013-03-21
			Auchenorrhyncha	1	
			Coleoptera	1	
			Collembola	1	
			Diptera: Brachycera	6	
			Diptera: Nematocera	8	
			Diptera: Phoridae	2	
			Diptera: Syrphidae	1	
			Heteroptera	1	
			Hymenoptera	9	
			Lepidoptera	1	
			Phthiraptera	1	
			Psocoptera	1	∑ Taxa: 15
			Sternorrhyncha	1	∑ Tubes: 36

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Continuance of Tab. I: Overview of all sorted samples during the period of the internship, with Trap ID, Collection ID, Collection Date, found taxa, number of tubes and the sorting period.

Trap ID	Coll. ID	Coll. Date	Taxa	No. of Tubes	Sorting period
17	1513	2005.v.31	Acari	1	2013-03-22
			Acari+Nematocera	1	2013-04-04
			Araneae	1	
			Auchenorrhyncha	1	
			Coleoptera	2	
			Collembola	1	
			Diptera: Brachycera	9	
			Diptera: Nematocera	18	
			Diptera: Phoridae	2	
			Diptera: Syrphidae	1	
			Heteroptera	1	
			Hymenoptera	8	
			Lepidoptera	1	
			Myriapoda	1	
			Neuroptera	1	
			Plecoptera	1	
			Sternorrhyncha	1	
			Thysanoptera	1	∑ Taxa: 18
			Trichoptera	1	∑ Tubes: 53
23	437	2003.x.16	Acari	1	2013-04-04
			Araneae	1	2013-04-05
			Auchenorrhyncha	1	
			Coleoptera	1	
			Collembola	1	
			Dermaptera	1	
			Diptera: Brachycera	2	
			Diptera: Nematocera	2	
			Diptera: Phoridae	1	
			Diptera: Syrphidae	1	
			Hymenoptera	1	
			Isopoda	1	
			Lepidoptera	1	
			Neuroptera	1	
			Opiliones	1	
			Sternorrhyncha	1	∑ Taxa: 17
			Trichoptera	1	∑ Tubes: 19

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Tab. II: Overview of all sorted Hymenoptera samples during the period of the internship, with Trap ID, Collection ID, Collection Date, found taxa, number of tubes and the sorting period.

Trap ID	Coll. ID	Coll. Date	Taxa	No. of Tubes	Sorting period
5	766	2004.viii.10	Apoidea	2	2013-04-11
			Braconidae	1	2013-04-17
			Ceraphronidae	1	
			Chalcidoidea	1	
			Chrysididae	1	
			Cynipoidea	1	
			Diapriidae	1	
			Dryinidae	1	
			Eumeninae	1	
			Formicidae	1	
			Heloridae	1	
			Ichneumonidae	4	
			Megaspilidae	1	
			Mymmaromatidae	1	
			Platygastridae	1	
			Platygastridae: Scelioninae	1	
			Pompilidae	1	
			Proctotrupidae	1	
			Sapygidae	1	
			Sphecidae sensu lato	1	
			Symphyta	1	
			Vespidae	2	
			E: Collembola	1	
			E: Coleoptera	1	∑ Taxa: 25
			E: Nematocera	1	∑ Tubes: 30
42	1167	2005.iv.20	Apoidea	2	2013-04-17
			Braconidae	1	2013-04-22
			Ceraphronidae	1	
			Chalcidoidea	1	
			Cynipoidea	1	
			Diapriidae	1	
			Dryinidae	1	
			Formicidae	1	
			Ichneumonidae	4	
			Megaspilidae	1	
			Platygastridae	1	
			Platygastridae: Scelioninae	1	
			Pompilidae	1	
			Proctotrupidae	1	
			Sphecidae sensu lato	1	
			Symphyta	1	BAD Condition!
			Vespidae	2	∑ Taxa: 18
			E: Brachycera	1	∑ Tubes: 23

Continuance of Tab. II: Overview of all sorted Hymenoptera samples during the period of the internship, with Trap ID, Collection ID, Collection Date, found taxa, number of tubes and the sorting period.

Trap ID	Coll. ID	Coll. Date	Taxa	No. of Tubes	Sorting period
13	1643	2005.vii.12	Apoidea	1	2013-04-22
			Braconidae	1	2013-04-22
			Ceraphronidae	1	
			Chalcidoidea	1	
			Cynipoidea	1	
			Diapriidae	1	
			Dryinidae	1	
			Formicidae	1	
			Ichneumonidae	2	
			Megaspilidae	1	
			Platygastridae	1	
			Platygastridae: Scelioninae	1	
			Pompilidae	1	
			Proctotrupidae	1	
			Sphecidae sensu lato	1	
			Symphyta	1	
			Vespidae	1	
			E: Nematocera	1	
			E: Brachycera	1	∑ Taxa: 20
			E: Phoridae	1	∑ Tubes: 21
27	483	2004.iv.19	Braconidae	1	2013-04-25
			Chalcidoidea	1	
			Diapriidae	1	
			Formicidae	1	
			Ichneumonidae	1	∑ Taxa: 6
			Platygastridae: Scelioninae	1	∑ Tubes: 6
23	439	2003.xi.13	Braconidae	1	2013-04-25
			Chalcidoidea	1	
			Cynipoidea	1	
			Diapriidae	1	
			Ichneumonidae	1	∑ Taxa: 6
			Proctotrupidae	1	∑ Tubes: 6

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Continuance of Tab. II: Overview of all sorted Hymenoptera samples during the period of the internship, with Trap ID, Collection ID, Collection Date, found taxa, number of tubes and the sorting period.

Trap ID	Coll. ID	Coll. Date	Taxa	No. of Tubes	Sorting period
23	437	2003.x.16	Braconidae	1	2013-04-25
			Chalcidoidea	1	
			Cynipoidea	1	
			Diapriidae	1	
			Ichneumonidae	1	
			Megaspilidae	1	
			Platygastridae	1	
			Platygastridae: Scelioninae	1	∑ Taxa: 9
			Proctotrupidae	1	∑ Tubes: 9
23	434	2003.ix.04	Braconidae	1	2013-04-25
			Ceraphronidae	1	
			Chalcidoidea	1	
			Cynipoidea	1	
			Diapriidae	1	
			Formicidae	1	
			Ichneumonidae	1	
			Megaspilidae	1	
			Platygastridae	1	
			Platygastridae: Scelioninae	1	
			Proctotrupidae	1	
			Vespidae	1	∑ Taxa: 13
			E: Nematocera	1	∑ Tubes: 13
27	1040	2004.x.18	Braconidae	1	2013-04-25
			Chalcidoidea	1	
			Cynipoidea	1	
			Diapriidae	1	
			Formicidae	1	
			Ichneumonidae	1	
			Megaspilidae	1	
			Platygastridae	1	
			Platygastridae: Scelioninae	1	∑ Taxa: 10
			Proctotrupidae	1	∑ Tubes: 10

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Continuance of Tab. II: Overview of all sorted Hymenoptera samples during the period of the internship, with Trap ID, Collection ID, Collection Date, found taxa, number of tubes and the sorting period.

Trap ID	Coll. ID	Coll. Date	Taxa	No. of Tubes	Sorting period
31	1546	2005.vii.15	Apoidea	1	2013-04-25
			Braconidae	1	2013-04-26
			Ceraphronidae	1	
			Chalcidoidea	1	
			Chrysididae	1	
			Cynipoidea	1	
			Diapriidae	1	
			Dryinidae	1	
			Eumeninae	1	
			Evaniidae	1	
			Formicidae	1	
			Heloridae	1	
			Ichneumonidae	3	
			Megaspilidae	1	
			Platygastridae	1	
			Platygastridae: Scelioninae	1	
			Proctotrupidae	1	
			Sphecidae sensu lato	1	
			Symphyta	1	
			E: Nematocera	1	∑ Taxa: 21
			E: Coleoptera	1	∑ Tubes: 23
15	1756	2004.v.25	Apoidea	1	2013-04-29
			Braconidae	1	
			Ceraphronidae	1	
			Chalcidoidea	1	
			Cynipoidea	1	
			Diapriidae	1	
			Formicidae	1	
			Ichneumonidae	1	
			Platygastridae	1	
			Platygastridae: Scelioninae	1	
			Symphyta	1	
			Vespidae	1	∑ Taxa: 13
			E: Phoridae	1	∑ Tubes: 13

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Tab. III: Overview of all sorted Diapriidae samples during the period of the internship, with Trap ID, Collection ID, Collection Date, found taxa, notes and sorting date.

Trap ID	Coll. ID	Coll. Date	Taxa	Notes	Sorted at
1	79	2003.vii.02	Belytinae		2013-05-14
1	79	2003.vii.02	Diapriinae	1 ind.	
1	80	2003.vii.11	Belytinae		2013-05-14
1	80	2003.vii.11	Diapriinae		
1	308	2003.viii.04	Belytinae		2013-05-14
1	308	2003.viii.04	Diapriinae		
1	309	2003.viii.29	Belytinae		2013-05-14
1	309	2003.viii.29	Diapriinae		
1	309	2003.viii.29	Ismaridae	1 ind. W	
1	310	2003.x.01	Belytinae		2013-05-17
1	310	2003.x.01	Diapriinae		
1	311	2003.xi.11	Belytinae		2013-05-17
1	311	2003.xi.11	Diapriinae		
1	314	2004.v.12	Belytinae		2013-05-17
1	314	2004.v.12	Diapriinae		
1	316	2004.vi.16	Belytinae		2013-05-17
1	1574	2005.viii.19	Belytinae		2013-06-04
1	1574	2005.viii.19	Diapriinae		
1	1574	2005.viii.19	Ismaridae	1 ind. W	
2	82	2003.vii.21	Belytinae		2013-05-17
2	82	2003.vii.21	Diapriinae		
2	83	2003.viii.04	Belytinae	1 ind.	2013-06-04
2	106	2003.ix.25	Belytinae		2013-05-24
2	106	2003.ix.25	Diapriinae		
2	107	2003.x.16	Belytinae		2013-05-24
2	107	2003.x.16	Diapriinae		
2	784	2004.i.28	Belytinae	1 ind.	2013-05-14
2	784	2004.i.28	Diapriinae	1 ind.	
2	787	2004.vii.20	Belytinae		2013-05-17
2	787	2004.vii.20	Diapriinae		
2	788	2004.viii.11	Belytinae		2013-05-17
2	788	2004.viii.11	Diapriinae		
3	84	2003.vii.02	Belytinae		2013-05-17
3	84	2003.vii.02	Diapriinae		
3	85	2003.vii.21	Belytinae		2013-05-17
3	85	2003.vii.21	Diapriinae		
3	109	2003.viii.26	Belytinae		2013-05-17
3	109	2003.viii.26	Diapriinae		
3	796	2004.vi.18	Belytinae		2013-05-17
3	796	2004.vi.18	Diapriinae		
3	798	2004.vii.20	Belytinae		2013-05-16
3	800	2004.ix.07	Belytinae		2013-05-16
3	800	2004.ix.07	Diapriinae		
3	800	2004.ix.07	Ismaridae	1 ind. W	

Continuance of Tab. III: Overview of all sorted Diapriidae samples during the period of the internship, with Trap ID, Collection ID, Collection Date, found taxa, notes and sorting date.

Trap ID	Coll. ID	Coll. Date	Taxa	Notes	Sorted at
3	801	2004.ix.22	Belytinae		2013-05-17
3	801	2004.ix.22	Diapriinae		
4	89	2003.viii.04	Belytinae		2013-05-16
4	89	2003.viii.04	Diapriinae		
4	114	2003.viii.26	Belytinae		2013-05-17
4	114	2003.viii.26	Diapriinae		
4	225	2003.x.16	Belytinae		2013-05-17
4	225	2003.x.16			
5	766	2004.viii.10	Belytinae		2013-05-02
5	766	2004.viii.10	Diapriinae		
5	768	2004.ix.08	Belytinae		2013-05-16
5	768	2004.ix.08	Diapriinae		
5	768	2004.ix.08	Ismaridae	1 ind. W	
6	368	2003.vii.02	Belytinae	2 ind. E	2013-05-15
6	852	2004.viii.18	Belytinae		2013-05-13
6	852	2004.viii.18	Diapriinae		
6	852	2004.viii.18	Ismaridae	3 ind. B	
6	853	2004.ix.04	Belytinae		2013-05-17
6	853	2004.ix.04	Diapriinae		
6	853	2004.ix.04	Ismaridae	1 ind. W	
6	855	2004.x.04	Belytinae		2013-05-17
6	855	2004.x.04	Diapriinae		
6	1578	2005.vi.03	Belytinae	2 ind.	2013-05-14
7	379	2003.vii.29	Belytinae		2013-05-14
7	379	2003.vii.29	Diapriinae		
7	387	2004.vi.14	Belytinae		2013-05-02
7	387	2004.vi.14	Diapriinae		
7	863	2004.xi.01	Belytinae		2013-05-06
7	863	2004.xi.01	Diapriinae		
7	1589	2004.v.24	Belytinae		2013-05-13
7	1589	2004.v.24	Diapriinae		
7	1591	2005.vii.04	Belytinae		2013-05-06
7	1591	2005.vii.04	Diapriinae		
7	1591	2005.vii.04	Ismaridae	1 ind. B	
7	1595	2005.ix.26	Belytinae		2013-05-03
7	1595	2005.ix.26	Diapriinae		
8	391	2003.viii.04	Belytinae		2013-06-04
8	391	2003.viii.04	Diapriinae		
8	391	2003.viii.04	Ismaridae	3 ind. W	

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Continuance of Tab. III: Overview of all sorted Diapriidae samples during the period of the internship, with Trap ID, Collection ID, Collection Date, found taxa, notes and sorting date.

Trap ID	Coll. ID	Coll. Date	Taxa	Notes	Sorted at
8	1560	2004.viii.08	Belytinae		2013-05-15
8	1560	2004.viii.08	Ismaridae	3 W, 1 B	
8	1561	2004.viii.27	Belytinae		2013-05-03
8	1562	2004.ix.10	Belytinae		2013-06-04
8	1562	2004.ix.10	Diapriinae		
8	1562	2004.ix.10	Ismaridae	5 ind. W	
8	1601	2005.vi.20	Belytinae		2013-05-13
8	1601	2005.vi.20	Diapriinae		
8	1604	2005.xi.15	Belytinae		2013-05-16
9	1609	2005.vi.24	Belytinae		2013-05-17
9	1609	2005.vi.24	Diapriinae		
9	1610	2005.vii.16	Belytinae		2013-05-17
9	1610	2005.vii.16	Diapriinae		
10	396	2003.vii.08	Belytinae		2013-05-14
10	396	2003.vii.08	Diapriinae	1 ind.	
10	399	2003.viii.26	Diapriinae	1 ind.	2013-05-14
10	400	2003.ix.16	Belytinae		2013-05-14
10	400	2003.ix.16	Diapriinae		
10	406	2004.vi.18	Belytinae		2013-05-17
10	408	2004.vi.18	Belytinae	1 ind.	2013-05-14
11	411	2003.viii.04	Belytinae		2013-05-14
11	411	2003.viii.04	Diapriinae		
11	411	2003.viii.04	Ismaridae	1 B, 2 W	
11	416	2003.x.25	Belytinae	2 ind.	2013-05-14
11	417	2004.vi.08	Belytinae		
11	417	2004.vi.08	Ismaridae	8 ind. B	
11	418	2004.vi.16	Belytinae		2013-05-14
11	418	2004.vi.16	Diapriinae	1 ind.	
11	418	2004.vi.16	Ismaridae	3 ind. B	
11	1636	2005.ix.06	Belytinae	1 ind.	2013-05-13
12	176	2003.viii.09	Belytinae		2013-05-03
12	176	2003.viii.09	Diapriinae		
12	176	2003.viii.09	Ismaridae	2 ind. W	
12	177	2003.viii.25	Belytinae		2013-06-04
12	177	2003.viii.25	Diapriinae		
12	177	2003.viii.25	Ismaridae	1 ind. W	
12	179	2003.x.09	Belytinae		2013-05-13
12	179	2003.x.09	Diapriinae		
12	422	2004.iv.24	Diapriinae	2 ind.	2013-05-13
12	891	2004.vii.17	Belytinae		2013-06-04
12	891	2004.vii.17	Diapriinae		
12	891	2004.vii.17	Ismaridae	1 ind. W	

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Trap ID	Coll. ID	Coll. Date	Taxa	Notes	Sorted at
12	893	2004.viii.09	Belytinae		2013-05-03
12	893	2004.viii.09	Diapriinae		
12	893	2004.viii.09	Ismaridae	6 ind. W	
12	894	2004.viii.19	Belytinae		2013-05-03
12	894	2004.viii.19	Diapriinae		
12	894	2004.viii.19	Ismaridae	7 ind. W	
12	895	2004.viii.28	Belytinae		2013-06-04
12	895	2004.viii.28	Diapriinae		
12	895	2004.viii.28	Ismaridae	2 ind. W	
13	901	2003.vii.22	Belytinae		2013-05-13
13	901	2003.vii.22	Diapriinae		
13	902	2003.viii.05	Belytinae		2013-05-13
13	902	2003.viii.05	Diapriinae	2 ind.	
13	902	2003.viii.05	Ismaridae	1 ind. W headless	
13	906	2003.x.14	Belytinae		2013-05-13
13	906	2003.x.14	Diapriinae	1 ind.	
13	909	2004.vi.08	Belytinae		2013-05-13
13	909	2004.vi.08	Diapriinae		
13	910	2004.vi.23	Belytinae		2013-05-03
13	910	2004.vi.23	Diapriinae	1 ind.	
13	911	2004.vii.07	Belytinae		2013-05-13
13	911	2004.vii.07	Diapriinae		
13	913	2004.viii.17	Belytinae		2013-06-04
13	913	2004.viii.17	Diapriinae		
13	913	2004.viii.17	Ismaridae	1 W, 1 B	
13	1643	2005.vii.12	Belytinae		2013-05-02
13	1643	2005.vii.12	Diapriinae		
13	1643	2005.vii.12	Ismaridae	1 ind. B	
13	1644	2005.vii.20	Belytinae		2013-06-04
13	1644	2005.vii.20	Diapriinae		
13	1644	2005.vii.20	Ismaridae	1 W, 3 B	
13	1646	2005.viii.02	Belytinae		2013-05-16
13	1646	2005.viii.02	Belytinae		2013-06-04
13	1646	2005.viii.02	Diapriinae		
13	1646	2005.viii.02	Ismaridae	1 ind. W	
13	1648	2005.ix.16	Belytinae		2013-06-04
13	1648	2005.ix.16	Diapriinae		
13	1648	2005.ix.16	Ismaridae	7 ind. W	

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Trap ID	Coll. ID	Coll. Date	Taxa	Notes	Sorted at
13	1750	2004.v.25	Belytinae		2013-05-13
13	1750	2004.v.25	Diapriinae		
14	1655	2005.viii.23	Belytinae		2013-06-04
14	1655	2005.viii.23	Diapriinae		
14	1655	2005.viii.23	Ismaridae	1 ind. W	
15	935	2003.vii.22	Belytinae		2013-05-13
15	935	2003.vii.22	Diapriinae		
15	1660	2005.vii.19	Belytinae		2013-05-17
15	1660	2005.vii.19	Diapriinae		
15	1661	2005.viii.02	Belytinae		2013-05-14
15	1661	2005.viii.02	Diapriinae		
15	1662	2005.vii.23	Belytinae		2013-05-14
15	1662	2005.vii.23	Diapriinae		
15	1664	2006.iv.24	Belytinae		2013-05-15
15	1664	2006.iv.24	Diapriinae		
15	1756	2004.v.25	Belytinae		2013-04-30
15	1756	2004.v.25	Diapriinae		
16	1669	2005.viii.23	Belytinae		2013-06-04
16	1669	2005.viii.23	Diapriinae		
16	1669	2005.viii.23	Ismaridae	1 ind. W	
16	1670	2006.iv.24	Belytinae		2013-05-15
17	272	2003.viii.12	Belytinae		2013-05-15
17	272	2003.viii.12	Ismaridae	1 W	
17	275	2003.ix.24	Belytinae		2013-05-17
17	275	2003.ix.24	Diapriinae		
17	1512	2005.iv.15	Belytinae	1 ind.	2013-05-15
17	1512	2005.iv.15	Diapriinae	2 ind.	
17	1513	2005.v.31	Belytinae		2013-05-02
17	1513	2005.v.31	Diapriinae		
17	1515	2005.vii.01	Belytinae		2013-05-17
17	1515	2005.vii.01	Diapriinae		
17	1516	2005.vii.17	Belytinae		2013-05-17
17	1516	2005.vii.17	Diapriinae		
17	1517	2005.viii.31	Belytinae		2013-05-15
17	1517	2005.viii.31	Diapriinae		
17	1519	2005.x.05	Belytinae		2013-05-15
17	1519	2005.x.05	Diapriinae		

Continuance of Tab. III: Overview of all sorted Diapriidae samples during the period of the internship, with Trap ID, Collection ID, Collection Date, found taxa, notes and sorting date.

Trap ID	Coll. ID	Coll. Date	Taxa	Notes	Sorted at
17	1522	2006.v.10	Belytinae		2013-05-15
17	1522	2006.v.10	Diapriinae		
18	66	2003.vii.06	Belytinae		2013-05-03
18	66	2003.vii.06	Diapriinae		
18	67	2003.vii.11	Belytinae		2013-05-03
18	67	2003.vii.11	Diapriinae		
18	74	2003.vii.04	Belytinae		2013-05-03
18	74	2003.vii.04	Diapriinae		
18	97	2003.x.15	Belytinae		2013-05-13
18	97	2003.x.15	Diapriinae		
18	229	2003.xi.30	Belytinae		2013-05-03
18	340	2004.vi.30	Belytinae		2013-05-06
18	340	2004.vi.30	Diapriinae	2 ind.	
18	343	2004.vii.30	Belytinae		2013-05-13
18	343	2004.vii.30	Diapriinae	1 ind.	
18	1026	2005.iv.19	Belytinae		2013-05-16
20	1497	2005.vii.05	Diapriinae	1 ind.	2013-06-05
20	1498	2005.viii.02	Belytinae	1 ind.	2013-05-14
21	240	2003.viii.25	Belytinae		2013-06-05
21	240	2003.viii.25	Diapriinae		
21	240	2003.viii.25	Ismaridae	5 ind. W	
21	1508	2005.viii.26	Belytinae		2013-05-15
21	1508	2005.viii.26	Diapriinae		
22	246	2003.viii.07	Ismaridae	6 ind. W	2013-05-22
22	246	2003.viii.07	Ismaridae	1 ind. W	2013-06-05
22	247	2003.viii.18	Ismaridae	4 ind. W	2013-05-22
22	247	2003.viii.18	Ismaridae	1 ind. W	2013-06-05
22	777	2004.vii.18	Ismaridae	1 ind. W	2013-06-05
22	1731	2006.viii.15	Belytinae		2013-05-14
22	1731	2006.viii.15	Diapriinae		
23	430	2003.vii.10	Belytinae	big sample	2013-05-13
23	430	2003.vii.10	Diapriinae		
23	430	2003.vii.10	Ismaridae	1 ind. W	
23	431	2003.vii.24	Belytinae	1 ind.	2013-05-22
23	431	2003.vii.24	Ismaridae	6 W, 1 B	2013-06-05
23	432	2003.viii.07	Belytinae		2013-05-22
23	432	2003.viii.07	Diapriinae		
23	432	2003.viii.07	Ismaridae	6 ind. W	
23	434	2003.ix.04	Belytinae		2013-04-30
23	434	2003.ix.04	Diapriinae		

Continuance of Tab. III: Overview of all sorted Diapriidae samples during the period of the internship, with Trap ID, Collection ID, Collection Date, found taxa, notes and sorting date.

Trap ID	Coll. ID	Coll. Date	Taxa	Notes	Sorted at
23	435	2003.ix.18	Belytinae		2013-05-08
23	435	2003.ix.18	Diapriinae		
23	435	2003.ix.18	Ismaridae	2 ind. W	
23	437	2003.x.16	Belytinae		2013-04-30
23	437	2003.x.16	Diapriinae		
23	439	2003.xi.13	Belytinae		2013-04-30
23	439	2003.xi.13	Diapriinae		
23	442	2004.i.13	Belytinae		2013-05-08
24	817	2003.viii.01	Ismaridae	1 ind. W	2013-06-05
24	818	2003.viii.18	Belytinae		2013-06-05
24	818	2003.viii.18	Diapriinae		
24	818	2003.viii.18	Ismaridae	6 ind. W	
24	820	2003.xii.10	Belytinae	1 ind.	2013-06-05
24	821	2004.ii.17	Ismaridae	1 ind. W	2013-06-05
24	1310	2004.ix.25	Ismaridae	2 ind. W	2013-06-05
25	450	2003.vii.22	Belytinae	2 ind.	2013-05-14
25	451	2003.viii.12	Belytinae		2013-05-22
25	451	2003.viii.12	Diapriinae		
25	453	2003.x.03	Belytinae		2013-05-22
25	453	2003.x.03	Diapriinae		
26	460	2003.x.25	Diapriinae		2013-05-15
26	1681	2004.vii.28	Belytinae		2013-05-14
26	1683	2004.viii.26	Belytinae		2013-05-14
26	1683	2004.viii.26	Diapriinae		
26	1684	2004.x.10	Belytinae		2013-05-14
26	1684	2004.x.10	Diapriinae		
26	1684	2004.x.10	Belytinae		2013-05-15
26	1684	2004.x.10	Diapriinae		
26	1687	2005.iv.12	Diapriinae	1 ind.	2013-05-14
26	1688	2005.v.05	Belytinae	2 ind.	2013-05-14
26	1692	2005.viii.18	Belytinae		2013-05-14
26	1692	2005.viii.18	Diapriinae		
26	1692	2005.viii.18	Ismaridae	2 ind. W	
26	1692	2005.viii.18	Belytinae		2013-05-15
26	1692	2005.viii.18	Diapriinae		
26	1692	2005.viii.18	Ismaridae	2 W	

Continuance of Tab. III: Overview of all sorted Diapriidae samples during the period of the internship, with Trap ID, Collection ID, Collection Date, found taxa, notes and sorting date.

Trap ID	Coll. ID	Coll. Date	Taxa	Notes	Sorted at
27	466	2003.vii.21	Belytinae		2013-05-22
27	466	2003.vii.21	Diapriinae		
27	466	2003.vii.21	Ismaridae	8 ind. B	
27	468	2003.viii.18	Belytinae		2013-05-06
27	468	2003.viii.18	Diapriinae		
27	468	2003.viii.18	Ismaridae	1 ind. W	
27	469	2003.ix.01	Belytinae		2013-05-22
27	469	2003.ix.01	Diapriinae		
27	471	2003.ix.29	Belytinae		2013-05-03
27	471	2003.ix.29	Diapriinae		
27	472	2003.x.12	Belytinae		2013-05-03
27	472	2003.x.12	Diapriinae	1 ind.	
27	483	2004.iv.19	Diapriinae	1 ind.	2013-05-02
27	485	2004.v.17	Belytinae		2013-05-02
27	485	2004.v.17	Diapriinae		
27	486	2004.vi.02	Belytinae		2013-05-22
27	486	2004.vi.02	Diapriinae		
27	486	2004.vi.02	Ismaridae	1 ind. B	
27	1035	2004.viii.03	Belytinae		2013-05-22
27	1035	2004.viii.03	Diapriinae		
27	1035	2004.viii.03	Ismaridae	1 ind. B	
27	1036	2004.viii.23	Ismaridae	1 ind. W	2013-06-04
27	1037	2004.ix.06	Belytinae		2013-05-22
27	1037	2004.ix.06	Diapriinae		
27	1040	2004.x.18	Belytinae		2013-04-30
27	1042	2004.xii.20	Belytinae	2 ind.	2013-05-15
28	488	2003.vii.18	Ismaridae	4 W, 1 B	2013-06-05
28	496	2004.vi.02	Belytinae		2013-05-02
28	496	2004.vi.02	Diapriinae		
28	1459	2004.viii.19	Belytinae		2013-05-22
28	1459	2004.viii.19	Diapriinae		
28	1459	2004.viii.19	Ismaridae	3 B, 1 W	
28	1468	2005.ix.02	Belytinae		2013-06-05
28	1468	2005.ix.02	Diapriinae		
28	1468	2005.ix.02	Ismaridae	3 ind. Pale W!!	
29	1047	2004.vii.30	Belytinae		2013-05-22
29	1047	2004.vii.30	Diapriinae		
29	1050	2004.x.21	Belytinae		2013-05-22
29	1050	2004.x.21	Diapriinae		
29	1395	2005.vii.12	Belytinae		2013-05-14
29	1395	2005.vii.12	Diapriinae		
29	1395	2005.vii.12	Belytinae		2013-05-15
29	1395	2005.vii.12	Diapriinae		

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Continuance of Tab. III: Overview of all sorted Diapriidae samples during the period of the internship, with Trap ID, Collection ID, Collection Date, found taxa, notes and sorting date.

Trap ID	Coll. ID	Coll. Date	Taxa	Notes	Sorted at
30	1055	2004.viii.19	Belytinae		2013-05-14
30	1055	2004.viii.19	Diapriinae		
30	1055	2004.viii.19	Belytinae		2013-05-15
30	1055	2004.viii.19	Diapriinae		
30	1717	2005.vii.17	Belytinae		2013-05-14
30	1717	2005.vii.17	Diapriinae		
30	1717	2005.vii.17	Belytinae		2013-05-15
30	1717	2005.vii.17	Diapriinae		
31	515	2004.v.25	Belytinae		2013-05-22
31	515	2004.v.25	Diapriinae		
31	1058	2004.vi.29	Belytinae		2013-05-08
31	1058	2004.vi.29	Diapriinae		
31	1060	2004.vii.30	Belytinae		2013-05-03
31	1060	2004.vii.30	Diapriinae		
31	1062	2004.viii.22	Belytinae		2013-05-22
31	1062	2004.viii.22	Diapriinae		
31	1063	2004.ix.23	Belytinae		2013-05-22
31	1063	2004.ix.23	Diapriinae		
31	1543	2005.v.09	Belytinae		2013-05-02
31	1543	2005.v.09	Diapriinae		
31	1546	2005.vii.15	Belytinae		2013-04-30
31	1546	2005.vii.15	Diapriinae		
31	1548	2005.viii.16	Belytinae		2013-05-03
31	1548	2005.viii.16	Diapriinae		
31	1549	2005.ix.05	Belytinae		2013-05-08
31	1549	2005.ix.05	Diapriinae		
31	1550	2005.ix.28	Belytinae		2013-05-03
31	1550	2005.ix.28	Diapriinae	2 ind.	
33	543	2004.v.14	Belytinae		2013-05-14
33	543	2004.v.14	Diapriinae		
33	543	2004.v.14	Belytinae		2013-05-15
33	543	2004.v.14	Diapriinae		
33	1078	2004.vi.16	Belytinae		2013-05-14
33	1078	2004.vi.16	Diapriinae		
33	1078	2004.vi.16	Belytinae		2013-05-15
33	1078	2004.vi.16	Diapriinae		
33	1082	2004.viii.25	Belytinae		2013-05-14
33	1082	2004.viii.25	Diapriinae		
33	1082	2004.viii.25	Belytinae		2013-05-15
33	1082	2004.viii.25	Diapriinae		
33	1088	2004.xii.08	Belytinae		2013-05-14
33	1858	2005.xi.22	Belytinae		2013-05-14
33	1858	2005.xi.22	Belytinae		2013-05-15

Continuance of Tab. III: Overview of all sorted Diapriidae samples during the period of the internship, with Trap ID, Collection ID, Collection Date, found taxa, notes and sorting date.

Trap ID	Coll. ID	Coll. Date	Taxa	Notes	Sorted at
34	546	2003.viii.20	Belytinae		2013-05-03
34	546	2003.viii.20	Diapriinae		
34	546	2003.viii.20	Ismaridae	1 ind. W	
34	547	2003.ix.13	Belytinae		2013-05-22
34	547	2003.ix.13	Diapriinae		
34	1093	2004.vii.23	Belytinae		2013-05-15
34	1093	2004.vii.23	Diapriinae	1 ind.	
34	1096	2004.ix.02	Belytinae		2013-05-15
34	1096	2004.ix.02	Diapriinae	2 ind.	
35	553	2003.ix.15	Belytinae		2013-05-15
35	553	2003.ix.15	Diapriinae		
35	554	2003.x.05	Belytinae		2013-05-08
35	554	2003.x.05	Diapriinae		
35	558	2004.iv.25	Diapriinae	1 ind.	2013-05-15
35	558	2004.iv.25	Belytinae		2013-05-15
35	558	2004.iv.25	Diapriinae		
35	560	2004.vi.06	Belytinae		2013-05-15
35	560	2004.vi.06	Diapriinae		
35	1721	2005.ix.12	Belytinae		2013-05-13
35	1721	2005.ix.12	Diapriinae		
35	1723	2005.x.16	Belytinae		2013-05-15
35	1723	2005.x.16	Diapriinae		
35	1790	2005.vii.13	Belytinae		2013-05-22
35	1790	2005.vii.13	Diapriinae		
36	828	2004.ix.08	Belytinae		2013-05-22
36	828	2004.ix.08	Diapriinae		
36	828	2004.ix.08	Ismaridae	3 ind. W	
36	829	2005.i.20	Belytinae	E	2013-05-22
37	831	2004.vi.11	Belytinae		2013-05-22
37	833	2004.viii.06	Belytinae		2013-05-22
37	833	2004.viii.06	Diapriinae	1 ind.	
37	834	2004.viii.06	Belytinae		2013-05-14
37	834	2004.viii.06	Diapriinae		
37	835	2005.i.20	Belytinae		2013-05-22
37	835	2005.i.20	Diapriinae		
38	577	2003.vii.19	Belytinae		2013-06-05
38	577	2003.vii.19	Diapriinae		
38	577	2003.vii.19	Ismaridae	1 W, 1 B	
38	584	2003.x.15	Belytinae		2013-05-08
38	584	2003.x.15	Diapriinae		

Continuance of Tab. III: Overview of all sorted Diapriidae samples during the period of the internship, with Trap ID, Collection ID, Collection Date, found taxa, notes and sorting date.

Trap ID	Coll. ID	Coll. Date	Taxa	Notes	Sorted at
38	1115	2004.vii.07	Belytinae		2013-05-15
38	1115	2004.vii.07	Diapriinae		
38	1120	2004.viii.10	Belytinae		2013-06-05
38	1120	2004.viii.10	Ismaridae	3 ind. W	
38	1126	2004.x.13	Belytinae		2013-06-05
38	1126	2004.x.13	Diapriinae		
38	1126	2004.x.13	Ismaridae	1 ind. W	
38	1443	2005.ix.31	Belytinae	1 ind. E	2013-05-15
38	1447	2005.vi.28	Belytinae		2013-06-05
38	1449	2005.vii.09	Belytinae		2013-05-15
38	1449	2005.vii.09	Diapriinae		
38	1454	2005.viii.10	Belytinae		2013-06-05
38	1454	2005.viii.10	Diapriinae		
38	1454	2005.viii.10	Ismaridae	1 ind. W	
39	602	2003.vii.25	Belytinae		2013-05-06
39	602	2003.vii.25	Diapriinae		
39	602	2003.vii.25	Ismaridae	2 ind. W	
39	603	2003.viii.08	Belytinae		2013-06-05
39	603	2003.viii.08	Diapriinae		
39	603	2003.viii.08	Ismaridae	1 ind. W	
39	605	2003.ix.05	Belytinae		2013-05-13
39	605	2003.ix.05	Diapriinae		
39	606	2003.ix.23	Belytinae		2013-05-02
39	606	2003.ix.23	Diapriinae		
39	609	2003.xi.28	Belytinae		2013-05-08
39	609	2003.xi.28	Diapriinae		
39	612	2004.iv.08	Belytinae		2013-05-08
39	612	2004.iv.08	Diapriinae		
39	613	2004.vi.01	Belytinae		2013-05-13
39	613	2004.vi.01	Diapriinae		
39	1136	2004.vii.13	Belytinae		2013-05-06
39	1136	2004.vii.13	Diapriinae		
39	1140	2004.ix.07	Belytinae		2013-05-15
39	1140	2004.ix.07	Diapriinae		
39	1140	2004.ix.07	Ismaridae	1 W	
39	1143	2005.ii.07	Belytinae		2013-05-13
39	1143	2005.ii.07	Diapriinae	1 ind.	

Continuance of Tab. III: Overview of all sorted Diapriidae samples during the period of the internship, with Trap ID, Collection ID, Collection Date, found taxa, notes and sorting date.

Trap ID	Coll. ID	Coll. Date	Taxa	Notes	Sorted at
39	1800	2005.v.26	Belytinae		2013-05-13
39	1800	2005.v.26	Diapriinae		
39	1801	2005.vi.20	Belytinae		2013-05-06
39	1801	2005.vi.20	Diapriinae		
39	1802	2005.vi.26	Belytinae		2013-05-15
39	1802	2005.vi.26	Diapriinae		
39	1806	2005.viii.08	Belytinae		2013-05-06
39	1806	2005.viii.08	Diapriinae		
39	1807	2005.viii.15	Belytinae		2013-05-15
39	1807	2005.viii.15	Diapriinae		
39	1808	2005.ix.04	Belytinae	1 ind. E	2013-05-15
40	1146	2004.viii.13	Belytinae		2013-06-04
40	1146	2004.viii.13	Diapriinae		
40	1146	2004.viii.13	Ismaridae	4 ind. W	
40	1810	2005.v.22	Belytinae		2013-05-15
41	1154	2004.vi.18	Belytinae		2013-05-20
41	1154	2004.vi.18	Diapriinae	1 ind.	
41	1155	2004.vii.02	Belytinae		2013-05-16
41	1156	2004.vii.09	Belytinae		2013-05-13
41	1156	2004.vii.09	Diapriinae	2 ind.	
41	1157	2004.vii.23	Belytinae		2013-05-16
41	1157	2004.vii.23	Diapriinae		
41	1159	2004.viii.06	Belytinae		2013-05-20
41	1159	2004.viii.06	Diapriinae	1 ind.	
41	1159	2004.viii.06	Ismaridae	1 ind. B	
41	1162	2004.x.15	Belytinae		2013-05-13
41	1162	2004.x.15	Diapriinae		
41	1774	2005.v.07	Belytinae		2013-05-16
41	1774	2005.v.07	Diapriinae	1 ind.	
41	1778	2005.vii.17	Belytinae	2 ind.	2013-05-16
41	1781	2005.ix.01	Belytinae		2013-05-16
41	1781	2005.ix.01	Diapriinae	1 ind.	
42	645	2003.ix.10	Belytinae		2013-05-16
42	645	2003.ix.10	Diapriinae		
42	1165	2004.vii.04	Belytinae		2013-05-20
42	1165	2004.vii.04	Diapriinae		
42	1166	2004.viii.04	Belytinae	2 ind.	2013-05-20
42	1167	2005.iv.20	Belytinae		2013-05-02
42	1167	2005.iv.20	Diapriinae		
42	1167	2005.iv.20	Ismaridae	1 ind. B	

Continuance of Tab. III: Overview of all sorted Diapriidae samples during the period of the internship, with Trap ID, Collection ID, Collection Date, found taxa, notes and sorting date.

Trap ID	Coll. ID	Coll. Date	Taxa	Notes	Sorted at
43	1170	2004.vii.26	Diapriinae	1 ind. E	2013-05-16
43	1171	2004.viii.11	Belytinae		2013-05-13
43	1171	2004.viii.11	Diapriinae		
43	1172	2004.viii.25	Belytinae		2013-05-13
43	1172	2004.viii.25	Diapriinae		
43	1172	2004.viii.25	Ismaridae	1 ind. B	
43	1173	2004.ix.08	Belytinae		2013-05-08
43	1173	2004.ix.08	Diapriinae		
43	1175	2004.x.06	Belytinae		2013-05-13
43	1175	2004.x.06	Diapriinae		
43	1180	2004.28	Belytinae	1 ind.	2013-05-16
43	1912	2005.ix.09	Belytinae		2013-05-16
43	1912	2005.ix.09	Diapriinae		
43	1912	2005.ix.09	Ismaridae	1 ind. B	
43	1915	2005.x.19	Belytinae		2013-05-16
43	1917	2005.xi.16	Belytinae	2 ind.	2013-05-16
44	671	2003.viii.18	Belytinae		2013-05-24
44	671	2003.viii.18	Diapriinae		
46	1200	2004.vii.26	Belytinae	1 ind.	2013-05-02
46	1203	2004.ix.13	Belytinae		2013-05-20
46	1203	2004.ix.13	Diapriinae		
46	1204	2004.x.04	Belytinae		2013-05-16
46	1204	2004.x.04	Diapriinae	1 ind.	
46	1949	2005.x.13	Belytinae		2013-05-16
46	1949	2005.x.13	Diapriinae		
47	695	2003.ix.02	Belytinae	2 tubes	2013-05-07
47	695	2003.ix.02	Diapriinae		
47	696	2003.ix.14	Belytinae	3 tubes	2013-05-23
47	696	2003.ix.14	Diapriinae		
47	999	2004.x.18	Belytinae		2013-05-08
47	1956	2005.viii.16	Belytinae	4 tubes	2013-05-07
47	1956	2005.viii.16	Diapriinae		
47	1958	2005.ix.15	Belytinae		2013-05-06
47	1958	2005.ix.15	Diapriinae		
47	1960	2005.xi.16	Belytinae		2013-05-08
48	1209	2004.viii.13	Belytinae		2013-05-20
48	1209	2004.viii.13	Diapriinae		
48	1210	2004.ix.01	Belytinae	2 tubes	2013-05-20
48	1210	2004.ix.01	Diapriinae		
49	708	2003.viii.22	Belytinae	1 ind.	2013-05-20

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Trap ID	Coll. ID	Coll. Date	Taxa	Notes	Sorted at
50	714	2003.viii.07	Belytinae		2013-05-08
50	714	2003.viii.07	Diapriinae		
50	1224	2004.viii.12	Belytinae		2013-05-06
50	1224	2004.viii.12	Diapriinae		
50	1225	2004.viii.19	Belytinae		2013-05-06
50	1225	2004.viii.19	Diapriinae		
50	1971	2005.vi.13	Belytinae		2013-05-08
50	1972	2005.vi.26	Belytinae		2013-05-08
51	289	2003.xi.05	Belytinae		2013-05-20
51	1233	2004.viii.12	Belytinae		2013-05-21
51	1233	2004.viii.12	Diapriinae		
52	185	2003.ix.22	Belytinae		2013-05-13
52	185	2003.ix.22	Diapriinae	1 ind.	
53	1250	2004.x.15	Belytinae		2013-05-16
55	1258	2004.vii.08	Belytinae	1 ind. E	2013-05-02
55	1259	2004.vii.23	Belytinae	2 tubes	2013-05-08
55	1259	2004.vii.23	Diapriinae		
55	1264	2004.x.15	Belytinae		2013-05-16
55	1264	2004.x.15	Diapriinae		
56	199	2003.viii.18	Belytinae	1 ind.	2013-05-20
56	748	2004.v.28	Belytinae		2013-05-08
56	1271	2004.x.15	Belytinae		2013-05-08
56	1271	2004.x.15	Diapriinae	1 ind.	
57	205	2003.ix.22	Belytinae	2 ind.	2013-05-20
59	213	2003.ix.22	Belytinae		2013-05-16
59	213	2003.ix.22	Diapriinae		
60	217	2003.ix.22	Diapriinae		2013-05-16
60	217	2003.ix.22	Belytinae		
60	1295	2004.viii.05	Belytinae		2013-05-08
60	1295	2004.viii.05	Diapriinae		
61	220	2003.ix.01	Belytinae		2013-05-20
61	220	2003.ix.01	Diapriinae		
61	221	2003.ix.22	Belytinae		2013-05-20
61	221	2003.ix.22	Diapriinae		
61	761	2003.xii.02	Belytinae		2013-05-24
61	762	2004.v.28	Belytinae		2013-05-24

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Trap ID	Coll. ID	Coll. Date	Taxa	Notes	Sorted at
1000	1322	2005.vii.02	Belytinae		2013-05-31
1000	1322	2005.vii.02	Diapriinae		
1000	1428	2005.xi.12	Belytinae		2013-05-31
1000	1428	2005.xi.12	Diapriinae		
1000	1432	2006.v.18	Belytinae		2013-05-16
1000	1432	2006.v.18	Diapriinae		
1001	1329	2005.vi.19	Belytinae		2013-05-16
1001	1329	2005.vi.19	Diapriinae		
1001	1331	2005.vii.02	Belytinae		2013-05-31
1001	1332	2005.vii.12	Belytinae	1 ind.	2013-05-31
1001	1355	2005.viii.24	Belytinae		2013-06-05
1001	1355	2005.viii.24	Diapriinae		
1001	1355	2005.viii.24	Ismaridae	4 ind. W	
1001	1361	2005.ix.12	Belytinae		2013-05-16
1001	1361	2005.ix.12	Diapriinae		
1001	1366	2005.x.10	Belytinae		2013-05-31
1001	1366	2005.x.10	Diapriinae		
1001	1366	2005.x.10	Ismaridae	1 ind. W	
1001	1434	2005.xi.12	Belytinae		2013-05-31
1001	1434	2005.xi.12	Diapriinae		
1001	1511	2006.iv.27	Belytinae		2013-05-21
1001	1511	2006.iv.27	Diapriinae		
1001	1728	2006.vi.15	Belytinae		2013-05-31
1001	1728	2006.vi.15	Diapriinae		
1001	1728	2006.vi.15	Ismaridae	1 ind. B	
1002	1372	2005.vi.18	Belytinae		2013-06-05
1002	1372	2005.vi.18	Ismaridae	1 ind. B	
1002	1378	2005.viii.12	Belytinae		2013-05-31
1002	1378	2005.viii.12	Diapriinae		
1002	1378	2005.viii.12	Ismaridae	2 W, 1 B	
1002	1379	2005.viii.24	Belytinae		2013-05-21
1002	1379	2005.viii.24	Diapriinae		
1002	1379	2005.viii.24	Ismaridae	3 ind. W	
1002	1891	2005.x.31	Belytinae		2013-05-31
1002	1891	2005.x.31	Diapriinae		
1002	1893	2006.i.03	Belytinae		2013-05-31

Continuance of Tab. III: Overview of all sorted Diapriidae samples during the period of the internship, with Trap ID, Collection ID, Collection Date, found taxa, notes and sorting date.

Trap ID	Coll. ID	Coll. Date	Taxa	Notes	Sorted at
1003	1387	2005.vii.10	Belytinae	1 ind. E	2013-05-15
1003	1388	2005.vii.24	Belytinae	1 ind.	2013-05-21
1003	1388	2005.vii.24	Diapriinae	1 ind.	
1003	1389	2005.ix.12	Belytinae		2013-05-21
1003	1389	2005.ix.12	Diapriinae		
1003	1896	2005.xi.03	Belytinae		2013-05-21
1003	1896	2005.xi.03	Diapriinae		
1003	1896	2005.xi.03	Ismaridae	1 ind. W	
1003	1897	2006.v.06	Belytinae	1 ind.	2013-05-13
1003	1897	2006.v.06	Diapriinae		
1003	2009	2006.ii.19	Diapriinae	1 ind.	2013-05-13
1004	1798	2005.viii.09	Belytinae		2013-05-08
1004	1798	2005.viii.09	Diapriinae		
1004	1898	2005.ix.20	Belytinae		2013-05-03
1004	1898	2005.ix.20	Diapriinae		
1005	1419	2005.vii.15	Belytinae		2013-05-31
1005	1419	2005.vii.15	Diapriinae		
1005	1421	2005.ix.26	Belytinae		2013-06-05
1005	1421	2005.ix.26	Diapriinae		
1006	1423	2005.v.22	Belytinae		2013-05-21
1006	1423	2005.v.22	Diapriinae		
1006	1425	2005.vii.30	Belytinae		2013-05-06
1006	1425	2005.vii.30	Diapriinae		
1006	1902	2006.ii.10	Belytinae		2013-05-21
1006	1902	2006.ii.10	Diapriinae		
1007	1987	2005.viii.17	Belytinae		2013-05-31
1007	1987	2005.viii.17	Diapriinae		
1007	1989	2005.ix.06	Belytinae		2013-05-15
1007	1989	2005.ix.06	Diapriinae	1 ind.	
1008	1032	2005.v.20	Belytinae		2013-05-31
1008	1032	2005.v.20	Diapriinae		
1008	1339	2005.vi.10	Belytinae		2013-05-13
1008	1339	2005.vi.10	Diapriinae		
1008	1342	2005.vi.25	Belytinae		2013-05-06
1008	1342	2005.vi.25	Diapriinae		
1008	1343	2005.vi.30	Belytinae		2013-05-13
1008	1343	2005.vi.30	Diapriinae		
1008	1346	2005.vii.15	Belytinae		2013-05-06
1008	1346	2005.vii.15	Diapriinae		

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Trap ID	Coll. ID	Coll. Date	Taxa	Notes	Sorted at
1008	1348	2005.vii.25	Belytinae		2013-05-31
1008	1348	2005.vii.25	Diapriinae		
1008	1351	2005.viii.10	Belytinae		2013-05-31
1008	1351	2005.viii.10	Diapriinae		
1008	1485	2005.viii.30	Belytinae		2013-05-13
1008	1485	2005.viii.30	Diapriinae		
1008	1492	2006.iv.30	Belytinae		2013-05-21
1008	1492	2006.iv.30	Diapriinae		
1008	1736	2006.vi.10	Belytinae		2013-05-21
1008	1736	2006.vi.10	Diapriinae		
1008	1738	2006.vi.22	Belytinae		2013-05-30
1008	1738	2006.vi.22	Diapriinae		
1008	1739	2006.vi.28	Belytinae		2013-05-15
1008	1739	2006.vi.28	Diapriinae		
1008	1741	2006.vii.10	Belytinae		2013-05-24
1008	1741	2006.vii.10	Diapriinae		
1008	1743	2006.vii.22	Belytinae		2013-05-30
1008	1743	2006.vii.22	Diapriinae		
1008	1746	2006.viii.19	Belytinae		2013-05-24
1008	1746	2006.viii.19	Diapriinae		
1008	2000	2006.x.13	Belytinae		2013-05-31
1008	2000	2006.x.13	Diapriinae		

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Trap ID	Coll. ID	Coll. Date	Taxa	Notes	Sorted at
2003	2031	2006.v.24	Belytinae		2013-05-13
2003	2031	2006.v.24	Diapriinae		
2003	2034	2006.vii.07	Belytinae		2013-05-13
2003	2034	2006.vii.07	Diapriinae		
2003	2034	2006.vii.07	Ismaridae	1 ind. B	
2003	2038	2006.x.10	Belytinae		2013-05-13
2003	2038	2006.x.10	Diapriinae		
2006	2017	2007.viii.01	Diapriinae		2013-05-03
2006	2020	2007.ix.05	Diapriinae	1 ind.	2013-05-15
2006	2029	2008.vi.21	Belytinae		2013-05-30
2006	2029	2008.vi.21	Diapriinae		
2006	2042	2006.viii.29	Belytinae		2013-05-08
2006	2042	2006.viii.29	Diapriinae		
2006	2043	2008.ix.11	Belytinae		2013-05-03
2006	2043	2008.ix.11	Diapriinae		
2006	2044	2008.x.03	Belytinae		2013-05-03
2006	2044	2008.x.03	Diapriinae		
2046	2053	2008.vii.01	Belytinae		2013-06-05
2046	2053	2008.vii.01	Diapriinae		
2046	2053	2008.vii.01	Ismaridae	1 ind. W	
2046	2055	2008.viii.01	Belytinae		2013-05-30
2046	2055	2008.viii.01	Diapriinae		
2046	2055	2008.viii.01	Ismaridae	2 ind. W	
2046	2056	2008.viii.16	Belytinae		2013-05-30
2046	2056	2008.viii.16	Diapriinae		
2046	2058	2008.x.03	Belytinae		2013-06-05
2046	2058	2008.x.03	Diapriinae		
2046	2058	2008.x.03	Ismaridae	1 ind. W	
2046	2060	2008.xii.01	Belytinae		2013-05-30

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Tab. IV: Overview of all sorted Ismaridae samples during the period of the internship, with Trap ID, Collection ID, Collection Date, number of individuals, gender, species and determination date.

Trap ID	Coll. ID	Coll. Date	Individuals	Gender	*Species*	Det. Date
1	309	2003.viii.29	1	female	*Ismarus dorsiger*	2013-05-24
1	1574	2005.viii.19	1	female	*Ismarus dorsiger*	2013-06-04
3	800	2004.ix.07	1	female	*Ismarus dorsiger*	2013-05-24
5	64	2003.vii.02	1	female	*Ismarus halidayi*	2013-05-24
5	768	2004.ix.08	1	female	*Ismarus dorsiger*	2013-05-24
6	852	2004.viii.18	1	female	*Ismarus dorsiger*	2013-05-24
6	852	2004.viii.18	2	female	*Ismarus rugulosus*	2013-05-24
6	853	2004.ix.04	1	female	*Ismarus dorsiger*	2013-05-24
7	1591	2005.vii.04	1	female	*Ismarus halidayi*	2013-05-24
8	391	2003.viii.04	3	female	*Ismarus dorsiger*	2013-06-04
8	1560	2004.viii.08	3	female	*Ismarus dorsiger*	2013-05-24
8	1560	2004.viii.08	1	female	*Ismarus flavicornis*	2013-05-24
8	1562	2004.ix.10	5	female	*Ismarus dorsiger*	2013-06-04
11	411	2003.viii.04	1	female	*Ismarus dorsiger*	2013-05-24
11	411	2003.viii.04	2	female	*Ismarus halidayi*	2013-05-24
11	417	2004.vi.08	2	female	*Ismarus halidayi*	2013-05-24
11	417	2004.vi.08	6	male	*Ismarus halidayi*	2013-05-24
11	418	2004.vi.16	2	female	*Ismarus halidayi*	2013-05-24
11	418	2004.vi.16	1	male	*Ismarus halidayi*	2013-05-24
12	176	2003.viii.09	2	female	*Ismarus dorsiger*	2013-05-24
12	177	2003.viii.25	1	female	*Ismarus dorsiger*	2013-06-04
12	891	2004.vii.17	1	female	*Ismarus dorsiger*	2013-06-04
12	893	2004.viii.09	6	female	*Ismarus dorsiger*	2013-05-24
12	894	2004.viii.19	7	female	*Ismarus dorsiger*	2013-05-24
12	895	2004.viii.28	2	female	*Ismarus dorsiger*	2013-06-04
13	902	2003.viii.05	1	female	*Ismarus dorsiger*	2013-05-24
13	913	2004.viii.17	1	female	*Ismarus dorsiger*	2013-06-04
13	913	2004.viii.17	1	female	*Ismarus rugulosus*	2013-06-04
13	1643	2005.vii.12	1	female	*Ismarus rugulosus*	2013-05-24
13	1644	2005.vii.20	1	female	*Ismarus dorsiger*	2013-06-04
13	1644	2005.vii.20	3	female	*Ismarus rugulosus*	2013-06-04
13	1646	2005.viii.02	1	female	*Ismarus dorsiger*	2013-06-04
13	1648	2005.ix.16	7	female	*Ismarus dorsiger*	2013-06-04
14	1655	2005.viii.23	1	female	*Ismarus dorsiger*	2013-06-04
17	272	2003.viii.12	1	female	*Ismarus dorsiger*	2013-05-24
21	240	2003.viii.25	5	female	*Ismarus dorsiger*	2013-06-05

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Trap ID	Coll. ID	Coll. Date	Individuals	Gender	Species	Det. Date
22	246	2003.viii.07	6	female	*Ismarus dorsiger*	2013-05-24
22	246	2003.viii.07	1	female	*Ismarus dorsiger*	2013-06-05
22	247	2003.viii.18	3	female	*Ismarus dorsiger*	2013-05-24
22	247	2003.viii.18	1	female	*Ismarus dorsiger*	2013-06-05
22	777	2004.vii.18	1	female	*Ismarus dorsiger*	2013-06-05
23	430	2003.vii.10	1	female	*Ismarus dorsiger*	2013-05-24
23	431	2003.vii.24	6	female	*Ismarus dorsiger*	2013-06-05
23	431	2003.vii.24	1	female	*Ismarus halidayi*	2013-06-05
23	432	2003.viii.07	6	female	*Ismarus dorsiger*	2013-05-24
23	435	2003.ix.18	2	female	*Ismarus dorsiger*	2013-05-24
24	817	2003.viii.01	1	female	*Ismarus dorsiger*	2013-06-05
24	818	2003.viii.18	6	female	*Ismarus dorsiger*	2013-06-05
24	821	2004.ii.17	1	female	*Ismarus dorsiger*	2013-06-05
24	1310	2004.ix.25	2	female	*Ismarus dorsiger*	2013-06-05
26	1692	2005.viii.18	1	female	*Ismarus dorsiger*	2013-05-24
27	466	2003.vii.21	6	female	*Ismarus flavicornis*	2013-05-24
27	466	2003.vii.21	1	female	*Ismarus rugulosus*	2013-05-24
27	466	2003.vii.21	1	female	*Ismarus halidayi*	2013-05-24
27	467	2003.viii.04	1	female	*Ismarus dorsiger*	2013-06-17
27	468	2003.viii.18	1	female	*Ismarus dorsiger*	2013-05-24
27	486	2004.vi.02	1	male	*Ismarus halidayi*	2013-05-24
27	1035	2004.viii.03	1	female	*Ismarus flavicornis*	2013-05-24
27	1036	2004.viii.23	1	female	*Ismarus dorsiger*	2013-06-04
28	488	2003.vii.18	4	female	*Ismarus dorsiger*	2013-06-05
28	488	2003.vii.18	1	female	*Ismarus rugulosus*	2013-06-05
28	1459	2004.viii.19	1	female	*Ismarus dorsiger*	2013-05-24
28	1459	2004.viii.19	1	female	*Ismarus halidayi*	2013-05-24
28	1459	2004.viii.19	2	female	*Ismarus rugulosus*	2013-05-24
28	1468	2005.ix.02	3	female	*Ismarus dorsiger*	2013-06-05
34	546	2003.viii.20	1	female	*Ismarus dorsiger*	2013-05-24
36	828	2004.ix.08	3	female	*Ismarus dorsiger*	2013-05-24

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Trap ID	Coll. ID	Coll. Date	Individuals	Gender	Species	Det. Date
38	577	2003.vii.19	1	female	*Ismarus dorsiger*	2013-06-05
38	577	2003.vii.19	1	female	*Ismarus rugulosus*	2013-06-05
38	1120	2004.viii.10	3	female	*Ismarus dorsiger*	2013-06-05
38	1121	2004.viii.15	11	female	*Ismarus dorsiger*	2013-05-24
38	1126	2004.x.13	1	female	*Ismarus dorsiger*	2013-06-05
38	1454	2005.viii.10	1	female	*Ismarus dorsiger*	2013-06-05
39	602	2003.vii.25	2	female	*Ismarus dorsiger*	2013-05-24
39	603	2003.viii.08	1	female	*Ismarus dorsiger*	2013-06-05
39	1140	2004.ix.07	1	female	*Ismarus dorsiger*	2013-05-24
40	1146	2004.viii.13	4	female	*Ismarus dorsiger*	2013-06-04
41	1159	2004.viii.06	1	female	*Ismarus rugulosus*	2013-05-24
42	1167	2005.iv.20	1	female	*Ismarus rugulosus*	2013-05-24
43	1172	2004.viii.25	1	female	*Ismarus rugulosus*	2013-05-24
43	1912	2005.ix.09	1	female	*Ismarus rugulosus*	2013-05-24
1001	1355	2005.viii.24	4	female	*Ismarus dorsiger*	2013-06-05
1001	1366	2005.x.10	1	female	*Ismarus dorsiger*	2013-05-31
1001	1728	2006.vi.15	1	male	*Ismarus halidayi*	2013-05-31
1002	1372	2005.vi.18	1	female	*Ismarus flavicornis*	2013-06-05
1002	1378	2005.viii.12	2	female	*Ismarus dorsiger*	2013-05-31
1002	1378	2005.viii.12	1	female	*Ismarus rugulosus*	2013-05-31
1002	1379	2005.viii.24	3	female	*Ismarus dorsiger*	2013-05-24
1003	1896	2005.xi.03	1	female	*Ismarus dorsiger*	2013-05-24
2003	2034	2006.vii.07	1	male	*Ismarus halidayi*	2013-05-24
2046	2053	2008.vii.01	1	female	*Ismarus dorsiger*	2013-06-05
2046	2055	2008.viii.01	2	female	*Ismarus dorsiger*	2013-05-30
2046	2058	2008.x.03	1	female	*Ismarus dorsiger*	2013-06-05

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Tab. V: Overview of all sorted *Ismarus dorsiger* samples during the period of the internship, with gender, trap ID, Collection ID, province, start date and end date.

Gender	Trap ID	Coll ID	Province	Start	End
Female	1	309	Södermanland	2003.viii.04	2003.viii.29
Female	1	1574	Södermanland	2005.viii.04	2005.viii.19
Female	3	800	Södermanland	2004.viii.11	2004.ix.07
Female	5	768	Södermanland	2004.viii.16	2004.ix.08
Female	6	852	Uppland	2004.vii.26	2004.viii.18
Female	6	853	Uppland	2004.viii.18	2004.ix.04
Female	8	391	Uppland	2003.vii.15	2003.viii.04
Female	8	391	Uppland	2003.vii.15	2003.viii.04
Female	8	391	Uppland	2003.vii.15	2003.viii.04
Female	8	1560	Uppland	2004.vii.29	2004.viii.08
Female	8	1560	Uppland	2004.vii.29	2004.viii.08
Female	8	1560	Uppland	2004.vii.29	2004.viii.08
Female	8	1562	Uppland	2004.viii.27	2004.ix.10
Female	8	1562	Uppland	2004.viii.27	2004.ix.10
Female	8	1562	Uppland	2004.viii.27	2004.ix.10
Female	8	1562	Uppland	2004.viii.27	2004.ix.10
Female	8	1562	Uppland	2004.viii.27	2004.ix.10
Female	11	411	Västmanland	2003.vii.23	2003.viii.04
Female	12	176	Södermanland	2003.viii.02	2003.viii.09
Female	12	176	Södermanland	2003.viii.02	2003.viii.09
Female	12	177	Södermanland	2003.viii.09	2003.viii.25
Female	12	891	Södermanland	2004.vi.27	2004.vii.17
Female	12	893	Södermanland	2004.viii.01	2004.viii.09
Female	12	893	Södermanland	2004.viii.01	2004.viii.09
Female	12	893	Södermanland	2004.viii.01	2004.viii.09
Female	12	893	Södermanland	2004.viii.01	2004.viii.09
Female	12	893	Södermanland	2004.viii.01	2004.viii.09
Female	12	893	Södermanland	2004.viii.01	2004.viii.09
Female	12	894	Södermanland	2004.viii.09	2004.viii.19
Female	12	894	Södermanland	2004.viii.09	2004.viii.19
Female	12	894	Södermanland	2004.viii.09	2004.viii.19
Female	12	894	Södermanland	2004.viii.09	2004.viii.19
Female	12	894	Södermanland	2004.viii.09	2004.viii.19
Female	12	894	Södermanland	2004.viii.09	2004.viii.19
Female	12	894	Södermanland	2004.viii.09	2004.viii.19
Female	12	895	Södermanland	2004.viii.19	2004.viii.28
Female	12	895	Södermanland	2004.viii.19	2004.viii.28

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Continuance of Tab. V: Overview of all sorted *Ismarus flavicornis* samples during the period of the internship, with gender, trap ID, Collection ID, province, start date and end date.

Gender	Trap ID	Coll ID	Province	Start	End
Female	13	902	Östergötland	2003.vii.22	2003.viii.05
Female	13	913	Östergötland	2004.viii.08	2004.viii.17
Female	13	1644	Östergötland	2005.vii.12	2005.vii.20
Female	13	1646	Östergötland	2005.vii.26	2005.viii.02
Female	13	1648	Östergötland	2005.viii.23	2005.ix.16
Female	13	1648	Östergötland	2005.viii.23	2005.ix.16
Female	13	1648	Östergötland	2005.viii.23	2005.ix.16
Female	13	1648	Östergötland	2005.viii.23	2005.ix.16
Female	13	1648	Östergötland	2005.viii.23	2005.ix.16
Female	13	1648	Östergötland	2005.viii.23	2005.ix.16
Female	13	1648	Östergötland	2005.viii.23	2005.ix.16
Female	14	1655	Östergötland	2005.viii.02	2005.viii.23
Female	17	272	Småland	2003.vii.19	2003.viii.12
Female	21	240	Öland	2003.viii.01	2003.viii.25
Female	21	240	Öland	2003.viii.01	2003.viii.25
Female	21	240	Öland	2003.viii.01	2003.viii.25
Female	21	240	Öland	2003.viii.01	2003.viii.25
Female	21	240	Öland	2003.viii.01	2003.viii.25
Female	22	246	Öland	2003.vii.17	2003.viii.07
Female	22	246	Öland	2003.vii.17	2003.viii.07
Female	22	246	Öland	2003.vii.17	2003.viii.07
Female	22	246	Öland	2003.vii.17	2003.viii.07
Female	22	246	Öland	2003.vii.17	2003.viii.07
Female	22	246	Öland	2003.vii.17	2003.viii.07
Female	22	246	Öland	2003.vii.17	2003.viii.07
Female	22	247	Öland	2003.viii.07	2003.viii.18
Female	22	247	Öland	2003.viii.07	2003.viii.18
Female	22	247	Öland	2003.viii.07	2003.viii.18
Female	22	247	Öland	2003.viii.07	2003.viii.18
Female	22	777	Öland	2004.vi.23	2004.vii.18
Female	23	430	Blekinge	2003.vi.26	2003.vii.10
Female	23	431	Blekinge	2003.vii.10	2003.vii.24
Female	23	431	Blekinge	2003.vii.10	2003.vii.24
Female	23	431	Blekinge	2003.vii.10	2003.vii.24
Female	23	431	Blekinge	2003.vii.10	2003.vii.24
Female	23	431	Blekinge	2003.vii.10	2003.vii.24
Female	23	431	Blekinge	2003.vii.10	2003.vii.24

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Continuance of Tab. V: Overview of all sorted *Ismarus flavicornis* samples during the period of the internship, with gender, trap ID, Collection ID, province, start date and end date.

Gender	Trap ID	Coll ID	Province	Start	End
Female	23	432	Blekinge	2003.vii.24	2003.viii.07
Female	23	432	Blekinge	2003.vii.24	2003.viii.07
Female	23	432	Blekinge	2003.vii.24	2003.viii.07
Female	23	432	Blekinge	2003.vii.24	2003.viii.07
Female	23	432	Blekinge	2003.vii.24	2003.viii.07
Female	23	432	Blekinge	2003.vii.24	2003.viii.07
Female	23	435	Blekinge	2003.ix.04	2003.ix.18
Female	23	435	Blekinge	2003.ix.04	2003.ix.18
Female	24	817	Småland	2003.vii.15	2003.viii.01
Female	24	818	Småland	2003.viii.01	2003.viii.18
Female	24	818	Småland	2003.viii.01	2003.viii.18
Female	24	818	Småland	2003.viii.01	2003.viii.18
Female	24	818	Småland	2003.viii.01	2003.viii.18
Female	24	818	Småland	2003.viii.01	2003.viii.18
Female	24	818	Småland	2003.viii.01	2003.viii.18
Female	24	821	Småland	2003.xii.10	2004.iii.25
Female	24	1310	Småland	2004.vii.22	2004.ix.25
Female	24	1310	Småland	2004.vii.22	2004.ix.25
Female	26	1692	Uppland	2005.vii.19	2005.viii.18
Female	27	467	Uppland	2003.vii.21	2003.viii.04
Female	27	468	Uppland	2003.viii.04	2003.viii.18
Female	27	1036	Uppland	2004.viii.03	2004.viii.23
Female	28	488	Gotland	2003.vii.08	2003.vii.18
Female	28	488	Gotland	2003.vii.08	2003.vii.18
Female	28	488	Gotland	2003.vii.08	2003.vii.18
Female	28	488	Gotland	2003.vii.08	2003.vii.18
Female	28	1459	Gotland	2004.viii.02	2004.viii.19
Female	28	1468	Gotland	2005.viii.09	2005.ix.02
Female	28	1468	Gotland	2005.viii.09	2005.ix.02
Female	28	1468	Gotland	2005.viii.09	2005.ix.02
Female	34	546	Halland	2003.vii.15	2003.viii.20
Female	36	828	Skåne	2004.viii.06	2004.ix.08
Female	36	828	Skåne	2004.viii.06	2004.ix.08
Female	36	828	Skåne	2004.viii.06	2004.ix.08

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Continuance of Tab. V: Overview of all sorted *Ismarus flavicornis* samples during the period of the internship, with gender, trap ID, Collection ID, province, start date and end date.

Gender	Trap ID	Coll ID	Province	Start	End
Female	38	577	Skåne	2003.vii.11	2003.vii.19
Female	38	1120	Skåne	2004.viii.03	2004.viii.10
Female	38	1120	Skåne	2004.viii.03	2004.viii.10
Female	38	1120	Skåne	2004.viii.03	2004.viii.10
Female	38	1121	Skåne	2004.viii.10	2004.viii.15
Female	38	1121	Skåne	2004.viii.10	2004.viii.15
Female	38	1121	Skåne	2004.viii.10	2004.viii.15
Female	38	1121	Skåne	2004.viii.10	2004.viii.15
Female	38	1121	Skåne	2004.viii.10	2004.viii.15
Female	38	1121	Skåne	2004.viii.10	2004.viii.15
Female	38	1121	Skåne	2004.viii.10	2004.viii.15
Female	38	1121	Skåne	2004.viii.10	2004.viii.15
Female	38	1121	Skåne	2004.viii.10	2004.viii.15
Female	38	1121	Skåne	2004.viii.10	2004.viii.15
Female	38	1121	Skåne	2004.viii.10	2004.viii.15
Female	38	1126	Skåne	2004.ix.22	2004.ix.28
Female	38	1454	Skåne	2005.viii.05	2005.viii.10
Female	39	602	Skåne	2003.vii.12	2003.vii.25
Female	39	602	Skåne	2003.vii.12	2003.vii.25
Female	39	603	Skåne	2003.vii.25	2003.viii.08
Female	39	1140	Skåne	2004.viii.20	2004.ix.07
Female	40	1146	Skåne	2004.vii.13	2004.viii.13
Female	40	1146	Skåne	2004.vii.13	2004.viii.13
Female	40	1146	Skåne	2004.vii.13	2004.viii.13
Female	40	1146	Skåne	2004.vii.13	2004.viii.13
Female	1001	1355	Småland	2005.viii.13	2005.viii.24
Female	1001	1355	Småland	2005.viii.13	2005.viii.24
Female	1001	1355	Småland	2005.viii.13	2005.viii.24
Female	1001	1355	Småland	2005.viii.13	2005.viii.24
Female	1001	1366	Småland	2005.ix.12	2005.x.10
Female	1002	1378	Värmland	2005.vii.23	2005.viii.12
Female	1002	1378	Värmland	2005.vii.23	2005.viii.12
Female	1002	1379	Värmland	2005.viii.12	2005.viii.24
Female	1002	1379	Värmland	2005.viii.12	2005.viii.24
Female	1002	1379	Värmland	2005.viii.12	2005.viii.24
Female	1003	1896	Värmland	2005.ix.12	2005.xi.03
Female	2046	2053	Småland	2008.vi.15	2008.vii.01
Female	2046	2055	Småland	2008.vii.16	2008.viii.01
Female	2046	2055	Småland	2008.vii.16	2008.viii.01
Female	2046	2058	Småland	2008.ix.01	2008.x.03

Tab. VI: Overview of all sorted *Ismarus dorsiger* samples during the period of the internship, with trap ID, Collection ID, day of start, day of end and determination date.

Trap ID	Coll ID	Day of Start	Day of End	Date of Det.
1	309	217	242	2013-05-24
1	1574	216	231	2013-06-10
3	800	224	251	2013-05-24
5	768	229	252	2013-05-24
6	852	208	231	2013-05-24
6	853	231	248	2013-05-24
8	391	196	216	2013-06-10
8	391	196	216	2013-06-10
8	391	196	216	2013-06-10
8	1560	211	221	2013-05-24
8	1560	211	221	2013-05-24
8	1560	211	221	2013-05-24
8	1562	240	254	2013-06-10
8	1562	240	254	2013-06-10
8	1562	240	254	2013-06-10
8	1562	240	254	2013-06-10
8	1562	240	254	2013-06-10
11	411	204	216	2013-05-24
12	176	214	221	2013-05-24
12	176	214	221	2013-05-24
12	177	221	237	2013-06-10
12	891	179	199	2013-06-10
12	893	214	222	2013-05-24
12	893	214	222	2013-05-24
12	893	214	222	2013-05-24
12	893	214	222	2013-05-24
12	893	214	222	2013-05-24
12	893	214	222	2013-05-24
12	894	222	232	2013-05-24
12	894	222	232	2013-05-24
12	894	222	232	2013-05-24
12	894	222	232	2013-05-24
12	894	222	232	2013-05-24
12	894	222	232	2013-05-24
12	894	222	232	2013-05-24
12	894	222	232	2013-05-24
12	895	232	241	2013-06-10
12	895	232	241	2013-06-10

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Continuance of Tab. VI: Overview of all sorted *Ismarus dorsiger* samples during the period of the internship, with trap ID, Collection ID, day of start, day of end and determination date.

Trap ID	Coll ID	Day of Start	Day of End	Date of Det.
13	902	204	217	2013-05-24
13	913	221	230	2013-06-10
13	1644	193	201	2013-06-10
13	1646	207	214	2013-06-10
13	1648	235	259	2013-06-10
13	1648	235	259	2013-06-10
13	1648	235	259	2013-06-10
13	1648	235	259	2013-06-10
13	1648	235	259	2013-06-10
13	1648	235	259	2013-06-10
13	1648	235	259	2013-06-10
13	1648	235	259	2013-06-10
14	1655	214	235	2013-06-10
17	272	200	224	2013-05-24
21	240	213	237	2013-06-10
21	240	213	237	2013-06-10
21	240	213	237	2013-06-10
21	240	213	237	2013-06-10
21	240	213	237	2013-06-10
22	246	198	219	2013-06-10
22	246	198	219	2013-05-24
22	246	198	219	2013-05-24
22	246	198	219	2013-05-24
22	246	198	219	2013-05-24
22	246	198	219	2013-05-24
22	246	198	219	2013-05-24
22	246	198	219	2013-05-24
22	247	219	230	2013-05-24
22	247	219	230	2013-05-24
22	247	219	230	2013-05-24
22	247	219	230	2013-06-10
22	777	175	200	2013-06-10
23	430	177	191	2013-05-24
23	431	191	205	2013-06-10
23	431	191	205	2013-06-10
23	431	191	205	2013-06-10
23	431	191	205	2013-06-10
23	431	191	205	2013-06-10
23	431	191	205	2013-06-10

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Continuance of Tab. VI: Overview of all sorted *Ismarus dorsiger* samples during the period of the internship, with trap ID, Collection ID, day of start, day of end and determination date.

Trap ID	Coll ID	Day of Start	Day of End	Date of Det.
23	432	205	219	2013-05-24
23	432	205	219	2013-05-24
23	432	205	219	2013-05-24
23	432	205	219	2013-05-24
23	432	205	219	2013-05-24
23	432	205	219	2013-05-24
23	435	94	108	2013-05-24
23	435	94	108	2013-05-24
24	817	196	213	2013-06-10
24	818	213	230	2013-06-10
24	818	213	230	2013-06-10
24	818	213	230	2013-06-10
24	818	213	230	2013-06-10
24	818	213	230	2013-06-10
24	818	213	230	2013-06-10
24	821	344	85	2013-06-10
24	1310	204	269	2013-06-10
24	1310	204	269	2013-06-10
26	1692	200	230	2013-05-24
27	467	203	217	2013-06-17
27	468	216	230	2013-05-24
27	1036	216	236	2013-06-10
28	488	189	199	2013-06-10
28	488	189	199	2013-06-10
28	488	189	199	2013-06-10
28	488	189	199	2013-06-10
28	1459	215	232	2013-05-24
28	1468	221	245	2013-06-10
28	1468	221	245	2013-06-10
28	1468	221	245	2013-06-10
34	546	196	232	2013-05-24
36	828	218	251	2013-05-24
36	828	218	251	2013-05-24
36	828	218	251	2013-05-24

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Continuance of Tab. VI: Overview of all sorted *Ismarus dorsiger* samples during the period of the internship, with trap ID, Collection ID, day of start, day of end and determination date.

Trap ID	Coll ID	Day of Start	Day of End	Date of Det.
38	577	192	200	2013-06-10
38	1120	216	223	2013-06-10
38	1120	216	223	2013-06-10
38	1120	216	223	2013-06-10
38	1121	222	227	2013-05-24
38	1121	222	227	2013-05-24
38	1121	222	227	2013-05-24
38	1121	222	227	2013-05-24
38	1121	222	227	2013-05-24
38	1121	222	227	2013-05-24
38	1121	222	227	2013-05-24
38	1121	222	227	2013-05-24
38	1121	222	227	2013-05-24
38	1121	222	227	2013-05-24
38	1121	222	227	2013-05-24
38	1121	222	227	2013-05-24
38	1126	266	272	2013-06-10
38	1454	217	222	2013-06-10
39	602	193	206	2013-05-24
39	602	193	206	2013-05-24
39	603	206	220	2013-06-10
39	1140	233	251	2013-05-24
40	1146	195	226	2013-06-10
40	1146	195	226	2013-06-10
40	1146	195	226	2013-06-10
40	1146	195	226	2013-06-10
1001	1355	225	236	2013-06-10
1001	1355	225	236	2013-06-10
1001	1355	225	236	2013-06-10
1001	1355	225	236	2013-06-10
1001	1366	255	283	2013-06-10
1002	1378	204	224	2013-06-10
1002	1378	204	225	2013-06-10
1002	1379	224	236	2013-05-24
1002	1379	224	236	2013-05-24
1002	1379	224	236	2013-05-24
1003	1896	255	307	2013-05-24
2046	2053	167	183	2013-06-10
2046	2055	198	214	2013-06-10
2046	2055	198	214	2013-06-10
2046	2058	245	277	2013-06-10

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Tab. VII: Overview of all sorted *Ismarus dorsiger* samples during the period of the internship, with trap ID, Collection ID, type of landscape, part of country and localisation.

Trap ID	Coll ID	Type of Landscape	Part of Country	Localisation
1	309	mixed coastal oak forest	Östra Svealand	Coast
1	1574	mixed coastal oak forest	Östra Svealand	Coast
3	800	flat-rock pine forest	Östra Svealand	Coast
5	768	Pine forest with garbage	Östra Svealand	Inland
6	852	dry meadow w. birch	Östra Svealand	Coast
6	853	dry meadow w. birch	Östra Svealand	Coast
8	391	elm grove	Östra Svealand	Inland
8	391	elm grove	Östra Svealand	Inland
8	391	elm grove	Östra Svealand	Inland
8	1560	elm grove	Östra Svealand	Inland
8	1560	elm grove	Östra Svealand	Inland
8	1560	elm grove	Östra Svealand	Inland
8	1562	elm grove	Östra Svealand	Inland
8	1562	elm grove	Östra Svealand	Inland
8	1562	elm grove	Östra Svealand	Inland
8	1562	elm grove	Östra Svealand	Inland
8	1562	elm grove	Östra Svealand	Inland
11	411	hay meadow	Norra Svealand	Inland
12	176	tall grass close to pile of manure	Östra Svealand	Coast
12	176	tall grass close to pile of manure	Östra Svealand	Coast
12	177	tall grass close to pile of manure	Östra Svealand	Coast
12	891	tall grass close to pile of manure	Östra Svealand	Coast
12	893	tall grass close to pile of manure	Östra Svealand	Coast
12	893	tall grass close to pile of manure	Östra Svealand	Coast
12	893	tall grass close to pile of manure	Östra Svealand	Coast
12	893	tall grass close to pile of manure	Östra Svealand	Coast
12	893	tall grass close to pile of manure	Östra Svealand	Coast
12	893	tall grass close to pile of manure	Östra Svealand	Coast
12	894	tall grass close to pile of manure	Östra Svealand	Coast
12	894	tall grass close to pile of manure	Östra Svealand	Coast
12	894	tall grass close to pile of manure	Östra Svealand	Coast
12	894	tall grass close to pile of manure	Östra Svealand	Coast
12	894	tall grass close to pile of manure	Östra Svealand	Coast
12	894	tall grass close to pile of manure	Östra Svealand	Coast
12	894	tall grass close to pile of manure	Östra Svealand	Coast
12	895	tall grass close to pile of manure	Östra Svealand	Coast
12	895	tall grass close to pile of manure	Östra Svealand	Coast

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Continuance of Tab. VII: Overview of all sorted *Ismarus dorsiger* samples during the period of the internship, with trap ID, Collection ID, type of landscape, part of country and localisation.

Trap ID	Coll ID	Type of Landscape	Part of Country	Localisation
13	902	lime meadow	Inre Götaland	Inland
13	913	lime meadow	Inre Götaland	Inland
13	1644	lime meadow	Inre Götaland	Inland
13	1646	lime meadow	Inre Götaland	Inland
13	1648	lime meadow	Inre Götaland	Inland
13	1648	lime meadow	Inre Götaland	Inland
13	1648	lime meadow	Inre Götaland	Inland
13	1648	lime meadow	Inre Götaland	Inland
13	1648	lime meadow	Inre Götaland	Inland
13	1648	lime meadow	Inre Götaland	Inland
13	1648	lime meadow	Inre Götaland	Inland
14	1655	broad-leaved deciduous forest	Inre Götaland	Inland
17	272	Norway spruce forest w. big harvested ashes	Inre Götaland	Inland
21	240	nemoral grove	Öland	Island
21	240	nemoral grove	Öland	Island
21	240	nemoral grove	Öland	Island
21	240	nemoral grove	Öland	Island
21	240	nemoral grove	Öland	Island
22	246	meadow w. bushes	Öland	Island
22	246	meadow w. bushes	Öland	Island
22	246	meadow w. bushes	Öland	Island
22	246	meadow w. bushes	Öland	Island
22	246	meadow w. bushes	Öland	Island
22	246	meadow w. bushes	Öland	Island
22	246	meadow w. bushes	Öland	Island
22	247	meadow w. bushes	Öland	Island
22	247	meadow w. bushes	Öland	Island
22	247	meadow w. bushes	Öland	Island
22	247	meadow w. bushes	Öland	Island
22	777	meadow w. bushes	Öland	Island
23	430	beech and oak forest	Södra Götaland	Coast
23	431	beech and oak forest	Södra Götaland	Coast
23	431	beech and oak forest	Södra Götaland	Coast
23	431	beech and oak forest	Södra Götaland	Coast
23	431	beech and oak forest	Södra Götaland	Coast
23	431	beech and oak forest	Södra Götaland	Coast
23	431	beech and oak forest	Södra Götaland	Coast

Continuance of Tab. VII: Overview of all sorted *Ismarus dorsiger* samples during the period of the internship, with trap ID, Collection ID, type of landscape, part of country and localisation.

Trap ID	Coll ID	Type of Landscape	Part of Country	Localisation
23	432	beech and oak forest	Södra Götaland	Coast
23	432	beech and oak forest	Södra Götaland	Coast
23	432	beech and oak forest	Södra Götaland	Coast
23	432	beech and oak forest	Södra Götaland	Coast
23	432	beech and oak forest	Södra Götaland	Coast
23	432	beech and oak forest	Södra Götaland	Coast
23	435	beech and oak forest	Södra Götaland	Coast
23	435	beech and oak forest	Södra Götaland	Coast
24	817	heath with old beeches	Inre Götaland	Inland
24	818	heath with old beeches	Inre Götaland	Inland
24	818	heath with old beeches	Inre Götaland	Inland
24	818	heath with old beeches	Inre Götaland	Inland
24	818	heath with old beeches	Inre Götaland	Inland
24	818	heath with old beeches	Inre Götaland	Inland
24	818	heath with old beeches	Inre Götaland	Inland
24	821	heath with old beeches	Inre Götaland	Inland
24	1310	heath with old beeches	Inre Götaland	Inland
24	1310	heath with old beeches	Inre Götaland	Inland
26	1692	maritime deciduous wood	Östra Svealand	Coast
27	467	tall herbs and young trees mixed with old oaks	Östra Svealand	Inland
27	468	tall herbs and young trees mixed with old oaks	Östra Svealand	Inland
27	1036	tall herbs and young trees mixed with old oaks	Östra Svealand	Inland
28	488	grazed calcareous pine forest	Gotland	Island
28	488	grazed calcareous pine forest	Gotland	Island
28	488	grazed calcareous pine forest	Gotland	Island
28	488	grazed calcareous pine forest	Gotland	Island
28	1459	grazed calcareous pine forest	Gotland	Island
28	1468	grazed calcareous pine forest	Gotland	Island
28	1468	grazed calcareous pine forest	Gotland	Island
28	1468	grazed calcareous pine forest	Gotland	Island
34	546	heather heath	Västra Götaland	Inland
36	828	Deschampsia flexuosa beech forest	Södra Götaland	Inland
36	828	Deschampsia flexuosa beech forest	Södra Götaland	Inland
36	828	Deschampsia flexuosa beech forest	Södra Götaland	Inland

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Continuance of Tab. VII: Overview of all sorted *Ismarus dorsiger* samples during the period of the internship, with trap ID, Collection ID, type of landscape, part of country and localisation.

Trap ID	Coll ID	Type of Landscape	Part of Country	Localisation
38	577	Agrostis capillaris heath	Södra Götaland	Inland
38	1120	Agrostis capillaris heath	Södra Götaland	Inland
38	1120	Agrostis capillaris heath	Södra Götaland	Inland
38	1120	Agrostis capillaris heath	Södra Götaland	Inland
38	1121	Agrostis capillaris heath	Södra Götaland	Inland
38	1121	Agrostis capillaris heath	Södra Götaland	Inland
38	1121	Agrostis capillaris heath	Södra Götaland	Inland
38	1121	Agrostis capillaris heath	Södra Götaland	Inland
38	1121	Agrostis capillaris heath	Södra Götaland	Inland
38	1121	Agrostis capillaris heath	Södra Götaland	Inland
38	1121	Agrostis capillaris heath	Södra Götaland	Inland
38	1121	Agrostis capillaris heath	Södra Götaland	Inland
38	1121	Agrostis capillaris heath	Södra Götaland	Inland
38	1121	Agrostis capillaris heath	Södra Götaland	Inland
38	1121	Agrostis capillaris heath	Södra Götaland	Inland
38	1126	Agrostis capillaris heath	Södra Götaland	Inland
38	1454	Agrostis capillaris heath	Södra Götaland	Inland
39	602	broad-leaved deciduous forest	Södra Götaland	Coast
39	602	broad-leaved deciduous forest	Södra Götaland	Coast
39	603	broad-leaved deciduous forest	Södra Götaland	Coast
39	1140	broad-leaved deciduous forest	Södra Götaland	Coast
40	1146	hornbeam forest	Södra Götaland	Coast
40	1146	hornbeam forest	Södra Götaland	Coast
40	1146	hornbeam forest	Södra Götaland	Coast
40	1146	hornbeam forest	Södra Götaland	Coast
1001	1355	Old moisty haymaking meadow in forest edge	Östra Götaland	Inland
1001	1355	Old moisty haymaking meadow in forest edge	Östra Götaland	Inland
1001	1355	Old moisty haymaking meadow in forest edge	Östra Götaland	Inland
1001	1355	Old moisty haymaking meadow in forest edge	Östra Götaland	Inland
1001	1366	Old moisty haymaking meadow in forest edge	Östra Götaland	Inland
1002	1378	Sandy railway embankment through pasture-land	Västra Götaland	Inland
1002	1378	Sandy railway embankment through pasture-land	Västra Götaland	Inland
1002	1379	Sandy railway embankment through pasture-land	Västra Svealand	Inland
1002	1379	Sandy railway embankment through pasture-land	Västra Svealand	Inland
1002	1379	Sandy railway embankment through pasture-land	Västra Svealand	Inland
1003	1896	Old mixed deciduous forest in stream ravine	Västra Svealand	Inland
2046	2053	garden	Östra Götaland	Inland
2046	2055	garden	Östra Götaland	Inland
2046	2055	garden	Östra Götaland	Inland
2046	2058	garden	Östra Götaland	Inland

Tab. VIII: Overview of all sorted *Ismarus flavicornis* samples during the period of the internship, with gender, trap ID, Collection ID, province, start date and end date.

Gender	Trap ID	Coll ID	Province	Start	End
Female	8	1560	Uppland	2004.vii.29	2004.viii.08
Female	27	466	Uppland	2003.vii.07	2003.vii.21
Female	27	466	Uppland	2003.vii.07	2003.vii.21
Female	27	466	Uppland	2003.vii.07	2003.vii.21
Female	27	466	Uppland	2003.vii.07	2003.vii.21
Female	27	466	Uppland	2003.vii.07	2003.vii.21
Female	27	466	Uppland	2003.vii.07	2003.vii.21
Female	27	1035	Uppland	2004.vii.20	2004.viii.03
Female	1002	1372	Värmland	2005.vi.04	2005.vi.18

Tab. IX: Overview of all sorted *Ismarus flavicornis* samples during the period of the internship, with trap ID, Collection ID, day of start, day of end and determination date.

Trap ID	Coll ID	Day of Start	Day of End	Date of Det.
8	1560	211	221	2013-05-24
27	466	188	202	2013-05-24
27	466	188	202	2013-05-24
27	466	188	202	2013-05-24
27	466	188	202	2013-05-24
27	466	188	202	2013-05-24
27	466	188	202	2013-05-24
27	1035	202	216	2013-05-24
1002	1372	155	169	2013-06-10

Tab. X: Overview of all sorted *Ismarus flavicornis* samples during the period of the internship, with trap ID, Collection ID, type of landscape, part of country and localisation.

Trap ID	Coll ID	Type of Landscape	Part of Country	Localisation
8	1560	elm grove	Östra Svealand	Inland
27	466	tall herbs and young trees mixed with old oaks	Östra Svealand	Inland
27	466	tall herbs and young trees mixed with old oaks	Östra Svealand	Inland
27	466	tall herbs and young trees mixed with old oaks	Östra Svealand	Inland
27	466	tall herbs and young trees mixed with old oaks	Östra Svealand	Inland
27	466	tall herbs and young trees mixed with old oaks	Östra Svealand	Inland
27	466	tall herbs and young trees mixed with old oaks	Östra Svealand	Inland
27	1035	tall herbs and young trees mixed with old oaks	Östra Svealand	Inland
1002	1372	Sandy railway embankment through pasture-land	Västra Götaland	Inland

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Tab. XI: Overview of all sorted *Ismarus halidayi* samples during the period of the internship, with gender, trap ID, Collection ID, province, start date and end date.

Gender	Trap ID	Coll ID	Province	Start	End
Female	5	64	Södermanland	2003.vi.16	2003.vii.02
Female	7	1591	Uppland	2005.vi.14	2005.vii.04
Female	11	417	Västmanland	2003.x.25	2004.vi.08
Female	11	417	Västmanland	2003.x.25	2004.vi.08
Female	11	418	Västmanland	2004.vi.08	2004.vi.16
Female	11	418	Västmanland	2004.vi.08	2004.vi.16
Female	11	411	Västmanland	2003.vii.23	2003.viii.04
Female	11	411	Västmanland	2003.vii.23	2003.viii.04
Female	23	431	Blekinge	2003.vii.10	2003.vii.24
Female	27	466	Uppland	2003.vii.07	2003.vii.21
Female	28	1459	Gotland	2004.viii.02	2004.viii.19
Male	11	417	Västmanland	2003.x.25	2004.vi.08
Male	11	417	Västmanland	2003.x.25	2004.vi.08
Male	11	417	Västmanland	2003.x.25	2004.vi.08
Male	11	417	Västmanland	2003.x.25	2004.vi.08
Male	11	417	Västmanland	2003.x.25	2004.vi.08
Male	11	417	Västmanland	2003.x.25	2004.vi.08
Male	11	418	Västmanland	2004.vi.08	2004.vi.16
Male	27	486	Uppland	2004.v.17	2004.vi.02
Male	1001	1728	Småland	2006.v.18	2006.vi.15
Male	2003	2034	Södermanland	2006.vi.29	2006.vii.07

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Tab. XII: Overview of all sorted *Ismarus halidayi* samples during the period of the internship, with trap ID, Collection ID, day of start, day of end and determination date.

Trap ID	Coll ID	Day of Start	Day of End	Date of Det.
5	64	167	183	2013-05-24
7	1591	165	185	2013-05-24
11	417	298	160	2013-05-24
11	417	298	160	2013-05-24
11	418	160	168	2013-05-24
11	418	160	168	2013-05-24
11	411	204	216	2013-05-24
11	411	204	216	2013-05-24
23	431	191	205	2013-06-10
27	466	188	202	2013-05-24
28	1459	215	232	2013-05-24
11	417	298	160	2013-05-24
11	417	298	160	2013-05-24
11	417	298	160	2013-05-24
11	417	298	160	2013-05-24
11	417	298	160	2013-05-24
11	417	298	160	2013-05-24
11	417	298	160	2013-05-24
11	418	160	168	2013-05-24
27	486	138	154	2013-05-24
1001	1728	138	166	2013-06-10
2003	2034	180	188	2013-05-24

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Tab. XIII: Overview of all sorted *Ismarus halidayi* samples during the period of the internship, with trap ID, Collection ID, type of landscape, part of country and localisation.

Trap ID	Coll ID	Type of Landscape	Part of Country	Localisation
5	64	Pine forest with garbage	Östra Svealand	Inland
7	1591	pine forest w. blueberry	Östra Svealand	Coast
11	417	hay meadow	Inre Svealand	Inland
11	417	hay meadow	Inre Svealand	Inland
11	418	hay meadow	Inre Svealand	Inland
11	418	hay meadow	Inre Svealand	Inland
11	411	hay meadow	Inre Svealand	Inland
11	411	hay meadow	Inre Svealand	Inland
23	431	beech and oak forest	Södra Götaland	Coast
27	466	tall herbs and young trees mixed with old oaks	Östra Svealand	Inland
28	1459	grazed calcareous pine forest	Gotland	Island
11	417	hay meadow	Norra Svealand	Inland
11	417	hay meadow	Norra Svealand	Inland
11	417	hay meadow	Norra Svealand	Inland
11	417	hay meadow	Norra Svealand	Inland
11	417	hay meadow	Norra Svealand	Inland
11	417	hay meadow	Norra Svealand	Inland
11	418	hay meadow	Norra Svealand	Inland
27	486	tall herbs and young trees mixed with old oaks	Östra Svealand	Inland
1001	1728	Old moisty haymaking meadow in forest edge	Östra Götaland	Coast
2003	2034	Cadaver dump	Östra Svealand	Inland

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Tab. XIV: Overview of all sorted *Ismarus rugulosus* samples during the period of the internship, with gender, trap ID, Collection ID, province, start date and end date.

Gender	Trap ID	Coll ID	Province	Start	End
Female	6	852	Uppland	2004.vii.26	2004.viii.18
Female	6	852	Uppland	2004.vii.26	2004.viii.18
Female	13	913	Östergötland	2004.viii.08	2004.viii.17
Female	13	913	Östergötland	2004.viii.08	2004.viii.17
Female	13	913	Östergötland	2004.viii.08	2004.viii.17
Female	13	1643	Östergötland	2005.vii.05	2005.vii.12
Female	13	1644	Östergötland	2005.vii.12	2005.vii.20
Female	27	466	Uppland	2003.vii.07	2003.vii.21
Female	28	488	Gotland	2003.vii.08	2003.vii.18
Female	28	1459	Gotland	2004.viii.02	2004.viii.19
Female	38	577	Skåne	2003.vii.11	2003.vii.19
Female	41	1159	Småland	2004.viii.03	2004.viii.06
Female	42	1167	Härjedalen	2004.viii.04	2005.iv.20
Female	43	1172	Hälsingland	2004.viii.11	2004.viii.25
Female	43	1912	Hälsingland	2005.viii.25	2005.ix.09
Female	1002	1378	Värmland	2005.vii.23	2005.viii.12

Tab. XV: Overview of all sorted *Ismarus rugulosus* samples during the period of the internship, with trap ID, Collection ID, day of start, day of end and determination date.

Trap ID	Coll ID	Day of Start	Day of End	Date of Det.
6	852	208	231	2013-05-24
6	852	208	231	2013-05-24
13	913	221	230	2013-06-10
13	913	221	230	2013-06-10
13	913	221	230	2013-06-10
13	1643	186	193	2013-05-24
13	1644	193	201	2013-06-10
27	466	188	202	2013-05-24
28	488	189	199	2013-06-10
28	1459	215	232	2013-05-24
38	577	192	200	2013-06-10
41	1159	216	219	2013-05-24
42	1167	217	110	2013-05-24
43	1172	224	238	2013-05-24
43	1912	237	252	2013-05-24
1002	1378	204	224	2013-06-10

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Tab. XVI: Overview of all sorted *Ismarus rugulosus* samples during the period of the internship, with trap ID, Collection ID, type of landscape, part of country and localisation.

Trap ID	Coll ID	Type of Landscape	Part of Country	Localisation
6	852	dry meadow w. birch	Östra Svealand	Coast
6	852	dry meadow w. birch	Östra Svealand	Coast
13	913	lime meadow	Inre Götaland	Inland
13	913	lime meadow	Inre Götaland	Inland
13	913	lime meadow	Inre Götaland	Inland
13	1643	lime meadow	Inre Götaland	Inland
13	1644	lime meadow	Inre Götaland	Inland
27	466	tall herbs and young trees mixed with old oaks	Östra Svealand	Inland
28	488	grazed calcareous pine forest	Gotland	Island
28	1459	grazed calcareous pine forest.	Gotland	Island
38	577	Agrostis capillaris heath	Södra Götaland	Inland
41	1159	bog	Inre Götaland	Inland
42	1167	alpine birch and spruce wood	Västra Norrland	Inland
43	1172	marsh pine wood close to bog	Östra Norrland	Coast
43	1912	marsh pine wood close to bog	Östra Norrland	Coast
1002	1378	Sandy railway embankment through pasture-land	Östra Götaland	Inland