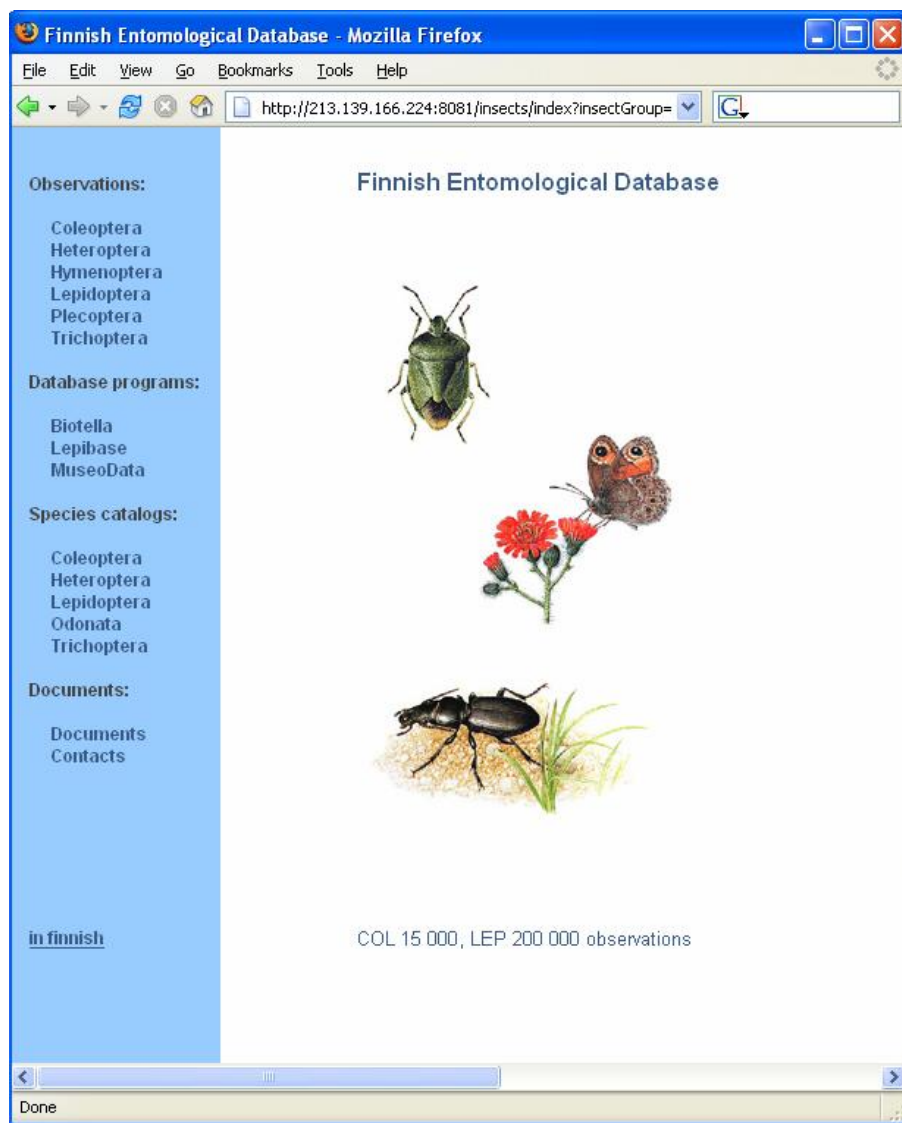


Finnish Entomological Database – User’s Guide



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0. Introduction

The online insect database which is described in this document provides up-to-date information about the **distribution and abundance** of insects to both researchers and amateurs alike. The information is based on stored observational data on various groups of insects. Currently the database supports the storing of Coleoptera, Heteroptera, Hymenoptera, Lepidoptera, and Trichoptera observations.

In addition to observational data, the system contains a separate database for storing **notes** about the general biology, determination, and other interesting facts about different species. These species information databases provide a free-form source of knowledge about the biology of different species.

Thirdly, for some groups, **images** of different species are provided for viewing. Having good images often helps amateurs to determine the specimens they have collected, and thus also indirectly supports the adding of new data to the database.

From the observation database, **atlas** documents can be periodically generated. An atlas is a book in an html format, which can be downloaded for off-line browsing. For each species, the atlas summarizes the information in the database in the form of distribution maps, phenology diagrams, and species notes. If available, thumbnail images of each species are also shown.

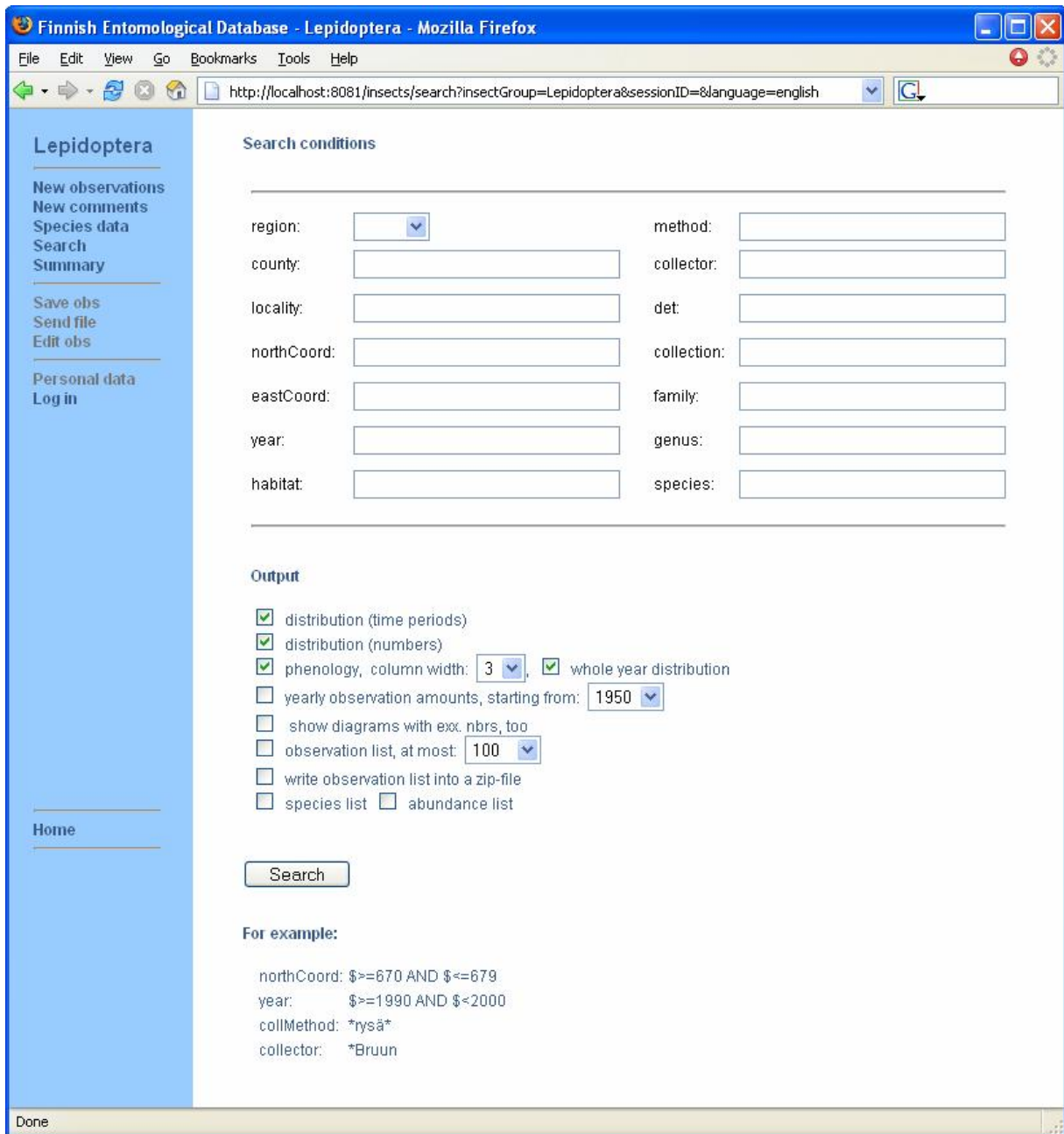
The online database has a web-based user interface which allows the storing, retrieving and analysing of insect observation data. The available services can be grouped into the following categories:

1. **Storing** new observational data
2. **Editing** existing observations
3. **Retrieving** data, distribution maps, and phenology diagrams
4. Storing species **notes** on biology, taxonomy, etc.
5. Downloading **atlas** documents
6. Browsing species **images**

In the following chapters all these categories are described in detail.

1. Searching the Database

The default search form, opened from the left-side link **Search**, looks the following:



The screenshot shows a web browser window titled "Finnish Entomological Database - Lepidoptera - Mozilla Firefox". The address bar shows the URL: `http://localhost:8081/insects/search?insectGroup=Lepidoptera&sessionID=&language=english`. The page content is divided into a left sidebar and a main search area.

Left Sidebar (Lepidoptera):

- New observations
- New comments
- Species data
- Search
- Summary
- Save obs
- Send file
- Edit obs
- Personal data
- Log in
- Home

Main Search Area:

Search conditions

region:	<input type="text"/>	method:	<input type="text"/>
county:	<input type="text"/>	collector:	<input type="text"/>
locality:	<input type="text"/>	det:	<input type="text"/>
northCoord:	<input type="text"/>	collection:	<input type="text"/>
eastCoord:	<input type="text"/>	family:	<input type="text"/>
year:	<input type="text"/>	genus:	<input type="text"/>
habitat:	<input type="text"/>	species:	<input type="text"/>

Output

- distribution (time periods)
- distribution (numbers)
- phenology, column width: , whole year distribution
- yearly observation amounts, starting from:
- show diagrams with ex. nbrs, too
- observation list, at most:
- write observation list into a zip-file
- species list abundance list

For example:

```
northCoord: $>=670 AND $<=679
year:      $>=1990 AND $<=2000
collMethod: *rysä*
collector:  *Bruun
```

1.1 Search Options

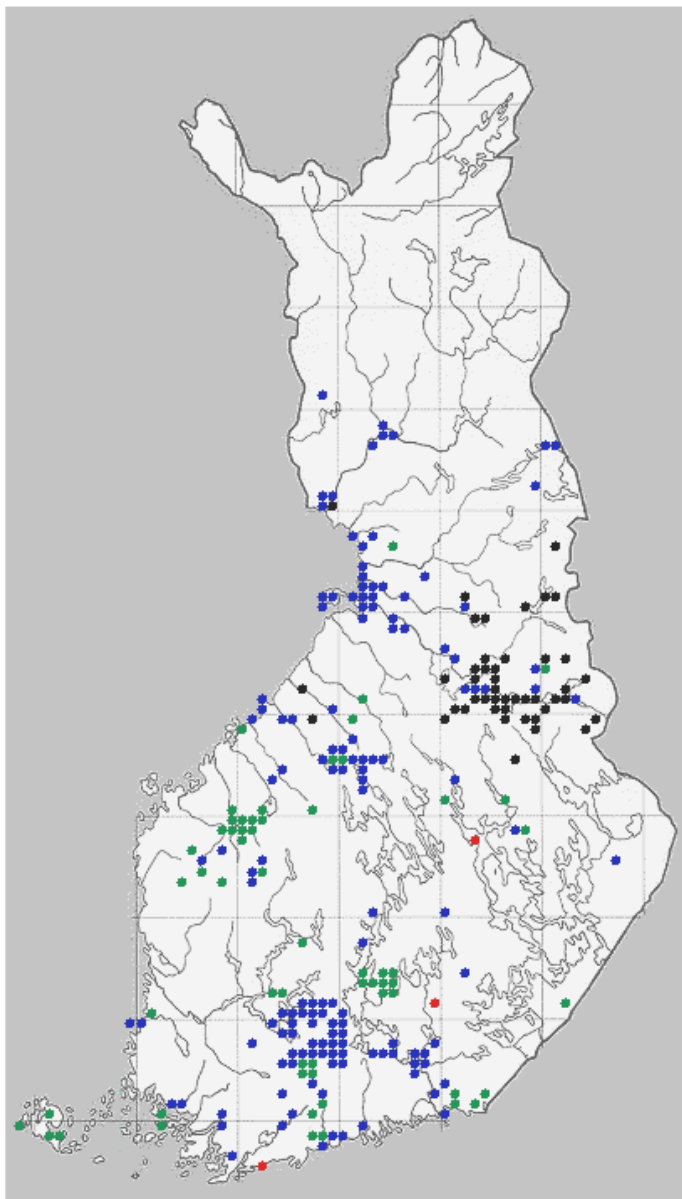
distribution (time periods)

This option produces a 10x10km map of the observations. The color of a dot indicates the time period of the observations from each square. For example, a red dot means that there are no observations after the year 1949.

Distribution map

(genus = 'Nymphalis') AND (species = 'urticae')

?, -1949, 1950-1999, 2000-



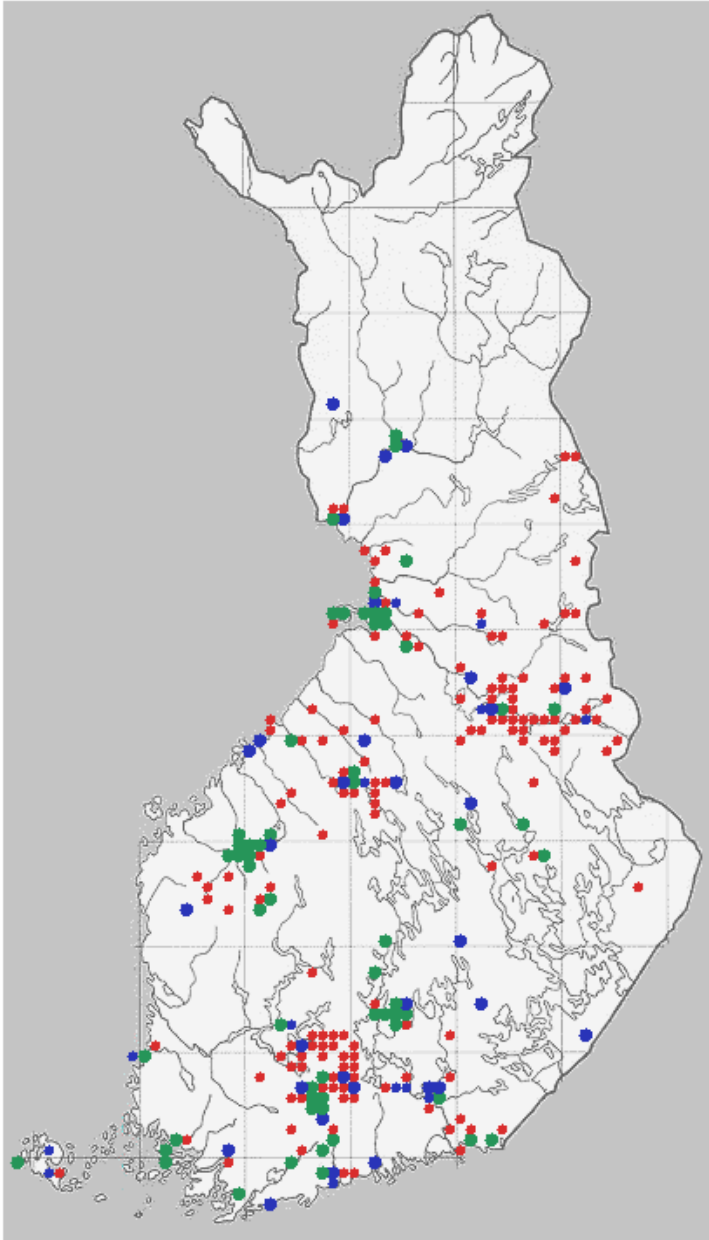
distribution (numbers)

This option also produces a 10x10km map. The dot colours now indicate how many observations there are from the given square, counted over all time periods.

Distribution map

(genus = 'Nymphalis') AND (species = 'urticae')

o = 1-1, o = 2-2, O = 3-3, O = 4-

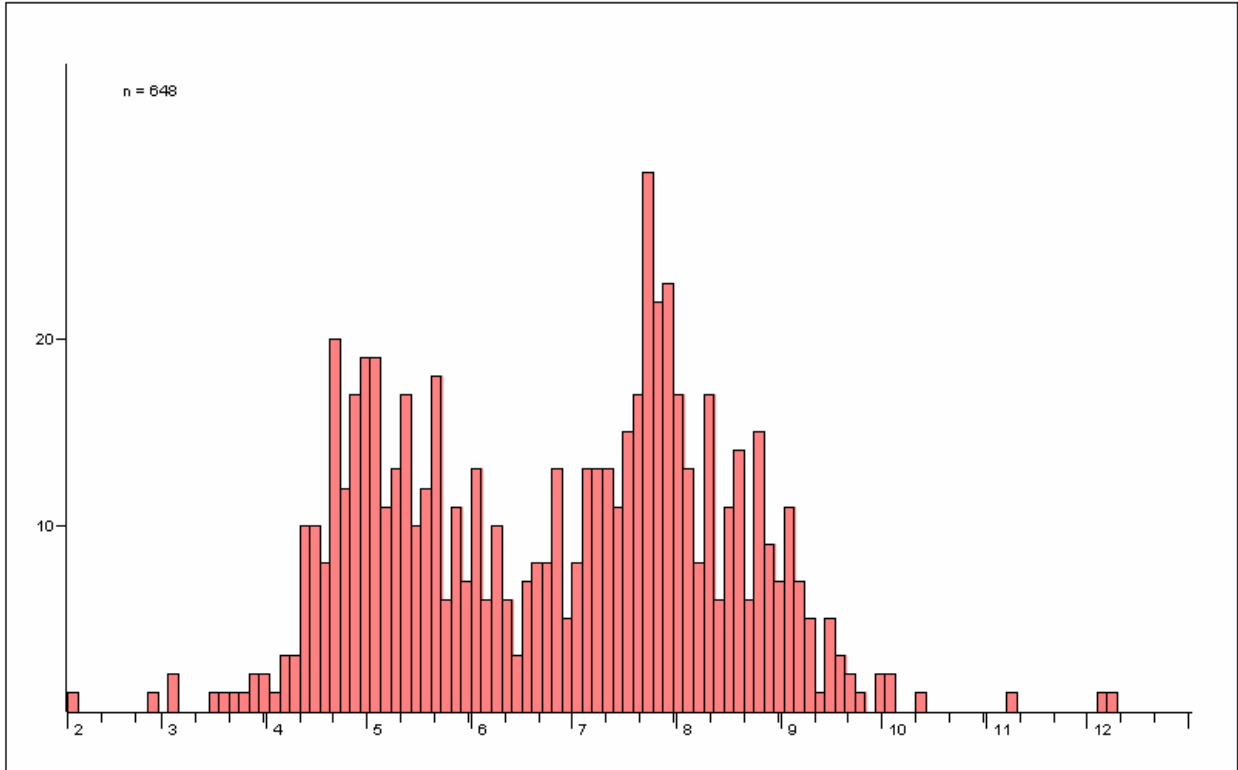


phenology, column width: whole year distribution

This option produces a phenology diagram based on the observed numbers of insects in different time periods.

Phenology (exx. nbrs)

(genus = 'Nymphalis') AND (species = 'urticae')



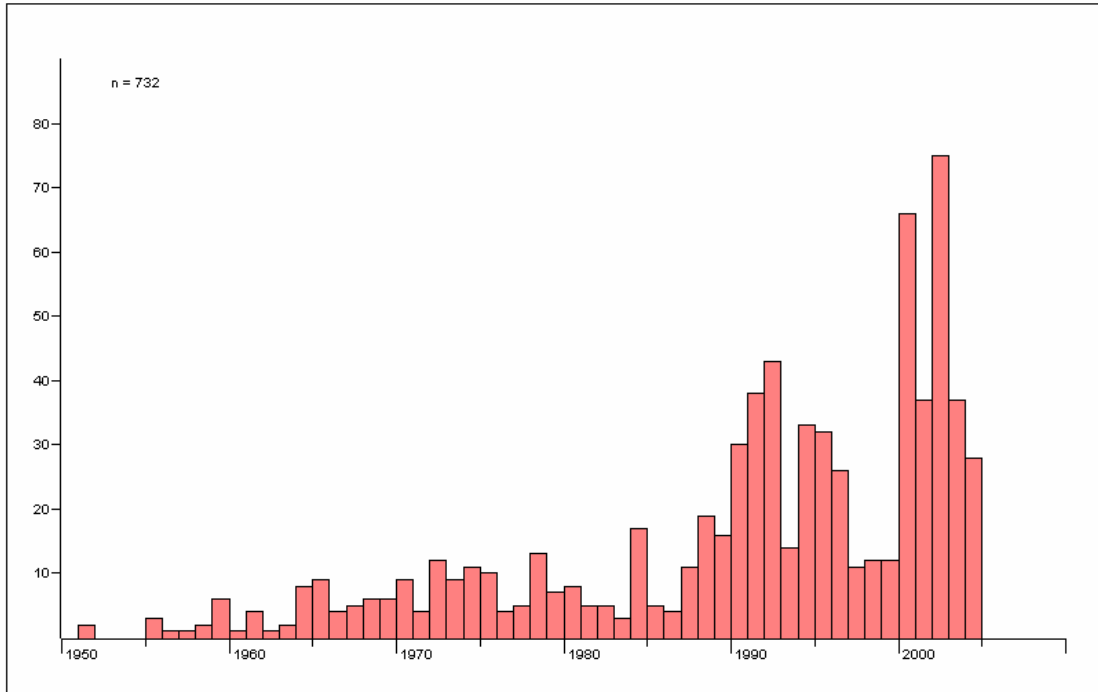
yearly observation amounts, starting from:

show diagrams with exx. nbrs, too

With these two options, you can study the year-to-year dynamics of the selected species or other group (see the pictures on the next page).

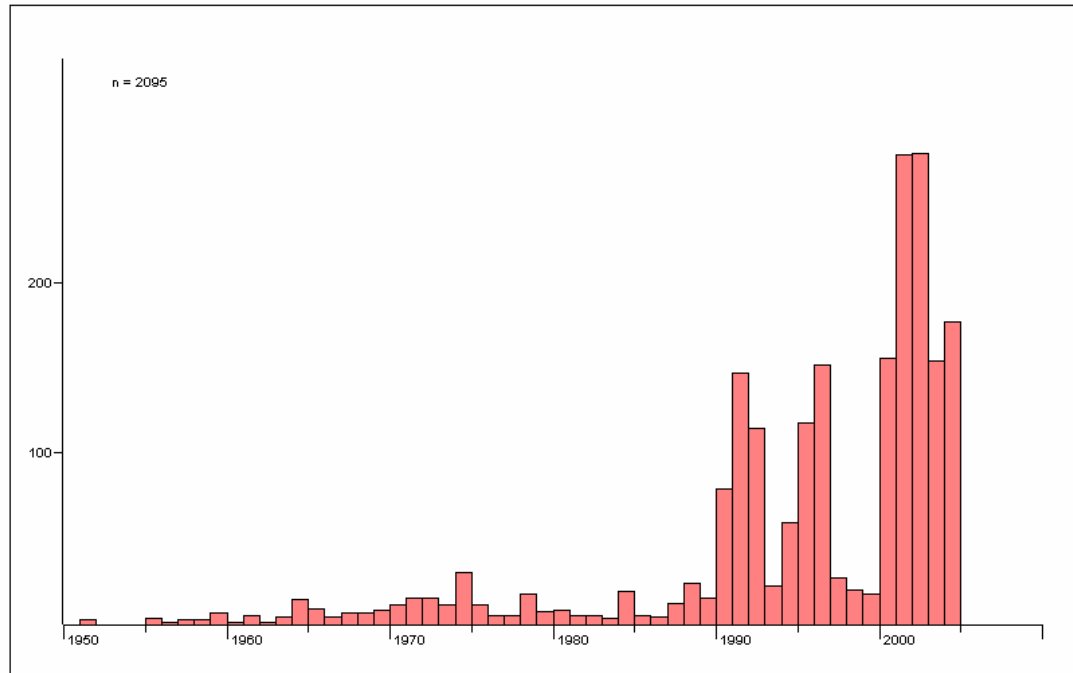
Yearly observations (obs.nbrs)

(genus = 'Nymphalis') AND (species = 'urticae')



Yearly observations (exx.nbrs)

(genus = 'Nymphalis') AND (species = 'urticae')



observation list, at most:

With this option you can get a listing of the observations:

There are over 100 observations, only the first 100 are listed below:

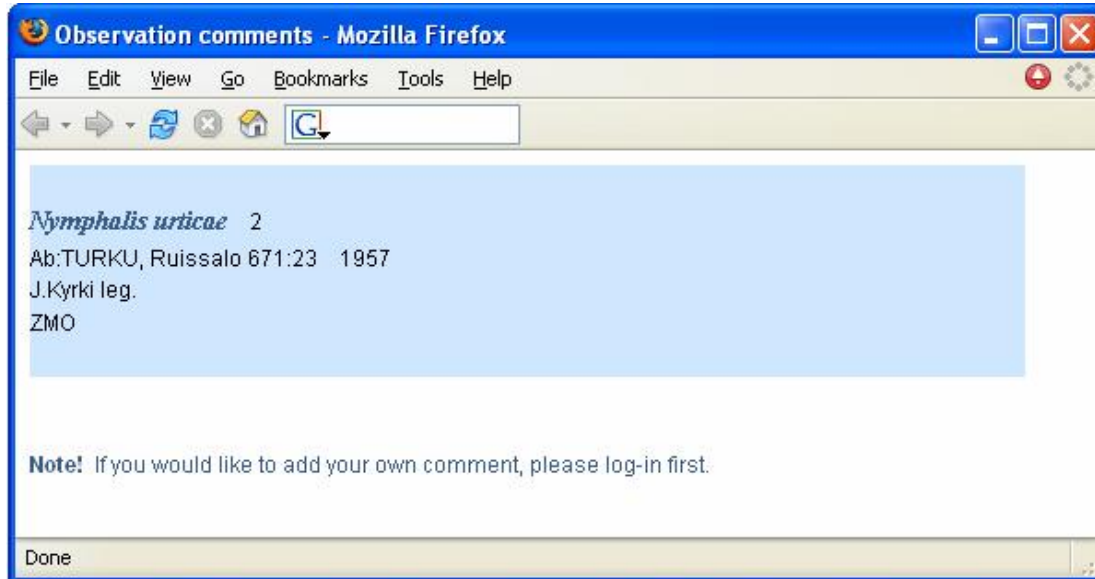
Nymphalidae

<i>Nymphalis urticae</i>	? 2 ex.				1984	
<i>Nymphalis urticae</i>	? 1 ex.				1984	
<i>Nymphalis urticae</i>	? 2 ex.	Ab:TURKU, Ruissalo	671:23		1957	J.Kyrki
<i>Nymphalis urticae</i>	? 1 ex.	Ab:TURKU, Ruissalo	671:23		1959	J.Kyrki
<i>Nymphalis urticae</i>	? 1 ex.	Ab:VIHTI, Haapakylä	669:34	14.8.1959		K.Kiianlinna
<i>Nymphalis urticae</i>	? 1 ex.	Ab:TURKU, Ruissalo	671:23		1960	J.Kyrki
<i>Nymphalis urticae</i>	? 1 ex.	Ab:VIHTI, Haapakylä	669:34	28.5.1961		K.Kiianlinna
<i>Nymphalis urticae</i>	? 2 ex.	Ab:VIHTI, Haapakylä	669:34	6.8.1961		K.Kiianlinna

Note that each species name has a trailing question mark

?

By clicking the question mark with the mouse, a popup window displays all the stored data about the observation.

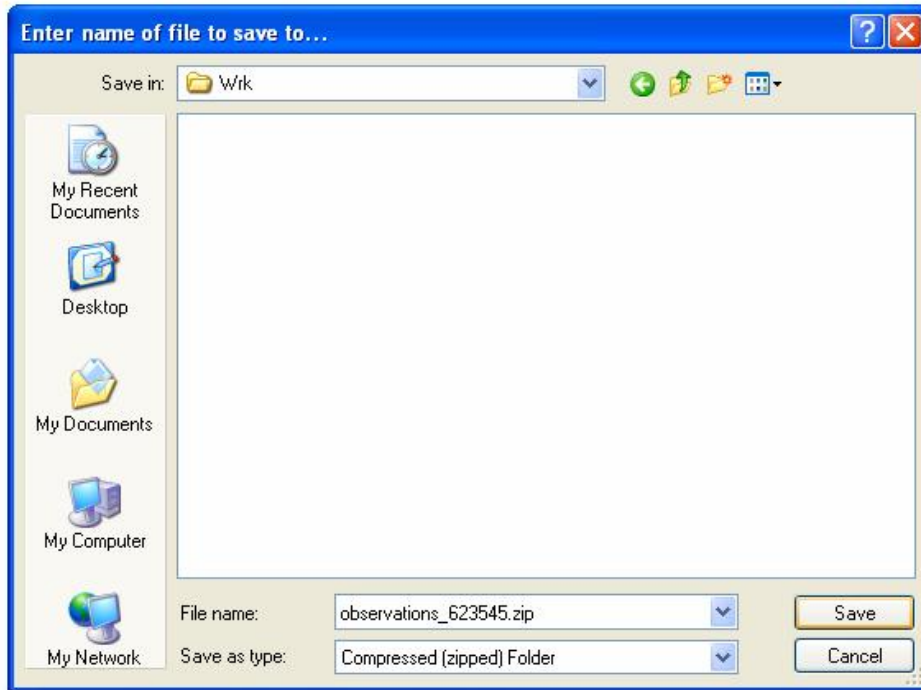


A registered user can add a comment to an observation in the database (making a remark about the determination, commenting the time or place of observation, etc.). Please see Chapter 6 for more information about adding comments to observations.

write observation list into a zip-file

With this option, the resulting page will contain a download link. Pressing the link allows you to get the observations in a zip-file:

You can get the observations as a zip-file from [here](#).



When downloaded and unzipped, the observations are available in a comma-separated form, where each observation has the following fields:

obsID; genus species; totalCount; devStage; region; county; locality; northCoord;
eastCoord; startDay; startMonth; endDay; endMonth; year; habitat; collectingMethod;
collector; det; detYear; collection; note

```
observations_623545.txt - Notepad
File Edit Format View Help
1870-0281-1044-7027; Nymphalis urticae; 2; ; ; ; D; 0; 0; 0; 1984; ; ; ; 0; (lahj. 1984) ZMO/pupa, coll. J.Kyrki
3777-0022-0236-1460; Nymphalis urticae; 1; ; ; ; ; D; 0; 0; 0; 1984; ; ; ; 0; (lahj. 1984) ZMO/pupa, coll. J.Kyrki
6958-2095-3535-3466; Nymphalis urticae; 2; Ab; TURKU; Ruissalo; 671:23; 0; 0; 0; 0; 1957; ; ; ; J.Kyrki; ; 0; ; ZMO
7442-3199-2521-7728; Nymphalis urticae; 1; Ab; TURKU; Ruissalo; 671:23; 0; 0; 0; 0; 1959; ; ; ; J.Kyrki; ; 0; ; ZMO
6778-4957-1304-6458; Nymphalis urticae; 1; Ab; VIHTI; Haapakyla; 609:34; 14; 8; 0; 0; 1959; ; ; ; k.kittianlinna; ; 0; ; ZMO/coll.k.kittianlinna
7723-9725-5026-7618; Nymphalis urticae; 1; Ab; TURKU; Ruissalo; 671:23; 0; 0; 0; 0; 1950; ; ; ; J.Kyrki; ; 0; ; ZMO
6219-4478-8525-7040; Nymphalis urticae; 1; Ab; VIHTI; Haapakyla; 609:34; 28; 5; 0; 0; 1961; ; ; ; k.kittianlinna; ; 0; ; ZMO/sij. vuokatille
1701-4200-9295-8637; Nymphalis urticae; 2; Ab; VIHTI; Haapakyla; 609:34; 6; 8; 0; 0; 1961; ; ; ; k.kittianlinna; ; 0; ; ZMO/coll.k.kittianlinna
5883-0837-6788-8832; Nymphalis urticae; 1; Ab; TURKU; Ruissalo; 671:23; 0; 0; 0; 0; 1962; ; ; ; J.Kyrki; ; 0; ; ZMO
5490-1304-3488-3390; Nymphalis urticae; 1; Ab; VIHTI; Haapakyla; 609:34; 31; 8; 0; 0; 1963; ; ; ; k.kittianlinna; ; 0; ; ZMO/coll.k.kittianlinna
5909-4940-9816-5940; Nymphalis urticae; 1; Ab; VIHTI; Haapakyla; 609:34; 20; 4; 0; 0; 1964; ; ; ; k.kittianlinna; ; 0; ; ZMO/coll.k.kittianlinna
9848-8037-0905-8500; Nymphalis urticae; 1; Ab; VIHTI; Haapakyla; 609:34; 20; 4; 0; 0; 1964; ; ; ; k.kittianlinna; ; 0; ; ZMO/sij. vuokatille
0210-7088-5231-6646; Nymphalis urticae; 3; Ab; VIHTI; Haapakyla; 609:34; 18; 7; 0; 0; 1964; ; ; ; k.kittianlinna; ; 0; ; ZMO
3115-8248-1450-3662; Nymphalis urticae; 2; Ab; VIHTI; Haapakyla; 609:34; 19; 7; 0; 0; 1964; ; ; ; k.kittianlinna; ; 0; ; ZMO
7163-2604-0381-4254; Nymphalis urticae; 4; Ab; VIHTI; Haapakyla; 609:34; 20; 7; 0; 0; 1964; ; ; ; k.kittianlinna; ; 0; ; ZMO
1133-0988-7007-9024; Nymphalis urticae; 1; Ab; VIHTI; Haapakyla; 609:34; 24; 7; 0; 0; 1964; ; ; ; k.kittianlinna; ; 0; ; ZMO
9325-8335-1334-6870; Nymphalis urticae; 1; Ab; VIHTI; Haapakyla; 609:34; 34; 8; 0; 0; 1964; ; ; ; k.kittianlinna; ; 0; ; ZMO
8869-7610-7989-4408; Nymphalis urticae; 1; Ab; VIHTI; Haapakyla; 609:34; 6; 9; 0; 0; 1964; ; ; ; k.kittianlinna; ; 0; ; ZMO
7057-0784-0025-7378; Nymphalis urticae; 1; Ab; TURKU; Ruissalo; 671:23; 23; 4; 0; 0; 1965; ; ; ; J.Kyrki; ; 0; ; ZMO
2131-3134-2978-7426; Nymphalis urticae; 1; Ab; VIHTI; Haapakyla; 609:34; 17; 7; 0; 0; 1965; ; ; ; k.kittianlinna; ; 0; ; ZMO/coll.kittianlinna
4092-2920-5404-5714; Nymphalis urticae; 1; Ab; TURKU; Ruissalo; 671:23; 11; 7; 0; 0; 1966; ; ; ; J.Kyrki; ; 0; ; ZMO
7451-0510-0976-3724; Nymphalis urticae; 1; Ab; TURKU; Ruissalo; 671:23; 7; 4; 0; 0; 1967; ; ; ; J.Kyrki; ; 0; ; ZMO
7190-2960-0280-0220; Nymphalis urticae; 1; Ab; TURKU; Ruissalo; 671:23; 22; 6; 0; 0; 1969; ; ; ; J.Kyrki; ; 0; ; ZMO
```

species list abundance list

The first of these options will list all the species in a search result:

Species list (region = 'ObS')

441 species:

Hepialidae

Hepialus fusconebulosus

Nepticulidae

Stigmella betulicola

Stigmella salicis

Gracillariidae

Phyllocnistis labyrinthella

Momphidae

Mompha conturbatella

Tortricidae

Eana osseana

Argyroploce arbutella

Rhopobota naevana

Epinotia cruciana

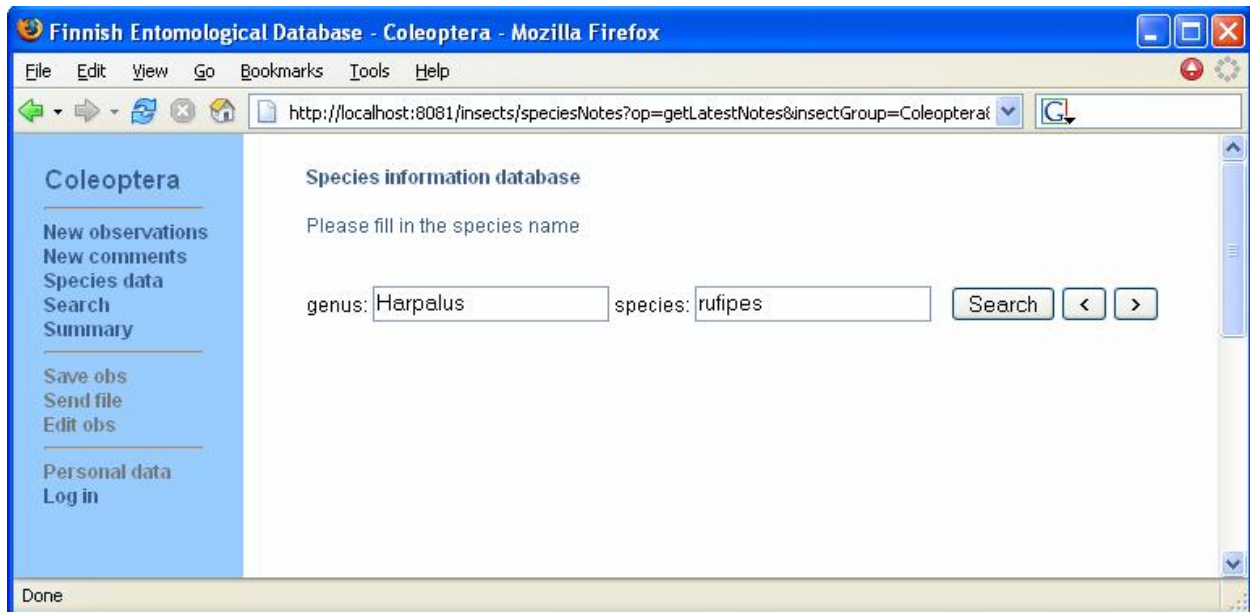
The second option shows the 100 most abundant species, arranged according to the number of **observations**, number of 10x10km **squares**, and the number of observed **individuals**.

The most abundant species (region = 'ObS')

	observations		squares		exx.	
1	Amphipoea fucosa	209	Pieris napi	29	Cerapteryx graminis	3568 ex.
2	Cerapteryx graminis	156	Lycaena virgaureae	26	Eulithis populata	3147 ex.
3	Syngrapha interrogationis	140	Callophrys rubi	26	Hydriomena furcata	2814 ex.
4	Orthosia gothica	136	Brenthis ino	24	Dysstroma citratum	2628 ex.
5	Parastichtis suspecta	125	Nymphalis urticae	23	Epirrita autumnata	2576 ex.
6	Apamea lateritia	124	Albulina optilete	21	Ematurga atomaria	2202 ex.
7	Dysstroma citratum	121	Phragmatobia fuliginosa	21	Eupithecia pusillata	1812 ex.
8	Euxoa cursoria	119	Nymphalis antiopa	21	Entephria caesiata	1061 ex.
9	Diarsia mendica	117	Scoliopteryx libatrix	20	Syngrapha interrogationis	1019 ex.
10	Lithomoia solidaginis	113	Xestia speciosa	20	Orthosia gothica	988 ex.
11	Pieris napi	108	Colias palaeno	20	Diarsia mendica	971 ex.
12	Eurois occultus	105	Orgyia antiqua	19	Lithomoia solidaginis	931 ex.
13	Chersotis cuprea	104	Hyles gallii	19	Amphipoea fucosa	916 ex.
14	Epirrita autumnata	103	Hillia iris	19	Mesotype didymata	865 ex.
15	Phragmatobia fuliginosa	102	Boloria selene	19	Euxoa cursoria	832 ex.

2. Browsing Species Data

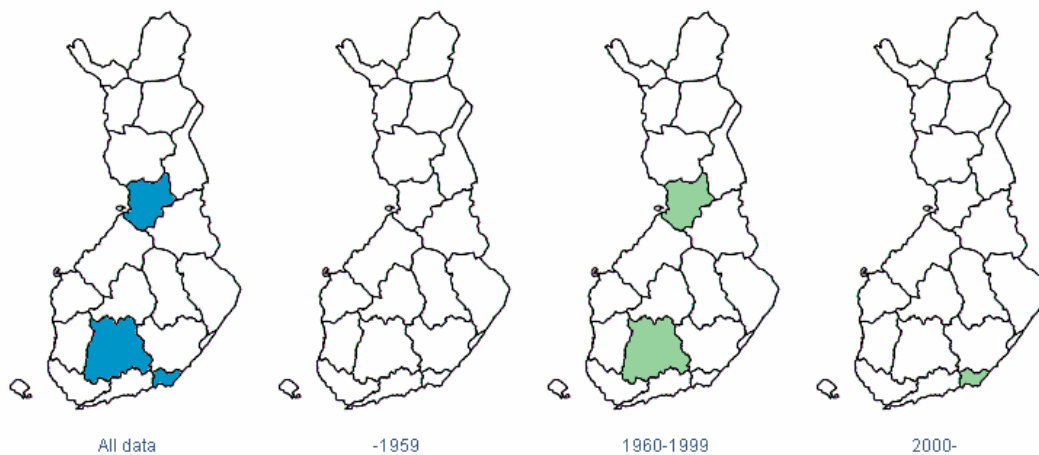
By using a database search, you can get the latest, up-to-date information about a certain species, based on the current observational data. Another alternative to get information about the distribution and phenology of a species is to use a special species information form. By clicking the link **Species data**, the following form is displayed:



After typing in the desired species name, you will see the following information about the species:

2.1. Region Maps for Different Periods

Harpalus rufipes



The region maps are based on a separate provincial distribution database. If a given species has been found in a given region in a given year, it will have a corresponding record in the province database. For example, the (Coleoptera, Cryptophagidae) species *Cryptophagus lapponicus* has been found in LkE both in year 2000 and 2001:

Yhteisnimi	Provinssi	Vuosi	Alue	Ma	Ko	Km	Le	Ko	Le	Ko	Le	Le	Ko	Ko	Le	Le	Le	Le	Le
<i>Cryptophagus lapponicus</i>	Lapponia	2000												LkE					Coleoptera database
<i>Cryptophagus lapponicus</i>	Lapponia	2000												LkE					Coleoptera database
<i>Cryptophagus lapponicus</i>	Lapponia	2001																	Coleoptera database
<i>Cryptophagus lapponicus</i>	Lapponia	2001																	Coleoptera database
<i>Cryptophagus lapponicus</i>	Lapponia	2001																	Coleoptera database
<i>Cryptophagus lapponicus</i>	Lapponia	1984																	Coleoptera database
<i>Cryptophagus lapponicus</i>	Lapponia	1981																	Coleoptera database
<i>Cryptophagus lapponicus</i>	Lapponia	1905																	Coleoptera database
<i>Cryptophagus lapponicus</i>	Lapponia	2001																	Coleoptera database
<i>Cryptophagus lapponicus</i>	Lapponia	1983																	Coleoptera database
<i>Cryptophagus lapponicus</i>	Lapponia	1988																	Coleoptera database
<i>Cryptophagus lapponicus</i>	Lapponia	1987																	Coleoptera database
<i>Cryptophagus lapponicus</i>	Lapponia	1989																	Coleoptera database
<i>Cryptophagus lapponicus</i>	Lapponia	1907																	Coleoptera database
<i>Cryptophagus lapponicus</i>	Lapponia	1983																	Coleoptera database
<i>Cryptophagus lapponicus</i>	Lapponia	2001																	Coleoptera database
<i>Cryptophagus lapponicus</i>	Lapponia	1950																	Catalogus Coleopterorum Fennoscandiae et Daniae, Lund 1960.
<i>Cryptophagus lapponicus</i>	Lapponia	1975																	Coleoptera database
<i>Cryptophagus lapponicus</i>	Lapponia	1977																	Coleoptera database
<i>Cryptophagus lapponicus</i>	Lapponia	2001																	Coleoptera database
<i>Cryptophagus lapponicus</i>	Lapponia	2001																	Coleoptera database

The stored observation record for this information can be found in the observation database, which is indicated by the reference 'Coleoptera database'. Whenever a new observation is stored into the observation database, the province database is updated, too.

For example, a search in the observation database for *Cryptophagus lapponicus* shows the following result:

11 observations:

Cryptophagidae

<i>Cryptophagus lapponicus</i>	? 2 ex.	LkE:Sodankylä, Mutenia	754:51	16.6.2000	J. Itämies & O. Nenonen
<i>Cryptophagus lapponicus</i>	? 1 ex.	LkE:Sodankylä, Mutenia	754:51	29.6.2000	J. Itämies & O. Nenonen
<i>Cryptophagus lapponicus</i>	? 1 ex.	LkE:Sodankylä, Mutenia	754:51	30.6.2000	J. Itämies & O. Nenonen
<i>Cryptophagus lapponicus</i>	? 1 ex.	LkE:Sodankylä, Mutenia	754:51	30.6.2000	J. Itämies & O. Nenonen
<i>Cryptophagus lapponicus</i>	? 1 ex.	LkE:Sodankylä, Mutenia	754:51	20.7.2000	J. Itämies & O. Nenonen
<i>Cryptophagus lapponicus</i>	? 1 ex.	LkE:Sodankylä, Mutenia	754:51	18.6.2001	J. Itämies & O. Nenonen
<i>Cryptophagus lapponicus</i>	? 1 ex.	LkE:Sodankylä, Mutenia	754:51	18.6.2001	J. Itämies & O. Nenonen
<i>Cryptophagus lapponicus</i>	? 2 ex.	LkE:Sodankylä, Mutenia	754:51	16.8.2001	J. Itämies & O. Nenonen
<i>Cryptophagus lapponicus</i>	? 1 ex.	LkE:Sodankylä, Mutenia	754:51	16.8.2001	J. Itämies & O. Nenonen
<i>Cryptophagus lapponicus</i>	? 2 ex.	LkE:Sodankylä, Mutenia	754:51	13.9.2001	J. Itämies & O. Nenonen
<i>Cryptophagus lapponicus</i>	?	Ta:Lempäälä, Peräkulo	6810:335	1999	Juha Salokannel

In the above province database table, the record for *Cychrus caraboides* has for year 1959 the reference

Catalogus Coleopterorum Fennoscandiae et Daniae, Lund 1960.

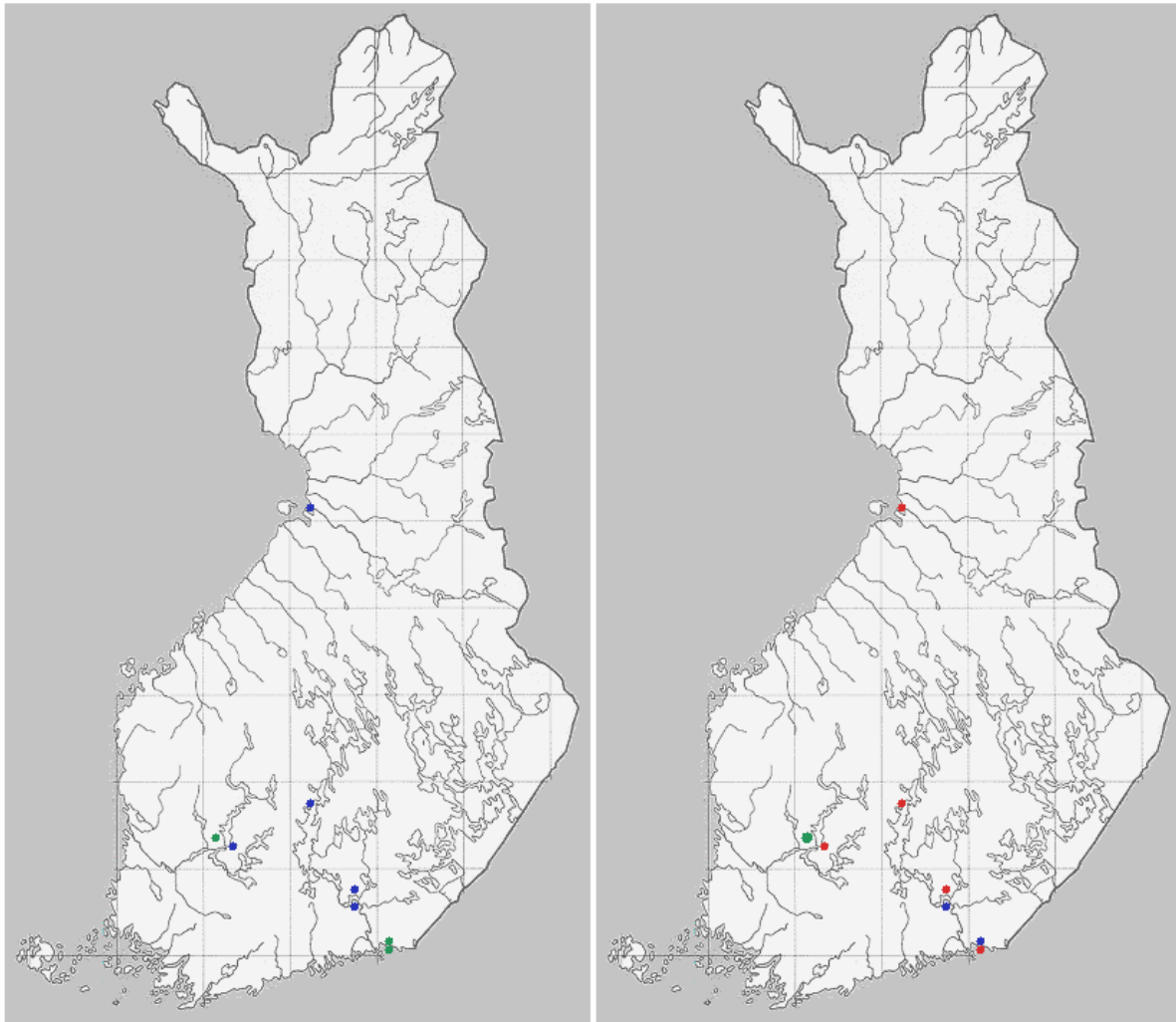
This shows that in addition to observational data, provincial data records in the province database can be based also on other information. For example, an authorized database manager can add published provincial data from books, journals, etc. to the province database.

2.2. Distribution Maps

The species data will also include 10x10km distribution maps for different time periods and numbers of individuals:

Time periods: ?, -1949, 1950-1999, 2000-

Exx. numbers: o = 1, o = 2, O = 3-13, O = 14-



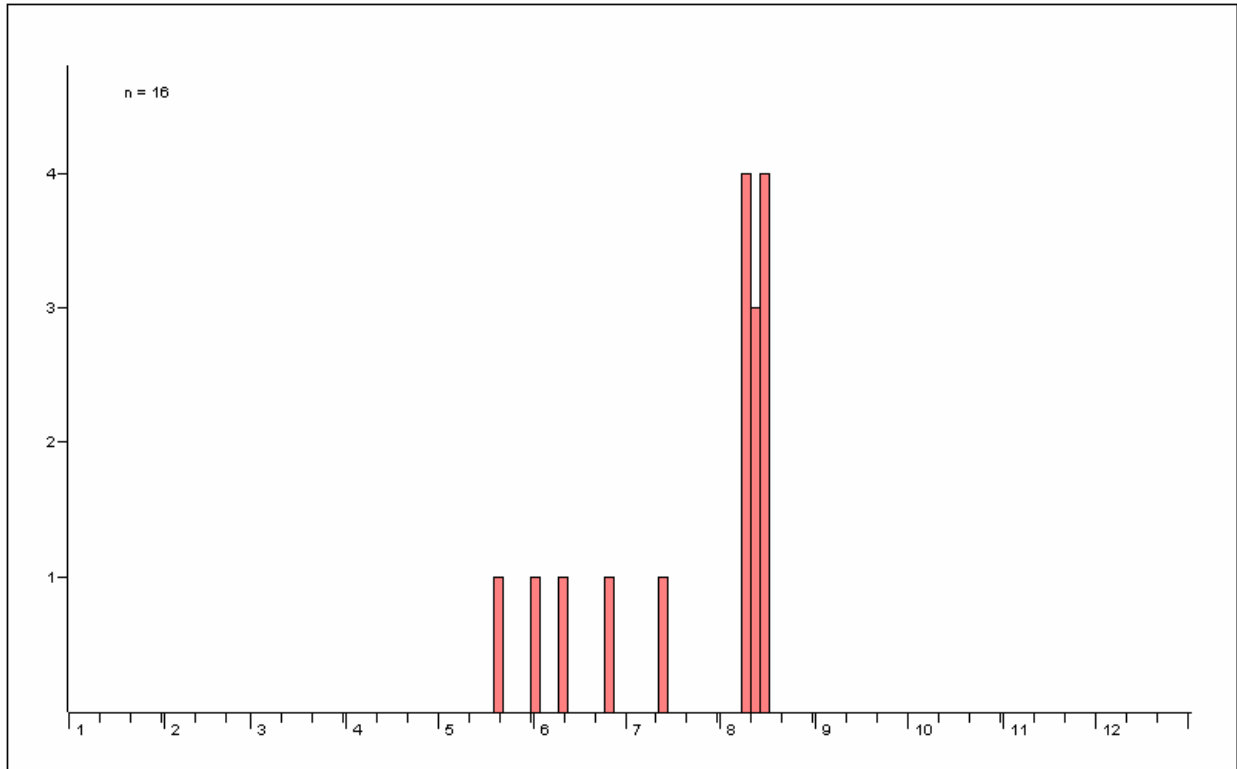
Note that the distribution maps are *not* dynamically generated each time a user request information for a species using the **species data** operation. Instead, the maps are periodically created from the current database information, and stored as permanent images. By this way extensive database searches can be avoided when presenting species information.

If you need really up-to-date information about the distribution of a species, you can always perform a database **search**. A search operation always creates the maps anew, based on the currently available database observations.

2.3. A Phenology Diagram

A phenology diagram, based on the number of observed individuals, gives information about the time of occurrence of the species:

Phenology (exx.nbrs)



Note that the phenology diagram is based on only such observation records, where the date is a single day.

2.4. The 3 Earliest and 3 Latest Observations for Each Province

The three earliest and three latest observations for each province are also listed:

	3 earliest obs	3 latest obs
Ka	10.08.2001 13.08.2001	10.08.2001 13.08.2001 14.08.2001
Ta	21.05.1981 31.05.1982 24.06.1985	24.06.1985 14.07.1989 08.08.1986
ObS	10.06.1997	10.06.1997

2.5. A List of Collectors Who Have Made the Largest Number of Observations for the Species

The following list of collectors is also shown (here for the ground beetle *Harpalus rufipes*):

	exx.		obs.
Juha Salokannel	24	S. Karjalainen	8
S. Karjalainen	17	M. Pentinsaari	1
M. Pentinsaari	1	M. Kylmäperä	1
M. Kylmäperä	1	Juha Salokannel	1
Seppo Karjalainen	1	Seppo Karjalainen	1
Jani Kirjavainen	1	Jani Kirjavainen	1

Last updated 29.01.2005.

For *Harpalus rufipes*, there are no stored user comments. However, for example for the butterfly *Jodis lactearia*, the species data also shows the following user notes:

2.6. Species Notes Added by the Users

30.01.2001 Jaakko Kullberg (sfnet.harrastus.perhoset):

Örössä *J. lactearia* on välillä aika runsas - tollaset 10 exodrysä paikoillaan. Parhaita mesteja ruohoja kasvavat valk rantalepikot. On ainakin ulkosaaristossa biotoopillaan monin verroin putataa runsaampi. Lähtekää pois kankailla ja mustikkapaikoilta. Saa olla niittyä ja metsänreunaa, mutta rehvämpien vähän lehtoma

30.01.2001 Matti Ahola (sfnet.harrastus.perhoset):

Vaikka *J. lactearian* sanotaan elävän monilla lehtipuilla ja mustikalla, olen toukkia löytänyt ainoastaan lehmukseksi siis aikuisista, on kerätty lehtomaisilta reheviltä paikoilta, varsinkin lehmusmetsästä. Mulle on päässyt syntymä etsiä etupäässä lehmusmetsistä.

31.01.2001 Kimmo S. (sfnet.harrastus.perhoset):

Olen viimeksi havainnut *lacteariaa* runsaammin 25 v. sitten Ahvenanmaalla. Muistaakseni imagot olivat liikkeellä olen kyllä löytänyt muutamia toukkia: Jurmossa melko tiheästä tervaleppämetsästä, Paraisilla harvakseltaan ta havainnot elo- syyskuun vaihteen lähellä. Jos imagoja ei kesäkuussa näy, voi ehkä vielä loppukesällä pistäytyä p esiintyvän vakituisilla keräilypaikoillani (eivät ole lehtoja).

01.02.2001 Jaakko Kullberg (sfnet.harrastus.perhoset):

Lajilla on usein elokuussa toinen polvi lounaassa.

07.12.2002 kimmo keinänen:

Havainnot 6699:370 , 2000-2002, noin 35 havaintoa, tukevat vahvasti sitä, että laji lentää myöhään yöllä, ja suurin klo 02.00 jälkeen.(Valorysät tarkistettu 01.45-02.00)

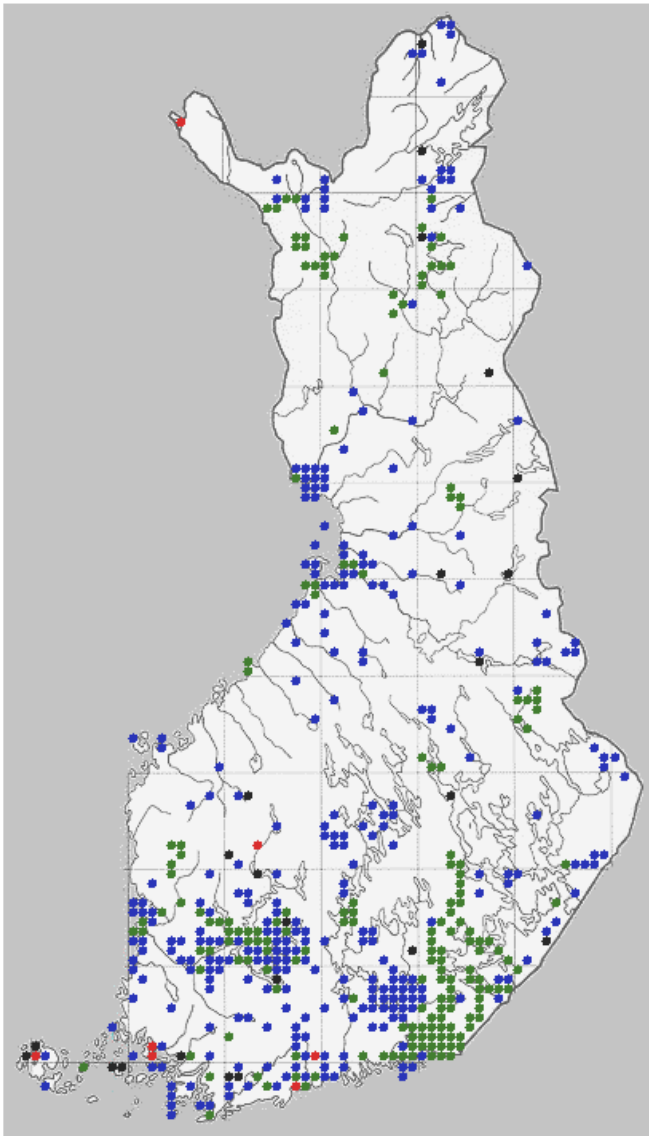
3. Getting Summary Information

Pressing the link **Summary** shows, for the selected insect group, summary information about all the observations in the database. This includes a map showing locations from where observations have been made:

Summary for Coleoptera updated 29.01.2005

Geographical distribution of observations

?, -1949, 1950-1999, 2000-



Various cross tabulations are also shown, for example, a table displaying the number of observations from each geographical province in each of the decades 1900-09, ..., 2000-2009:

Regions

	1900-09	1910-19	1920-29	1930-39	1940-49	1950-59	1960-69	1970-79	1980-89	1990-99	2000-09	
Al	-	5	1	6	10	-	2	2	-	-	1	27
Ab	-	1	1	2	89	31	22	17	24	83	47	317
N	3	14	14	4	31	103	23	30	187	94	146	649
Ka	-	-	-	-	-	-	-	10	67	163	2064	2304
St	-	-	-	-	1	11	7	18	84	165	461	747
Ta	-	1	-	2	10	3	10	2	946	637	1163	2774
Sa	-	-	-	6	6	-	2	5	123	28	683	853
Kl	-	-	-	-	-	-	-	-	5	3	-	8
Oa	-	-	-	-	2	-	1	1	6	1	167	178
Tb	-	-	-	-	4	-	2	1	47	56	-	110
Sb	-	-	-	-	2	12	1	1	-	18	51	85
Kb	-	-	-	1	1	-	-	-	14	30	64	110
Om	-	-	-	1	-	12	1	2	13	8	187	224
Ok	-	4	2	-	-	20	-	2	2	57	-	87
ObS	-	1	-	11	2	1	110	32	133	396	1068	1754
ObN	-	-	-	-	1	2	2	649	343	177	231	1405
Ks	-	-	-	1	-	-	10	14	2	2	95	124
LkW	-	-	-	-	-	4	-	-	1	-	197	202
LkE	2	-	-	-	-	-	-	2	15	-	1777	1796
Le	1	-	39	-	-	-	28	1	8	65	55	197
Li	1	-	-	3	3	-	-	-	89	73	1	170
	7	26	57	37	162	199	221	789	2109	2056	8458	14121

If the species catalog contains species frequency values, then the observations of rare species (with freq >= 80 p.) are also listed:

Rare species

80 p.

Dromius longiceps 3 ex.
N:Hanko, Svanvik 6642:284 19.9.1998
Salokannel, Mattila & Kir leg.
Diamina 1999

Deronectes latus 1 ex.
Ks:PAANAJÄRVI <date not given>
Platonoff leg.
ZMO/Coll:Karvonen 6453

Deronectes latus 1 ex.
Ks:PAANAJÄRVI <date not given>
Platonoff leg.
ZMO 6461

Finally, a list of the most active collectors is also shown:

Collectors

	Al	Ab	N	Ka	St	Ta	Sa	Kl	Oa	Tb	Sb	Kb	Om	Ok	ObS	ObN	Ks	LkW	LkE	Le	Li		
S. Karjalainen	-	4	192	1804	10	522	465	-	-	-	16	-	90	-	-	-	-	-	5	-	-	3108	
M. Pentinsaari	-	99	57	341	32	3	309	-	-	2	-	-	82	-	1382	254	95	144	106	-	-	2906	
Pekka Valtonen	-	43	49	3	231	715	46	5	5	91	51	92	13	49	7	-	-	53	10	128	162	1753	
J. Itämies & O. Nenonen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1586	-	-	1586
Juha Salokannel	-	-	-	-	398	1091	-	-	-	3	-	-	-	-	-	-	-	-	-	82	-	-	1574
M. Virtala	-	1	1	-	-	-	3	-	-	-	-	-	7	-	-	150	1128	-	1	2	-	-	1293
Karvonen	-	14	146	10	-	4	4	-	-	-	-	-	-	1	3	-	-	-	-	34	2	218	
R. Linnavuori	8	82	-	-	-	19	8	-	-	-	11	3	13	20	-	-	9	-	1	-	-	174	
Jukka Salmela	-	-	-	-	-	-	-	-	164	-	-	-	-	-	-	-	-	-	-	-	-	164	
U. Sahlb.	-	16	20	6	1	14	10	4	2	1	-	1	-	-	-	6	-	14	-	10	17	122	
Raimo Paakasuo	-	-	-	-	1	121	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	122	
U. Saalas	-	38	26	4	2	10	2	3	1	11	-	2	-	3	1	1	2	5	-	1	1	113	
Seppo Karjalainen	-	-	-	112	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	112	
Jani Kirjavainen	-	-	2	-	-	101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	103	
	Al	Ab	N	Ka	St	Ta	Sa	Kl	Oa	Tb	Sb	Kb	Om	Ok	ObS	ObN	Ks	LkW	LkE	Le	Li		
	61	436	741	2314	752	2824	890	20	181	127	96	117	226	145	1757	1415	150	230	1797	216	210	14705	

4. Storing New Observations

4.1. The Data Input Form

After a successful log-in (see Chapter 8, User Management), the **Save obs**, **Send file**, and **Edit obs** links on the left side will be enabled. Pressing the save obs link displays the following input form:

The screenshot shows a web browser window titled "Finnish Entomological Database - Lepidoptera - Mozilla Firefox". The address bar shows the URL: `http://localhost:8081/insects/save?insectGroup=Lepidoptera&sessionID=9268490&lang=`. The page content is divided into a left sidebar and a main form area.

Left Sidebar (Lepidoptera):

- New observations
- New comments
- Species data
- Search
- Summary
- Save obs
- Send file
- Edit obs
- Personal data
- Log in
- Home

Main Form Area (New observation):

The form contains the following fields and controls:

- startDay:**
- startMonth:**
- endDay:**
- endMonth:**
- year *:**
- region *:**
- county:**
- locality:**
- coordinates:**
- Hide locality
- Hide coordinates
- habitat:**
- method:**
- genus *:**
- species *:**
- collector *:**
- det:**
- count:** m: f: total:
- devStage:**
- defYear:**
- collection:**
- note:**

At the bottom right of the form, there are two buttons: **Submit observation** and **Save defaults**.

To make the storing of new observations easier, each user can define his default values for the following fields

startDay, startMonth, endDay, endMonth, year, region, county, locality, northCoord, eastCoord, habitat, collectingMethod, totalCount, devStage, collector, det, detYear, collection

After storing appropriate default values, the input form may look like to following:

The screenshot shows a web browser window titled "Finnish Entomological Database - Lepidoptera - Mozilla Firefox". The address bar shows "http://localhost:8081/insects/save". The page content includes a left sidebar with navigation links: "Lepidoptera", "New observations", "New comments", "Species data", "Search", "Summary", "Save obs", "Send file", "Edit obs", "Personal data", and "Log in". The main content area displays the message "The default values have been set. New observation:" followed by a form with the following fields and values:

startDay:	<input type="text"/>	region *:	ObS <input type="button" value="v"/>
startMonth:	<input type="text"/>	county:	<input type="text"/>
endDay:	<input type="text"/>	locality:	<input type="text"/>
endMonth:	<input type="text"/>	coordinates:	<input type="text"/> <input type="text"/>
year *:	2005	<input type="checkbox"/> Hide locality	
habitat:	<input type="text"/>		
method:	<input type="text"/>		
genus *:	<input type="text"/>	collector *:	M. Virtala
species *:	<input type="text"/>	det:	M. Virtala
count:	m: <input type="text"/> f: <input type="text"/> total: 1	detYear:	2005
devStage:	aikuinen <input type="button" value="v"/>	collection:	coll. M. Virtala
note:	<input type="text"/>		

At the bottom of the form, there are two buttons: "Submit observation" and "Save defaults".

In some cases, a collector may want to hide the exact locality and coordinates of an observation. This can be done by selecting the corresponding check boxes. We will now store a fictitious observation to illustrate the

hiding of sensitive data. Our observation is as follows:

The screenshot shows a web browser window titled "Finnish Entomological Database - Lepidoptera - Mozilla Firefox". The address bar shows the URL: `http://localhost:8081/insects/save?insectGroup=Lepidoptera&sessionID=54531285&lan`. The page content is divided into a left sidebar and a main form area.

Left Sidebar (Navigation):

- Lepidoptera
- New observations
- New comments
- Species data
- Search
- Summary
- Save obs
- Send file
- Edit obs
- Personal data
- Log in
- Home

Main Form Area (New observation):

startDay: 10
startMonth: 6
endDay:
endMonth:
year *: 2005

region *: ObS
county: Oulu
locality: Hintta
coordinates: 7215 430
 Hide locality
 Hide coordinates

habitat: In the garden
method: sighting

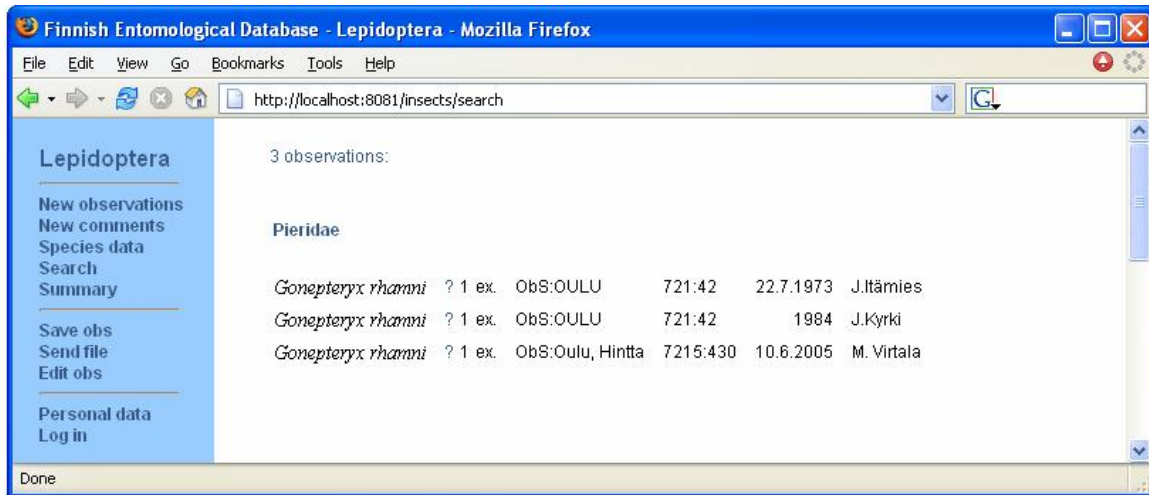
genus *: Gonepteryx
species *: rhamni
collector *: M. Virtala
det: M. Virtala

count: m: f: 1 total: 1
devStage: aikuinen
detYear: 2005
collection: coll. M. Virtala

note: A fictitious observation.

Buttons: Submit observation, Save defaults

After storing the observation, a search for 'Oulu' and 'Gonepteryx' produces the following list of observations:



As can be seen, the hidden locality and coordinates are fully visible. This, however, is the case only when the user who has logged in is the same user who originally stored the observation. For all other users, the results of the search will be the following:



In addition to the owner of the observation, access to hidden information can be allowed to specially authorized persons. These access rights are managed by the database administrator.

4.2. Sending a File of Observations

Besides storing single observations using the input form, you can send larger amounts of data by first writing them into a specially formatted observation file, and then sending that file to the database server.

After logging in and pressing the **Send file** link on the left side panel, you will be presented with the following two alternative input file formats:

Sending observations

Please select one of the file-formats below:

The **standard**-format is as follows (all values must be on a single line):

```
Genus species; maleCount; femaleCount; totalCount; devStage; region; county; locality;  
hideLocality; northCoord: eastCoord; hideCoord; startDay; startMonth; endDay; endMonth; year;  
habitat; collectingMethod; collector; det; detYear; collection; note
```

Standard

The **standard2**-format (MuseoData) is like the following:

```
obsID; Genus species; totalCount; devStage; region; county; locality; northCoord: eastCoord;  
startDay; startMonth; endDay; endMonth; year; habitat; collectingMethod;  
collector; det; detYear; collection; note
```

Standard2

Note that in the above file formats, hiding the locality or coordinates of an observation is indicated by setting

```
hideLocality = *
```

and/or

```
hideCoord = *
```

Additional file formats can be easily added to the system, if needed.

After selecting a file format, you can choose the desired input file:

Sending observations (Standard format).

Before storing, the observations are checked for correctness.
The input file is accepted only if all observations are correct.

file:

When the **Send file** button is pressed, the file is sent to the server for processing.

Before each observation is stored, a database search is performed to ensure that a similar observation does not already exist in the database. If the observation is new, after storing it into the observation database the province database is updated accordingly, if the observation is new for the province.

Note that the processing of observations can take a considerable amount of time. When your browser submits the observation file to the server, the server will send a response back to the browser only after all observations have been processed. If the observation file contains a large amount of observations, the browser may need to wait for a long time for the server's response. If the time period is long enough, the browser may even think that it has been disconnected from the server. For this reason, it is advisable that the number of observations in a single file is kept relatively small; say about 100 observations per file.

If there are errors in the file, you may get the following kind of message from the server:

Sending observations

The file 'observations_2002_part1.txt' contains errors.

file:

Erroneous observations:

Row 2: MVir-8277-9485-7524; Anthocharis chardamines; 2; aikuinen; ObS; Kiiminki; Haara; 7227:447; 25; 5; ; ; 2002; ; n?k?havainto; M. Virtala; M. Virtala; 2002; ei talletettu;

The species **Anthocharis chardamines** is unknown

Row 4: MVir-7453-1573-7326; Callophrys rubi; 1; aikuinen; ObS; Kiiminki; Haara; 9226:447; 25; 5; ; ; 2002; ; n?k?havainto; M. Virtala; M. Virtala; 2002; ei talletettu;

The coordinate **9226:447** is outside of ObS

After correcting the errors, you should finally receive the following kind of message:

Sending observations

The file is ok.

The observations have been added to the database.

file:

Saved 6 new observations.

5. Editing Observations

Selecting the link **Edit obs** opens the following form:

The screenshot shows a web browser window titled "Finnish Entomological Database - Lepidoptera - Mozilla Firefox". The address bar shows the URL: `http://localhost:8081/insects/edit?insectGroup=Lepidoptera&sessionID=101001448`. The page has a blue sidebar on the left with the following menu items: "Lepidoptera", "New observations", "New comments", "Species data", "Search", "Summary", "Save obs", "Send file", "Edit obs", "Personal data", and "Log in". At the bottom of the sidebar is a "Home" link. The main content area is titled "Locating the observation" and contains the instruction "Write some data from the observation to the fields below". The form fields are as follows:

- startDay:
- startMonth:
- endDay:
- endMonth:
- year:
- region:
- county:
- locality:
- coordinates:
- Hide locality
- Hide coordinates
- habitat:
- method:
- genus:
- species:
- count: m: f: total:
- devStage:
- note:
- collector:
- det:
- detYear:
- collection:

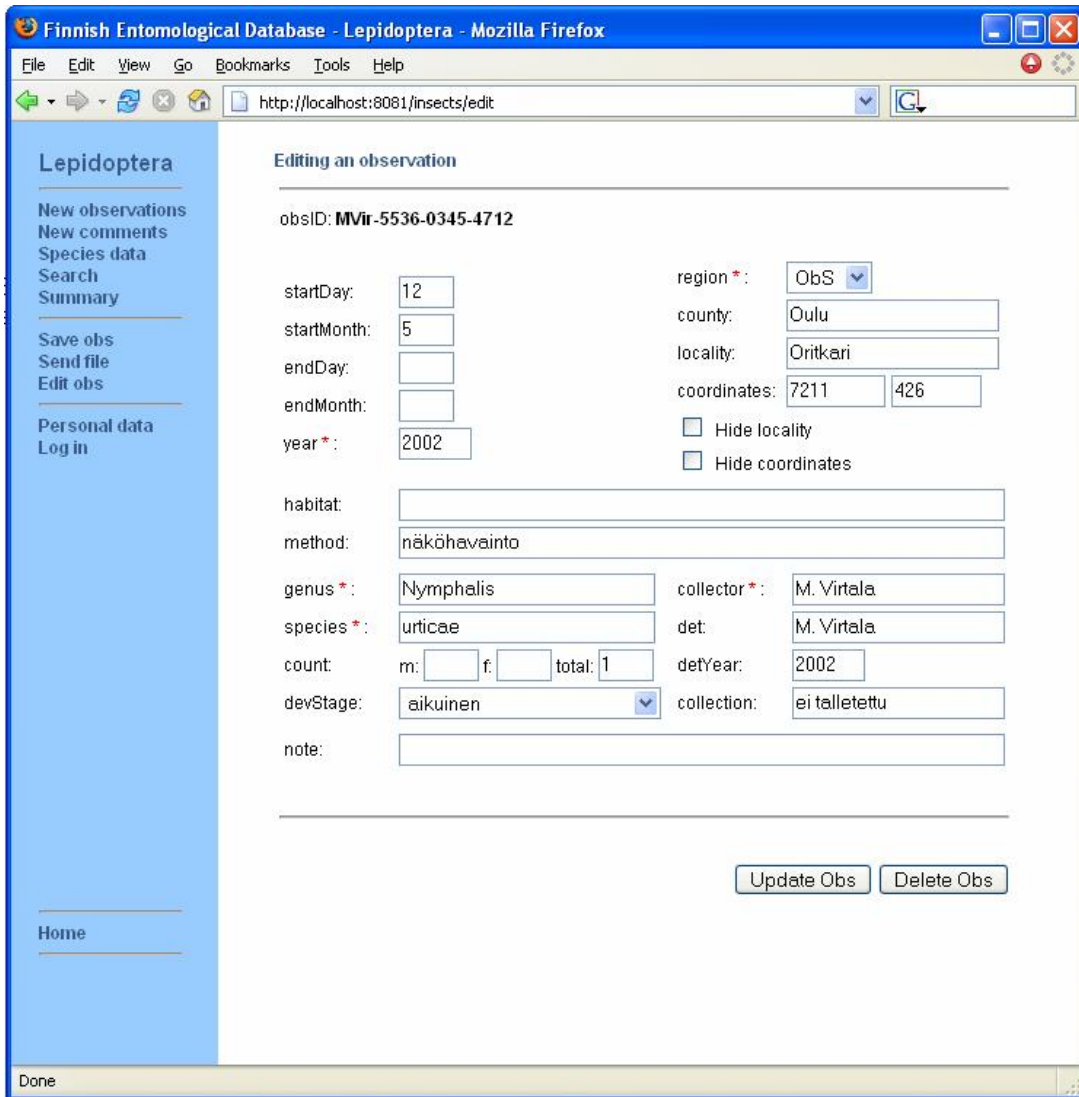
A "Search Obs" button is located at the bottom right of the form area. The browser's status bar at the bottom shows "Done".

To locate the observation to be edited, some relevant information must be written to the form's fields. After pressing the **Search obs** button, a list of possible observations is presented:

Choose the desired observation from the list below:

- Nymphalis urticae* 1 aikuinen
ObS:Oulu, Oritkari 7211:426 12.5.2002
M. Virtala leg.; M. Virtala det. 2002
ei talletettu
- Anthocharis cardamines* 2 aikuista
ObS:Kiiminki, Haara 7227:447 25.5.2002
M. Virtala leg.; M. Virtala det. 2002
ei talletettu
- Callophrys rubi* 1 aikuinen
ObS:Kiiminki, Haara 7226:447 25.5.2002
M. Virtala leg.; M. Virtala det. 2002
ei talletettu
- Nymphalis antiopa* 1 aikuinen
ObS:Kiiminki, Haara 7227:447 25.5.2002
M. Virtala leg.; M. Virtala det. 2002
ei talletettu

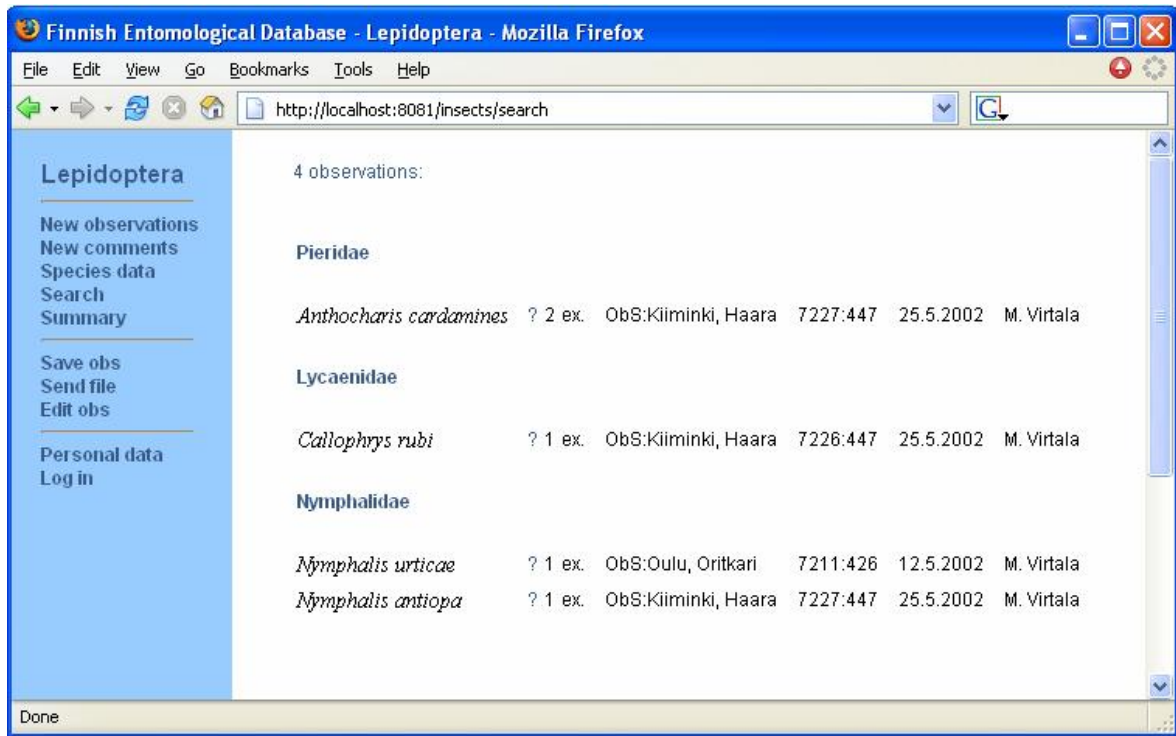
Selecting the first observation, say, by pressing the **Edit** button, displays the corresponding observation for editing (see picture on the next page).



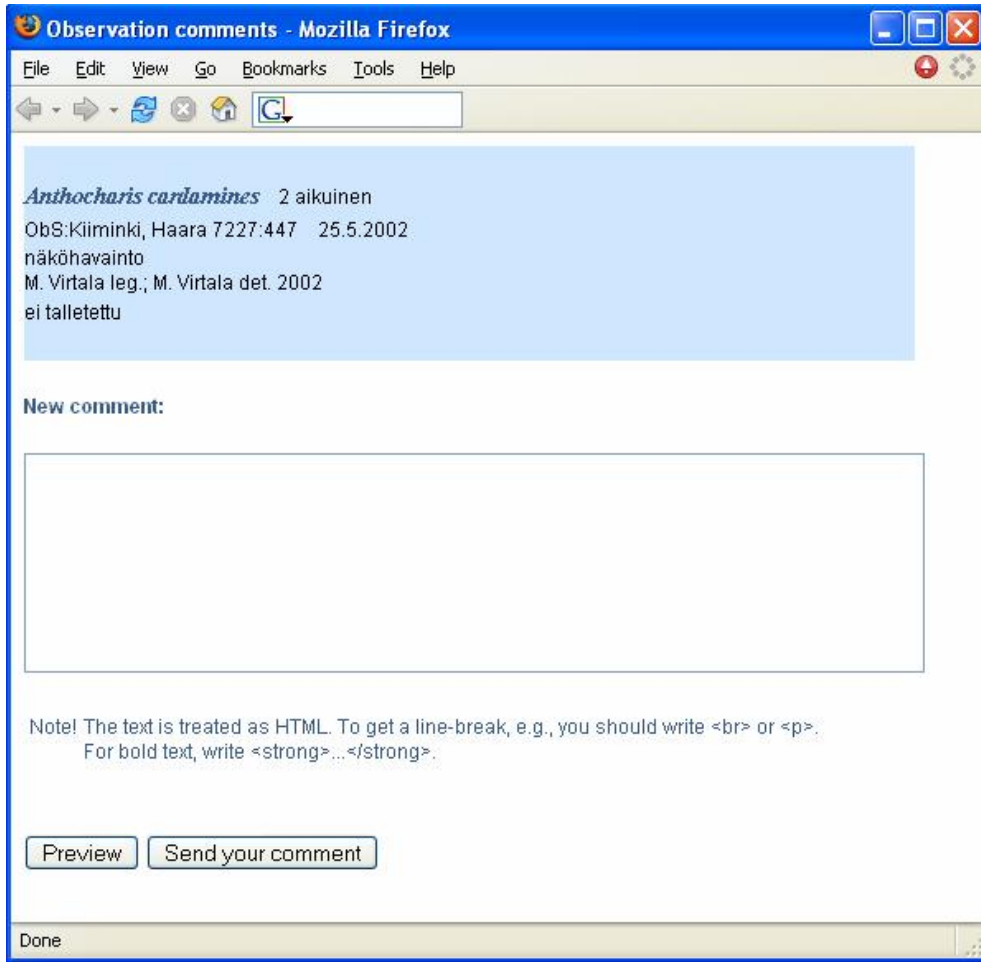
After making the desired corrections, the observation can be updated by pressing the **Update Obs** button.

6. Adding Observation Comments

The following picture shows the results of a search:

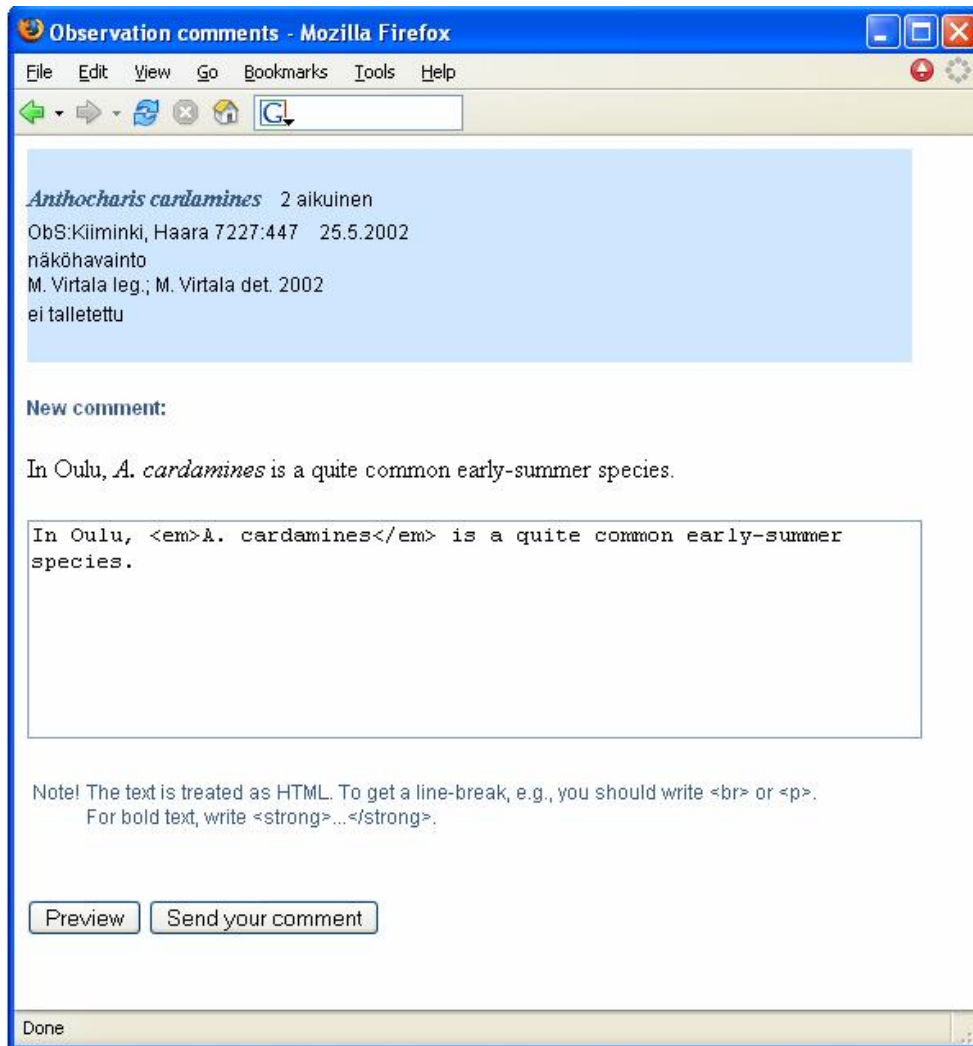


In the observation listing, each observation has a question mark after the species name. By clicking the question mark you can open a window showing more details about the observation:

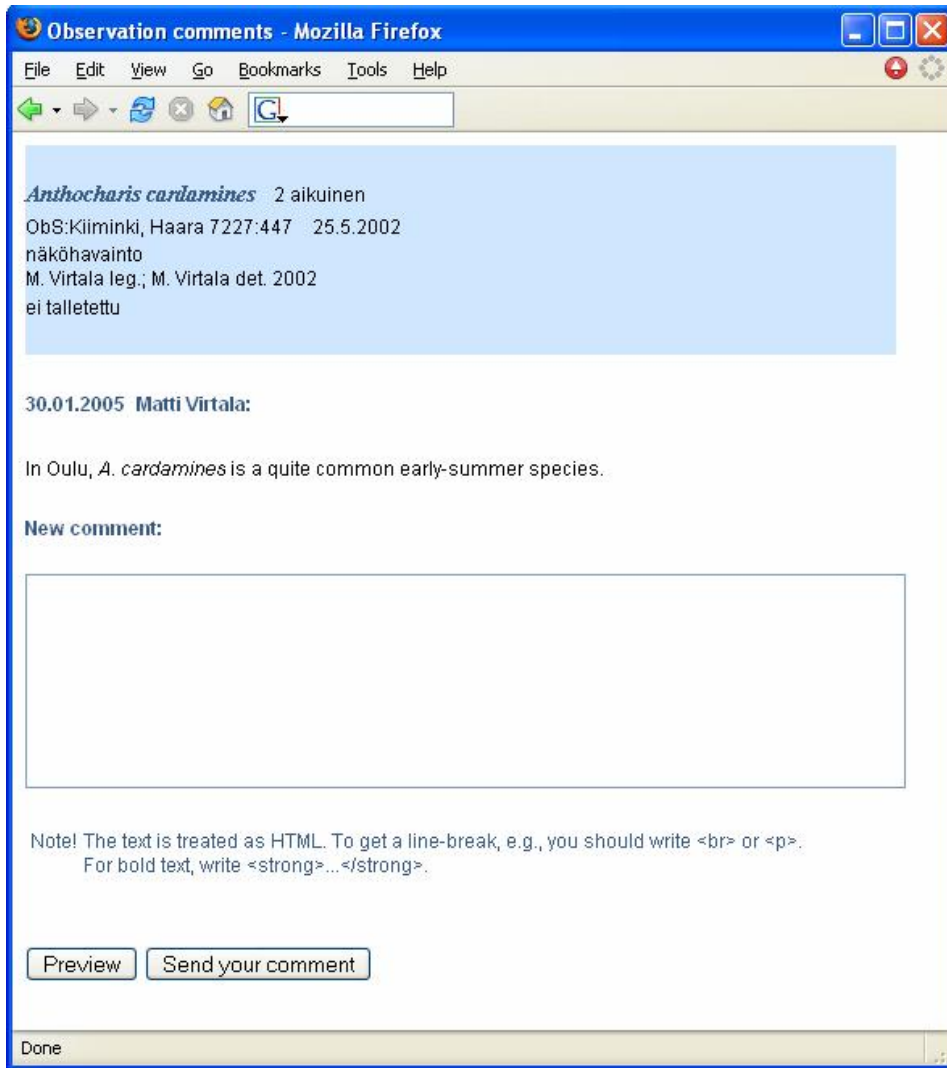


If you have logged in to the system, you will be able to add your own comment to the observation. The comment text is interpreted as html, so html tags can be used in the text.

After writing your comment to the text area, you can preview it by pressing the **Preview** button:

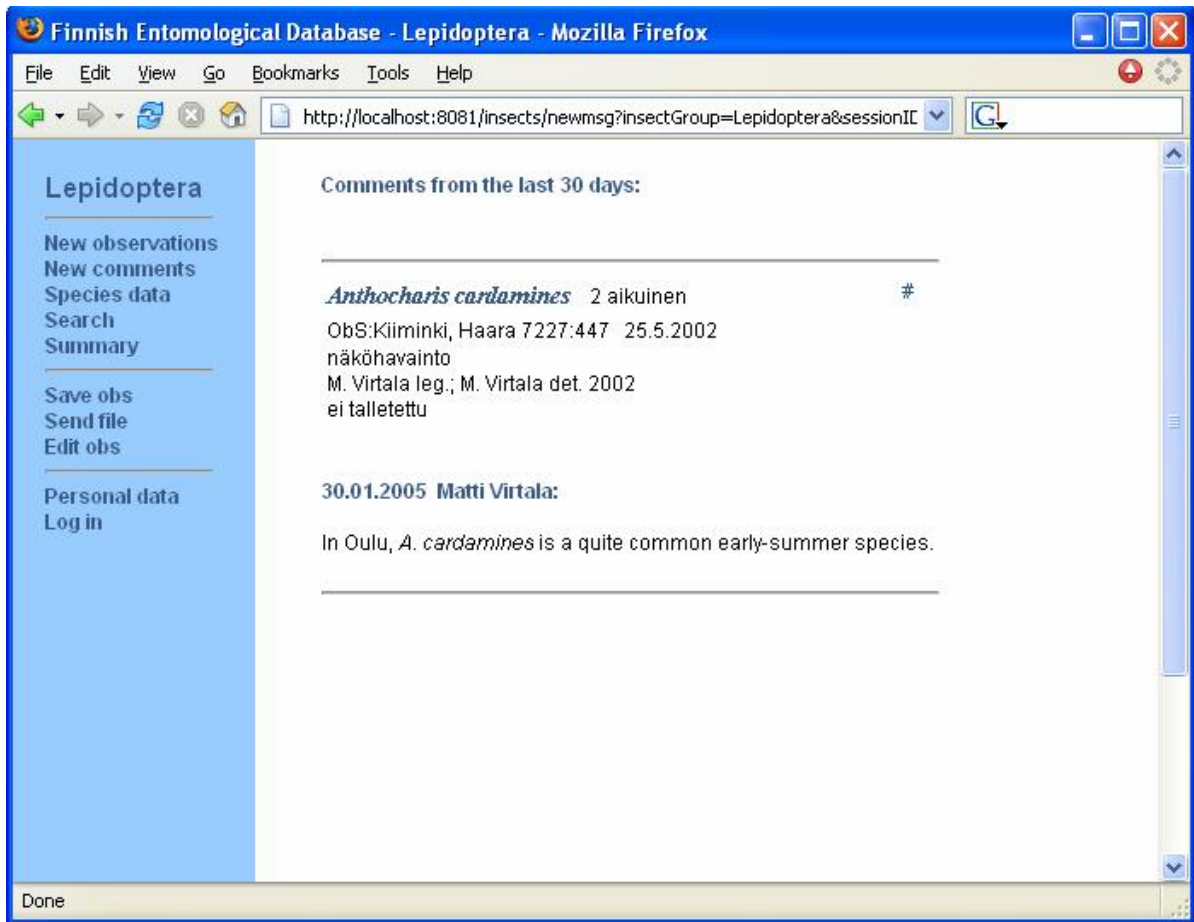


After sending your comment, you can see that it's been attached to the observation:



Note that if the original owner of the observation has an e-mail address, then a notice of the new comment will be automatically sent to him.

By pressing the left-panel link **New comments**, you can get a listing of the observation comments which have been added to the database during the last 30 days:



By clicking the # mark, you can add your own comments to the listed observation.

7. The Species Notes Database

Information in the observation database contains single, separate data items about different species. In some cases it is useful to be able to store information on a more general level, too. For example, if the abundance of a species has changed markedly in recent years, the information could be stored as an item in a database which can contain more general species information.

The species notes database provides a way to store general information about a species. Similarly to the observation database, each registered user can add information to this database.

If you have logged-in to the system, the species notes listing, obtained by selecting the **Species data** link in the left panel, shows also an input area for adding a new note:

New species data (*Carabus nitens*):

Note! The text is treated as HTML. To get a line-break, e.g., you should write `
` or `<p>`.
For bold text, write `...`.

Before storing your note, you can preview it by pressing the **Preview** button:

New species data (*Carabus nitens*):

This fine carabid is quite rare in the Oulu region.
It has been mostly found by *pitfall* trapping.

This fine carabid is quite rare in the Oulu region.

It has been mostly found by pitfall trapping.

Note! The text is treated as HTML. To get a line-break, e.g., you should write `
` or `<p>`.
For bold text, write `...`.

Pressing the **Save data** button will store the new species note to the database:

12.02.2005 **Matti Virtala:**

This fine carabid is quite rare in the Oulu region.
It has been mostly found by *pitfall* trapping.

New species data (*Carabus nitens*):

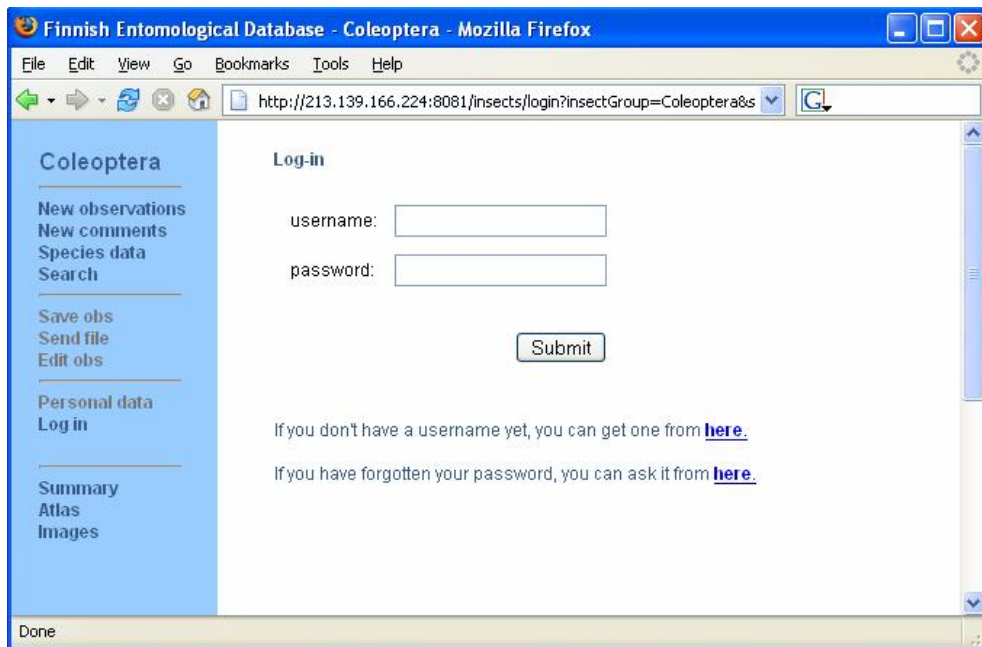
Note! The text is treated as HTML. To get a line-break, e.g., you should write `
` or `<p>`.
For bold text, write `...`.

8. User management

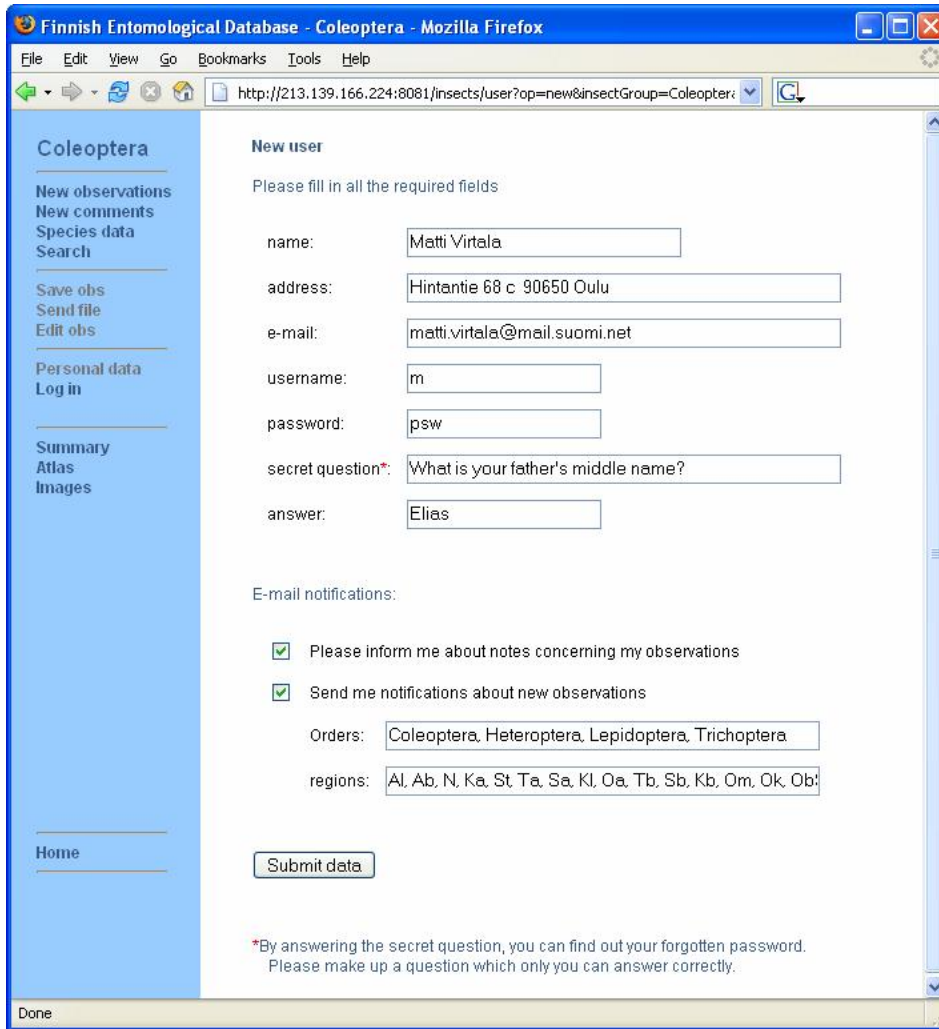
Only registered users can add new observations to the observation database, comment existing observations, or store new species notes to the species information database. We shall next describe the log-in procedure and the management of a user's personal data.

8.1. User Log-in

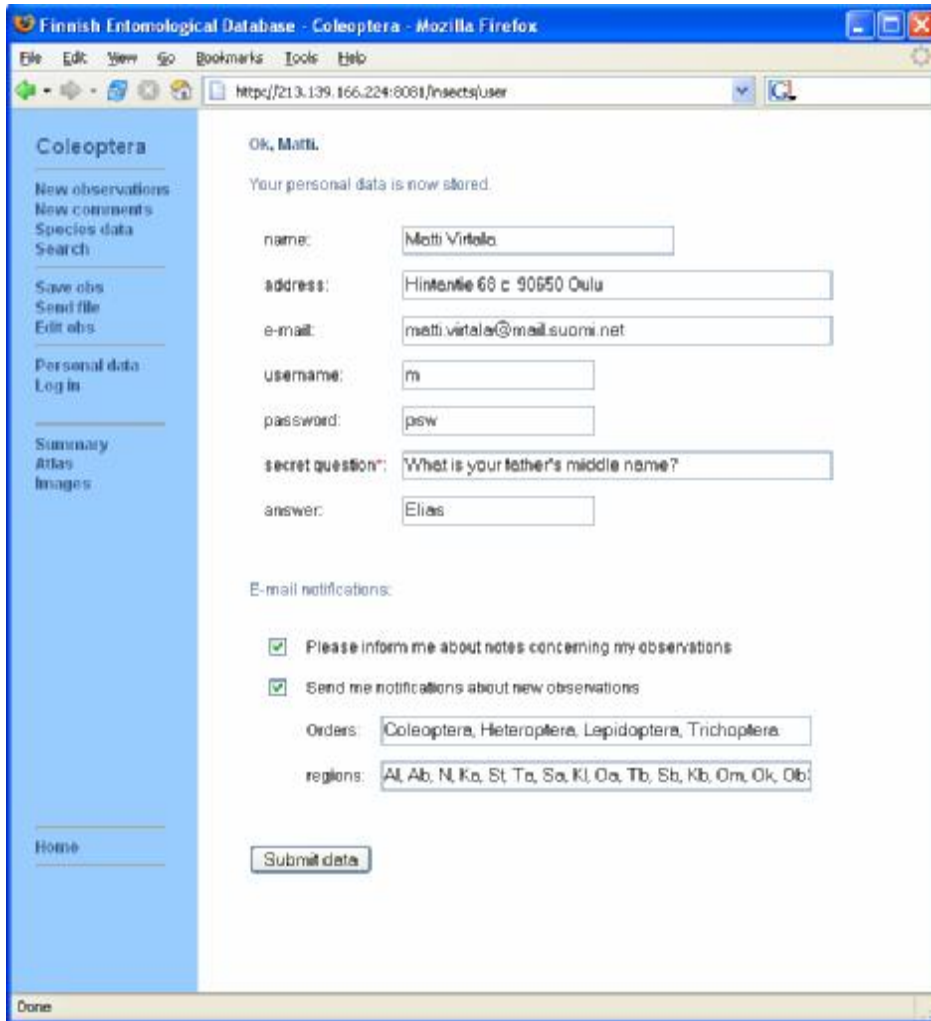
The log-in page looks like the following:



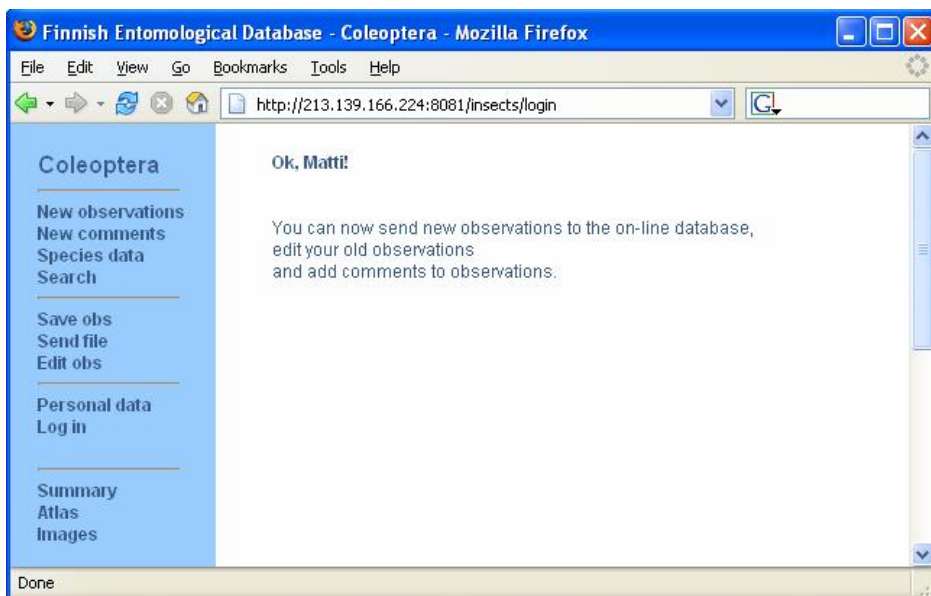
If you have already registered, simply fill in your username and password. For a new user, the registration form contains the following fields:



If everything is ok, after submitting the data you will get a confirmation of a succesful registration:

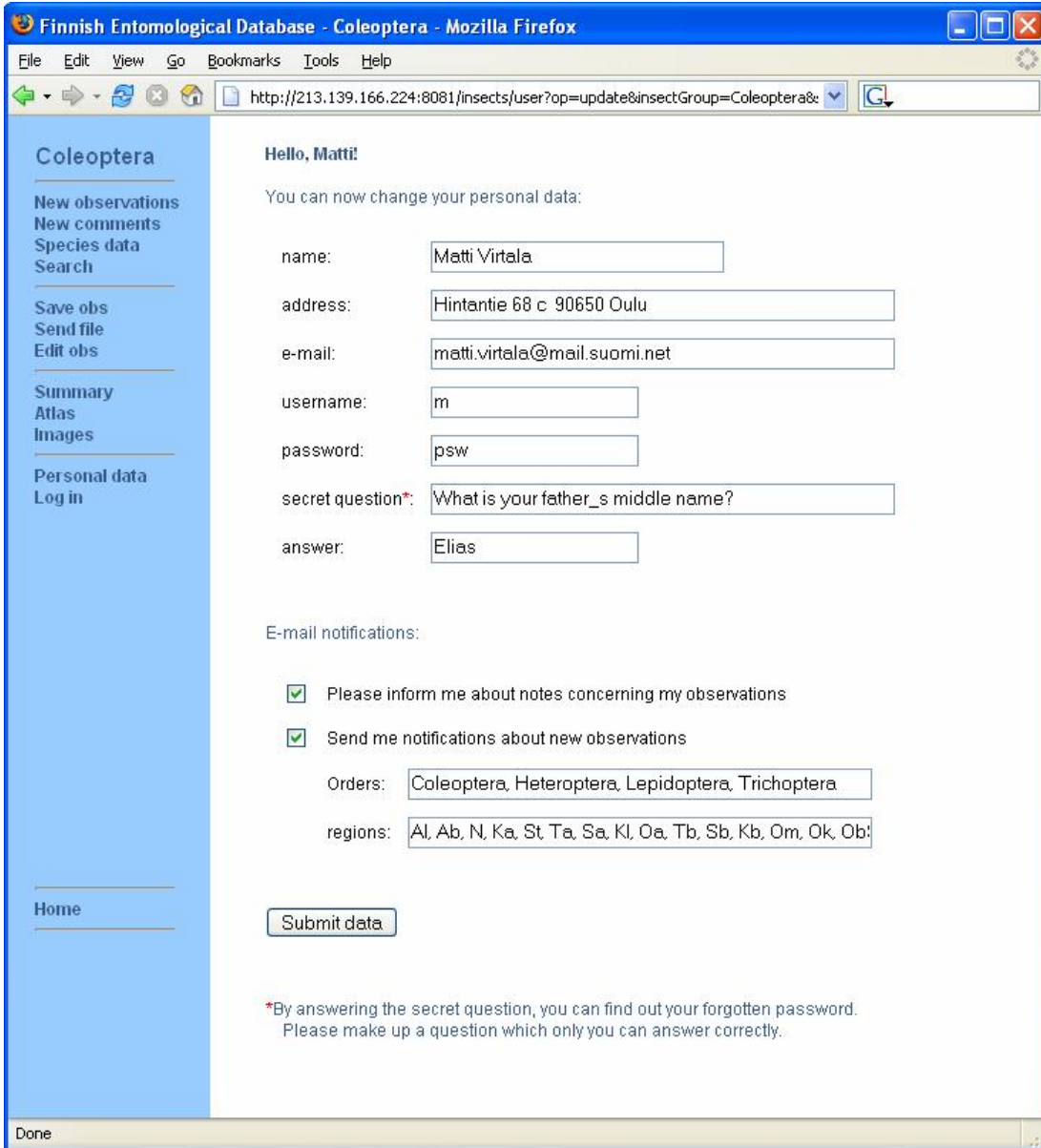


After registering, you can now log-in to the system:



8.2. Changing Your Personal Information

After a successful log-in, the link **Personal data** will be enabled. Clicking it shows you a form by which you can change your personal information:



The screenshot shows a web browser window titled "Finnish Entomological Database - Coleoptera - Mozilla Firefox". The address bar shows the URL: `http://213.139.166.224:8081/insects/user?op=update&insectGroup=Coleoptera&`. The page content is as follows:

Coleoptera

- New observations
- New comments
- Species data
- Search
- Save obs
- Send file
- Edit obs
- Summary
- Atlas
- Images
- Personal data
- Log in
- Home

Hello, Matti!

You can now change your personal data:

name:

address:

e-mail:

username:

password:

secret question*:

answer:

E-mail notifications:

- Please inform me about notes concerning my observations
- Send me notifications about new observations

Orders:

regions:

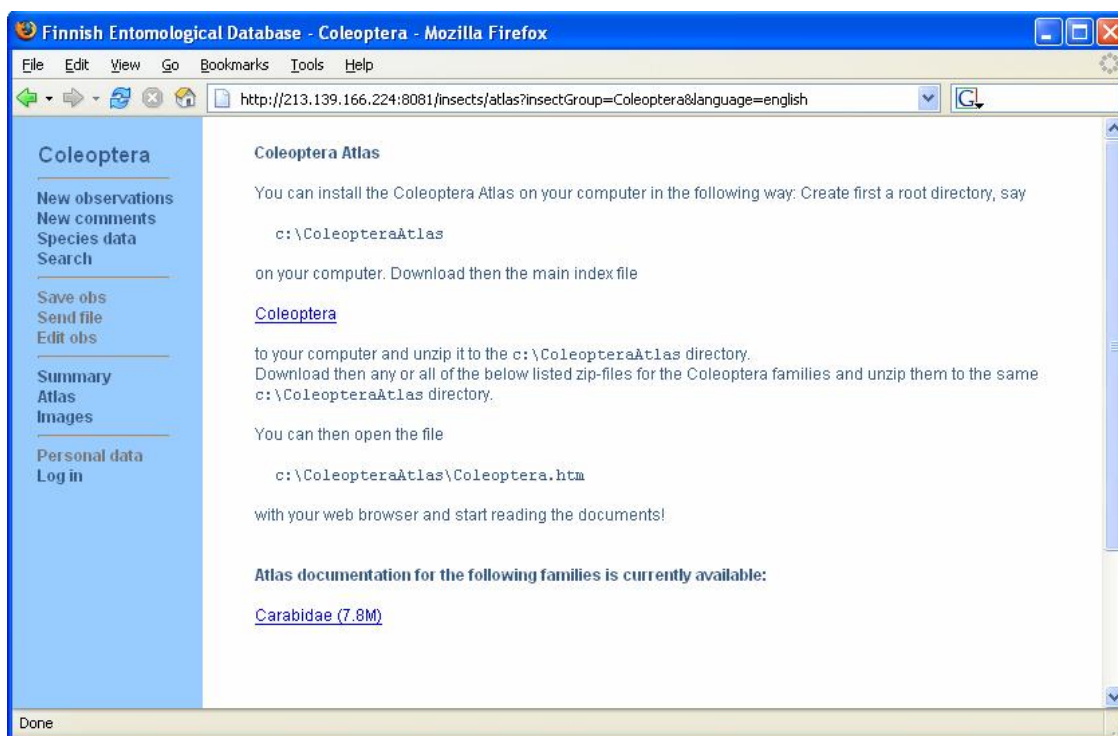
*By answering the secret question, you can find out your forgotten password.
Please make up a question which only you can answer correctly.

Done

9. The Species Atlas

Chapter 2, Browsing Species Data, described the information which is available in the species information database. Although this data is always available through the internet, it would be practical to have the same information available as an off-line document, too.

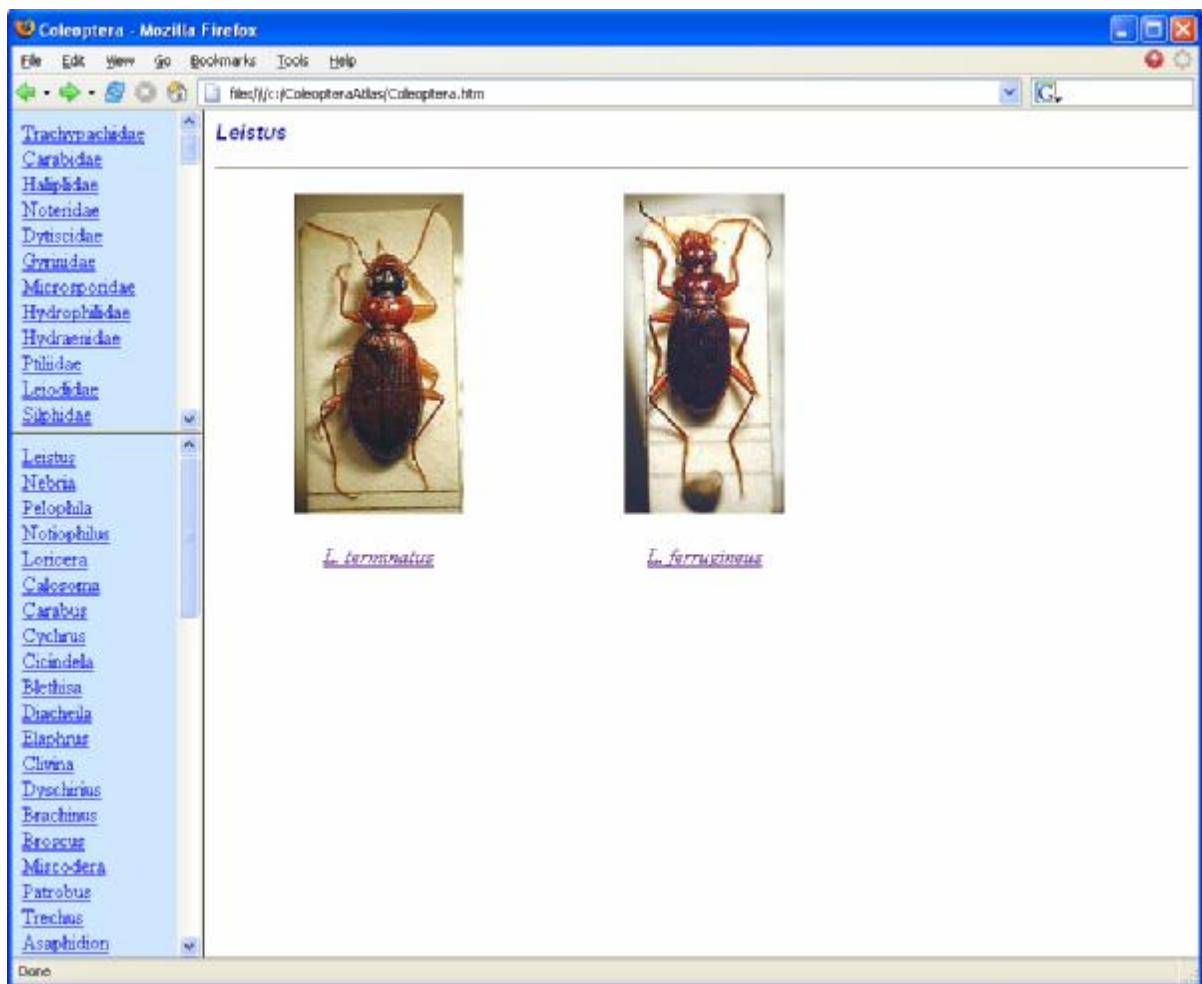
The insect database system has been built in such a way that it is possible to periodically generate suitable offline information from the database. For each specific family and insect order, the documentation is available as a zip-file. For each order, the left-side panel contains a link named **Atlas**. Selecting the link for Coleoptera, say, shows the following page:



After downloading and unzipping the files, the directory `c:\ColeopteraAtlas` should have the following contents:

Name	Size	Type
Carabidae		File Folder
Trachypachidae		File Folder
back.gif	1 KB	GIF Image
Coleoptera.htm	1 KB	HTM File
Families.htm	7 KB	HTM File
forward.gif	1 KB	GIF Image
GenusDefault.htm	1 KB	HTM File
SpeciesDefault.htm	1 KB	HTM File
wwwstyle.css	4 KB	Cascading Sty...

Opening the file `Coleoptera.htm` with a browser shows the following page (here we have selected the family Carabidae and the genus *Leistus* from the form's left-hand side panels):

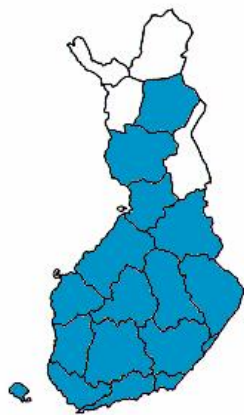


Of course, thumbnail images of the species will be shown only if suitable images exist in the image database.

Selecting the species *L. terminatus*, say, displays the following Atlas data for the species:

1. Provincial distribution maps for different time periods

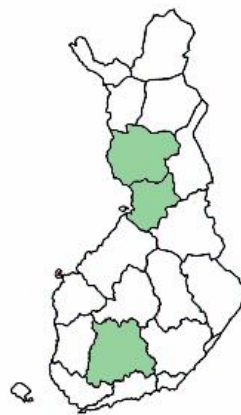
Leistus terminatus (Hellwig, 1793)



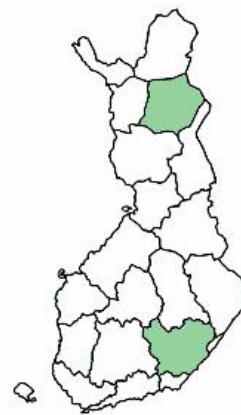
All data



-1959



1960-1999

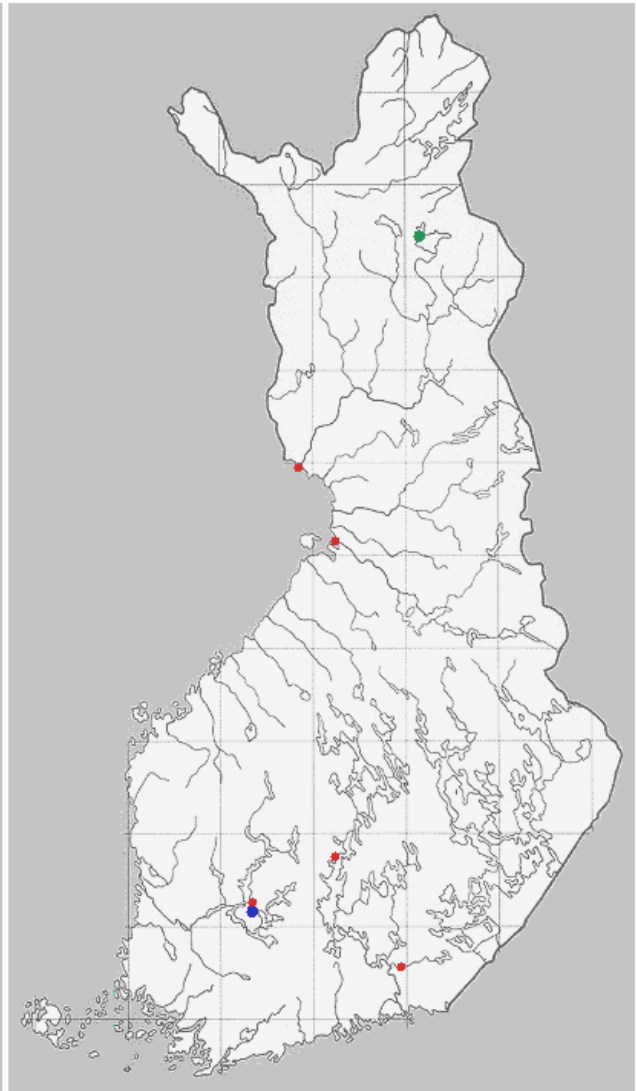
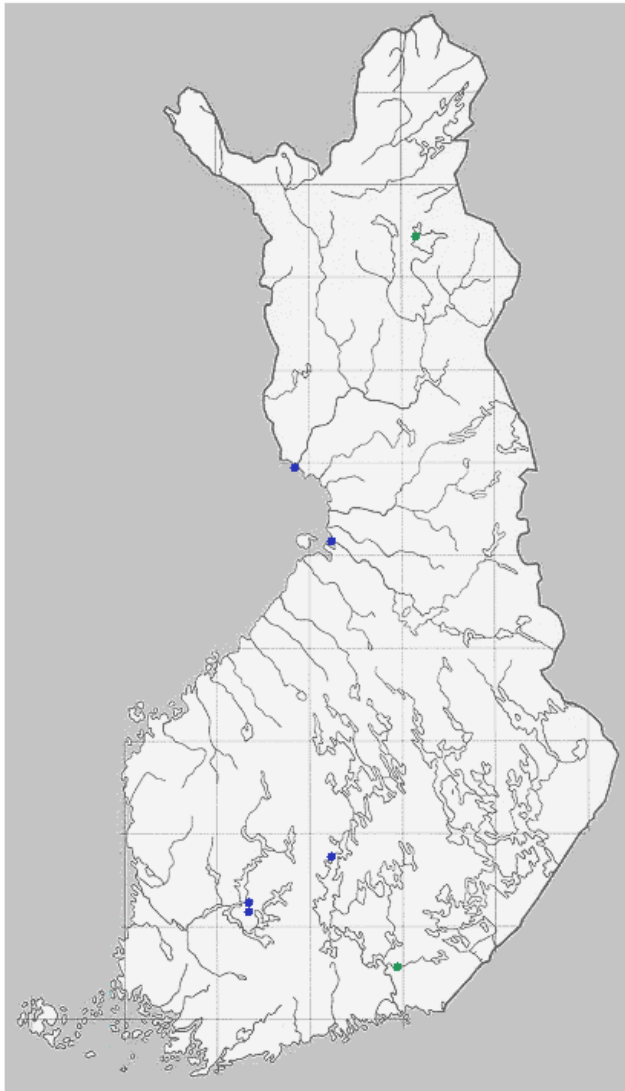


2000-

2. 10x10km distribution maps

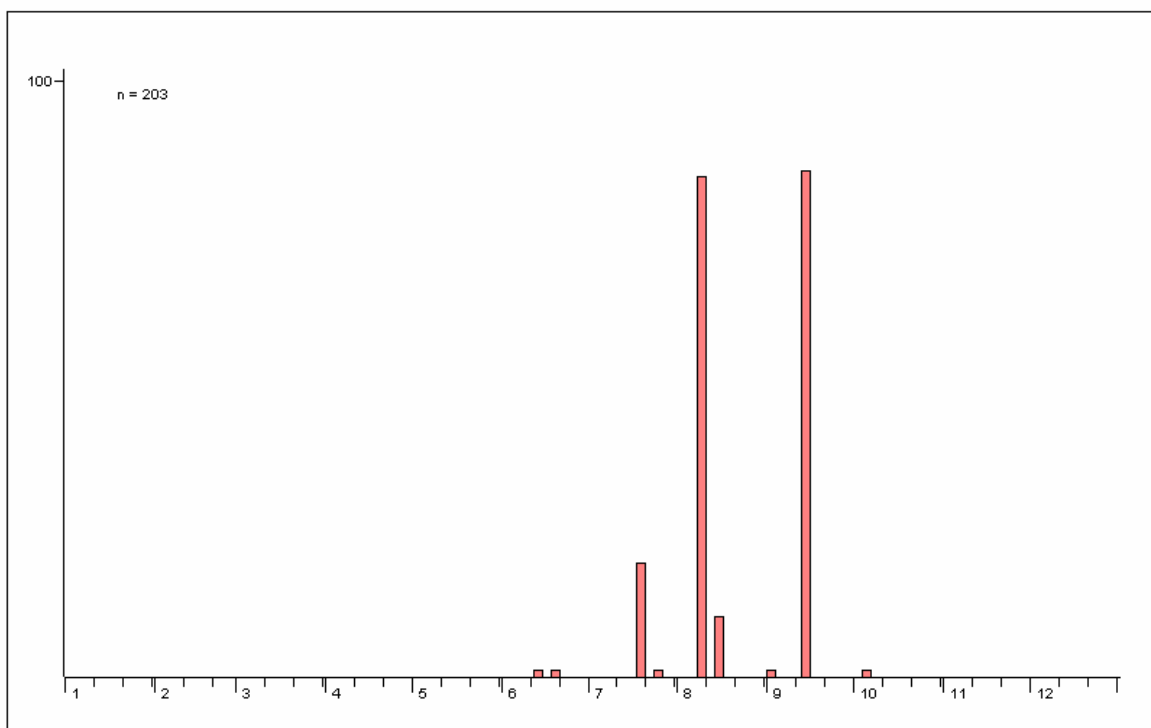
Time periods: ?, -1949, 1950-1999, 2000-

Exx.: o = 1, o = 2, O = 3, O = 4-



3. Phenology information

Phenology (exx.)



3 earliest obs

Ta 25.07.1985
Sa 02.09.2001
ObS 12.06.1997
LkE 18.06.2001 20.07.2000 20.07.2000

3 latest obs

25.07.1985
 02.09.2001
 12.06.1997
 13.09.2001 13.09.2001 04.10.2001

4. Additional collecting data

	exx.		obs.
J. Itämies & O. Nenonen	199	J. Itämies & O. Nenonen	38
M. Pentinsaari	2	M. Pentinsaari	2
S. Karjalainen	2	S. Karjalainen	2
Juha Salokannel	2	Juha Salokannel	2
M. Virtala	1	M. Virtala	1
Pekka Valtonen	0	Pekka Valtonen	1

Last updated 22.01.2005.

[L. ferrugineus](#) >

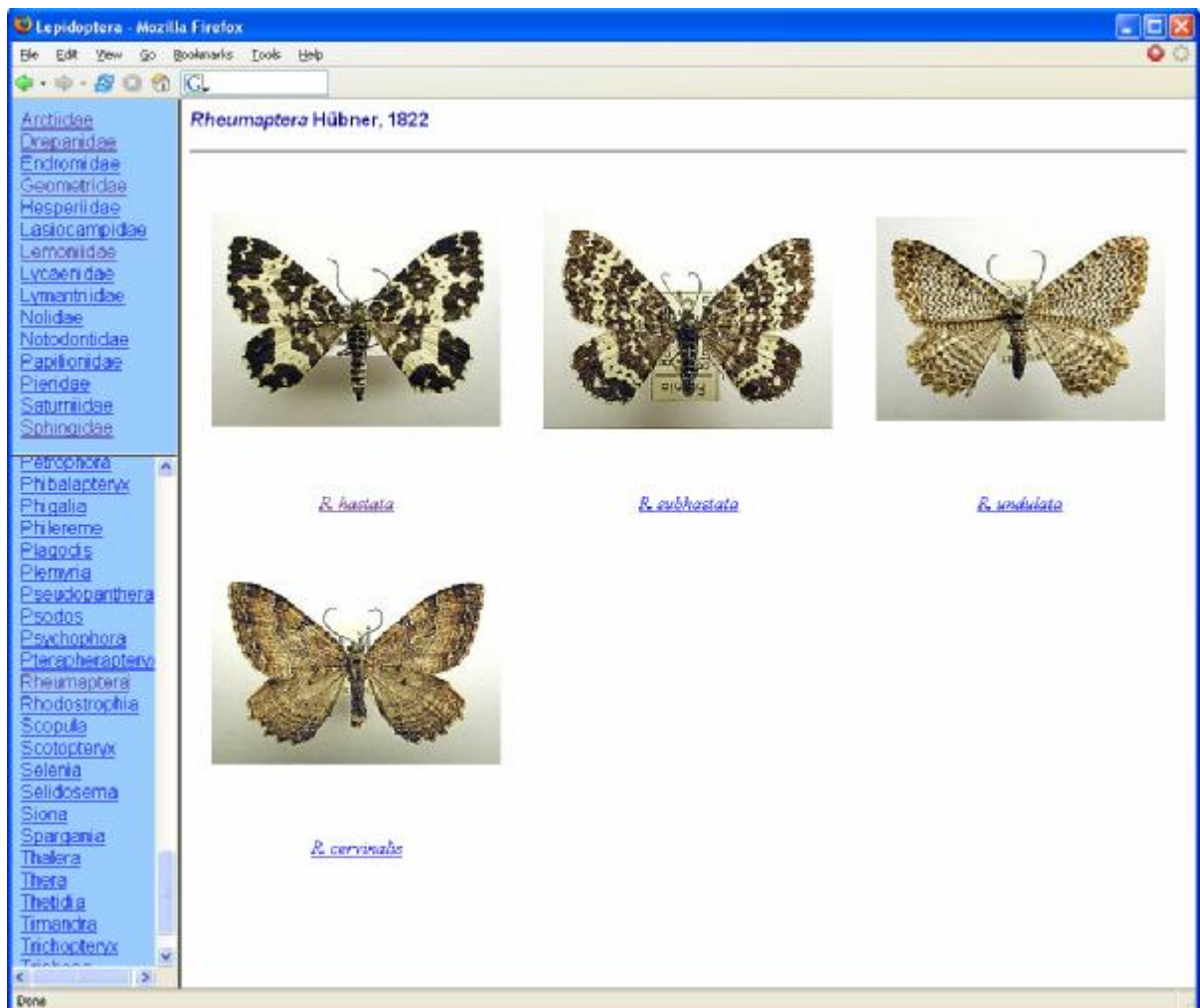
The amount and quality of the Atlas data is entirely dependent on the data stored in the database. It is thus ultimately up to the insect collectors, whether the Atlas data will provide useful information about the species.

10. The Image Database

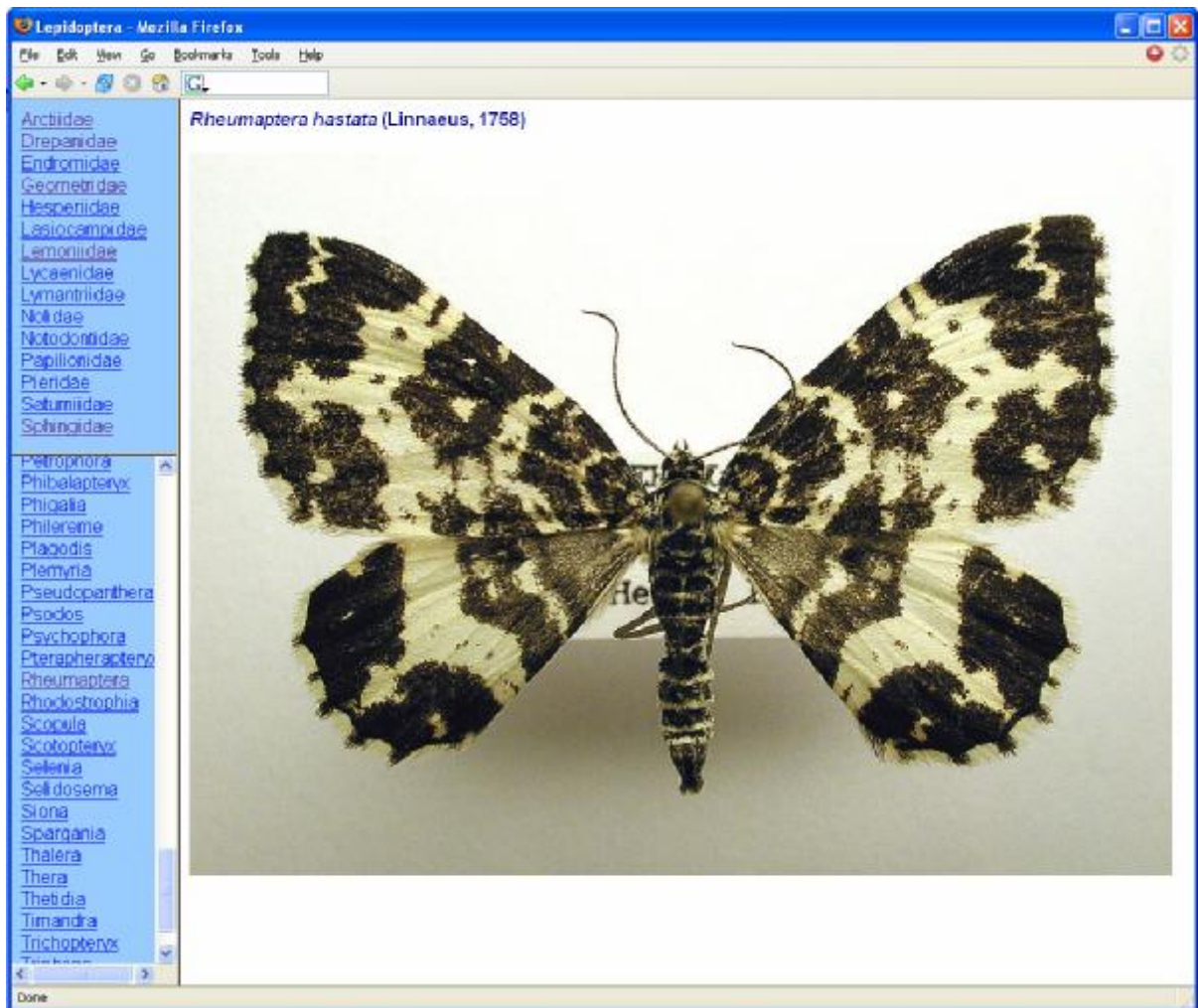
Having good images of different species can greatly ease the determination of a specimen. For identification purposes, a separate database of species images is provided. For some of the insect groups, there is an **Images** link on the left-side panel. By selecting this link, you can browse the available images for the group.

10.1. Browsing the Image Database

Currently, only for Lepidoptera there is a considerable amount of images available. For this group, clicking the Images link opens a window which allows you to select the desired family and genus from the left-hand side frames (here, we have selected the family Geometridae and the genus *Rheumaptera*):



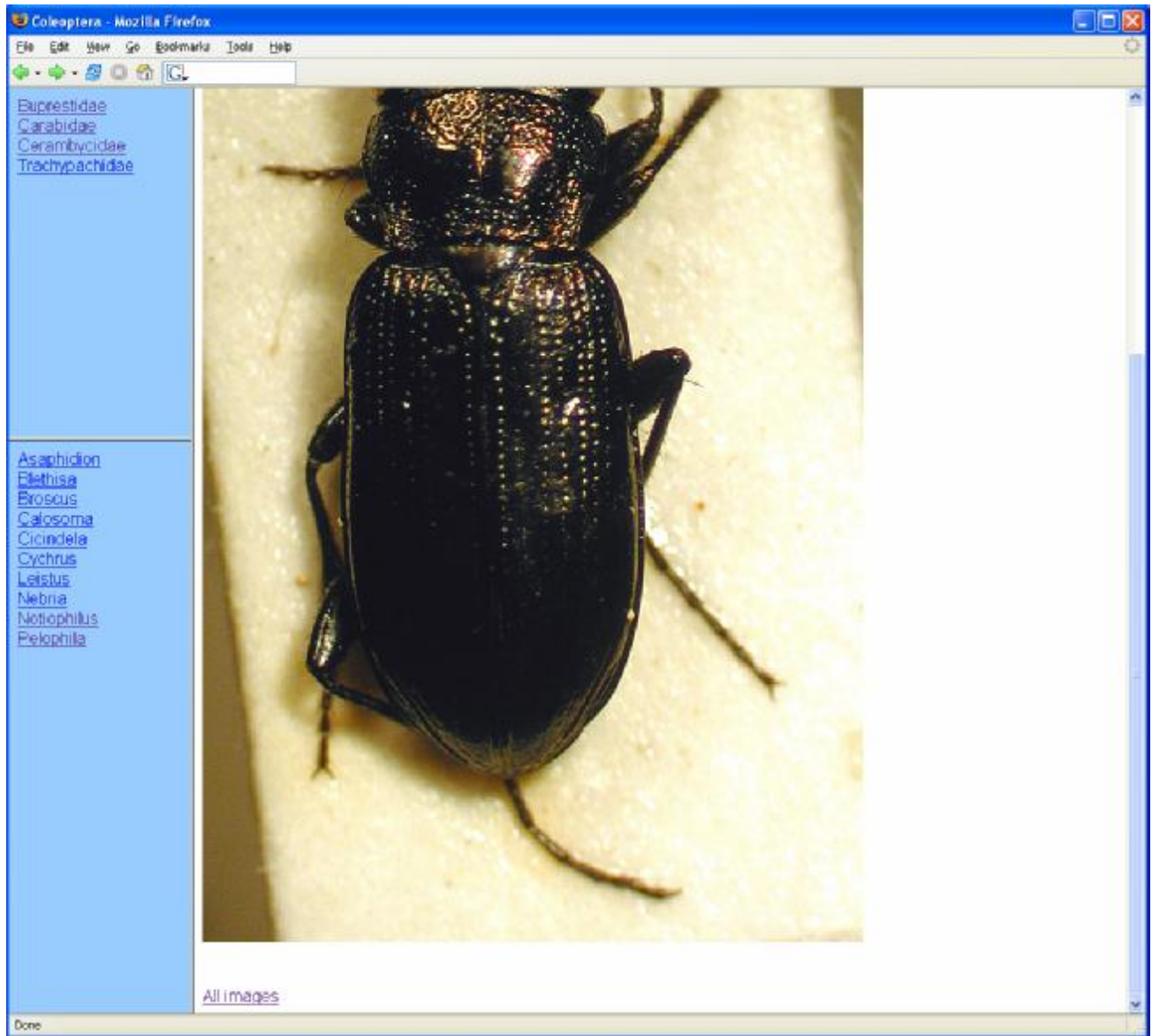
By clicking one of the thumbnail images, a larger image is shown:



10.2. Displaying Additional Images for a Species

In many cases it can be sufficient for correct species determination to have one good image of a given species. However, in many genera determination requires a more detailed examination of the available specimens.

To provide help in the more difficult determination tasks, more than one image of a species can be stored in the image database. If additional images are available, an **All images** link is shown below the main species image:




Clicking the **All Images** link will display all the available images for the species:


Coleoptera - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

[Diprrestidae](#)
[Carabidae](#)
[Cerambycidae](#)
[Tenebrionidae](#)



[Asaphidion](#)
[Blattispa](#)
[Pezomachus](#)
[Calosoma](#)
[Cicindela](#)
[Cychrus](#)
[Leisurus](#)
[Nebria](#)
[Notiophilus](#)
[Pelophila](#)



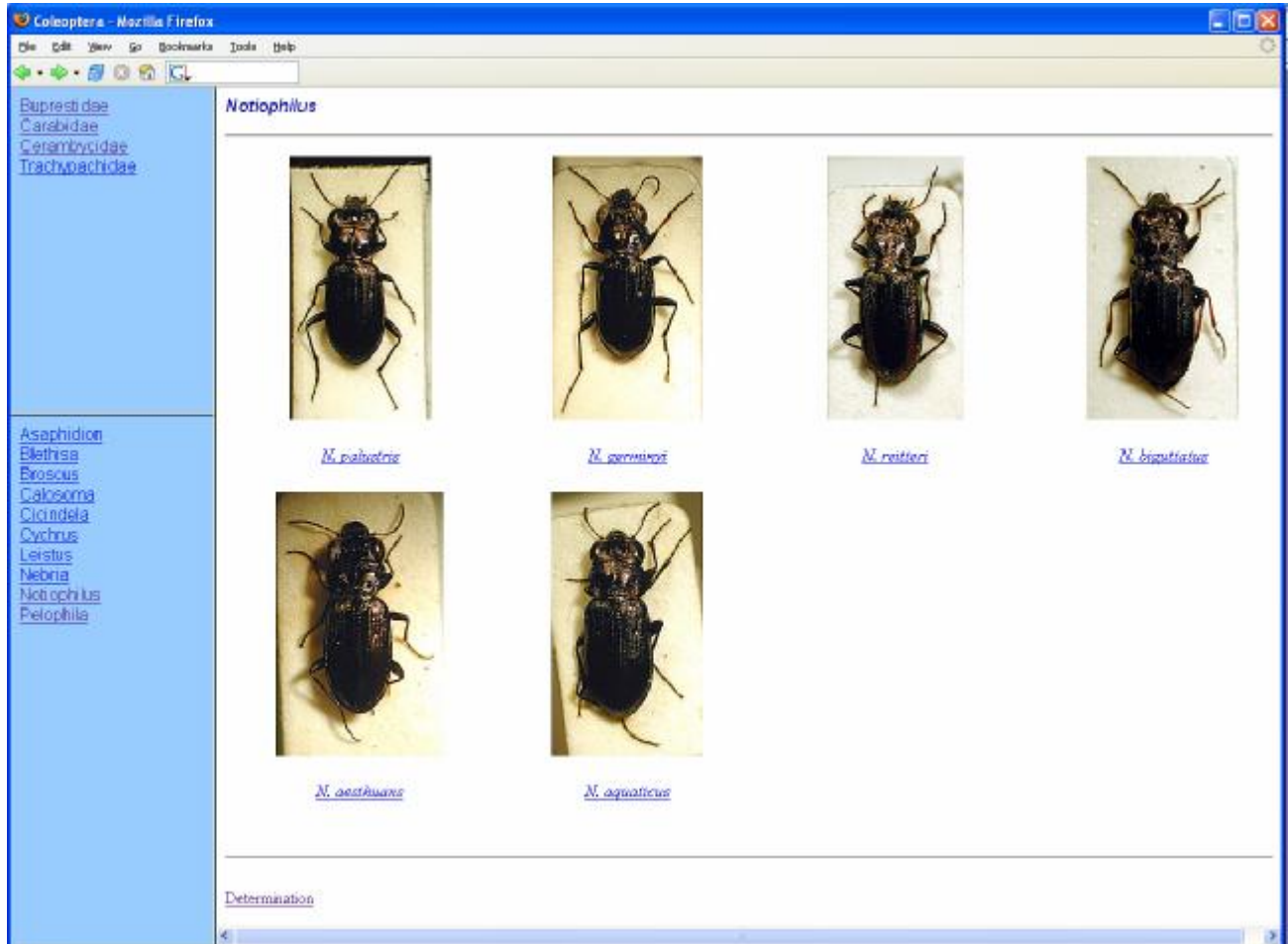
N. aequalis, sp of elytra

Done

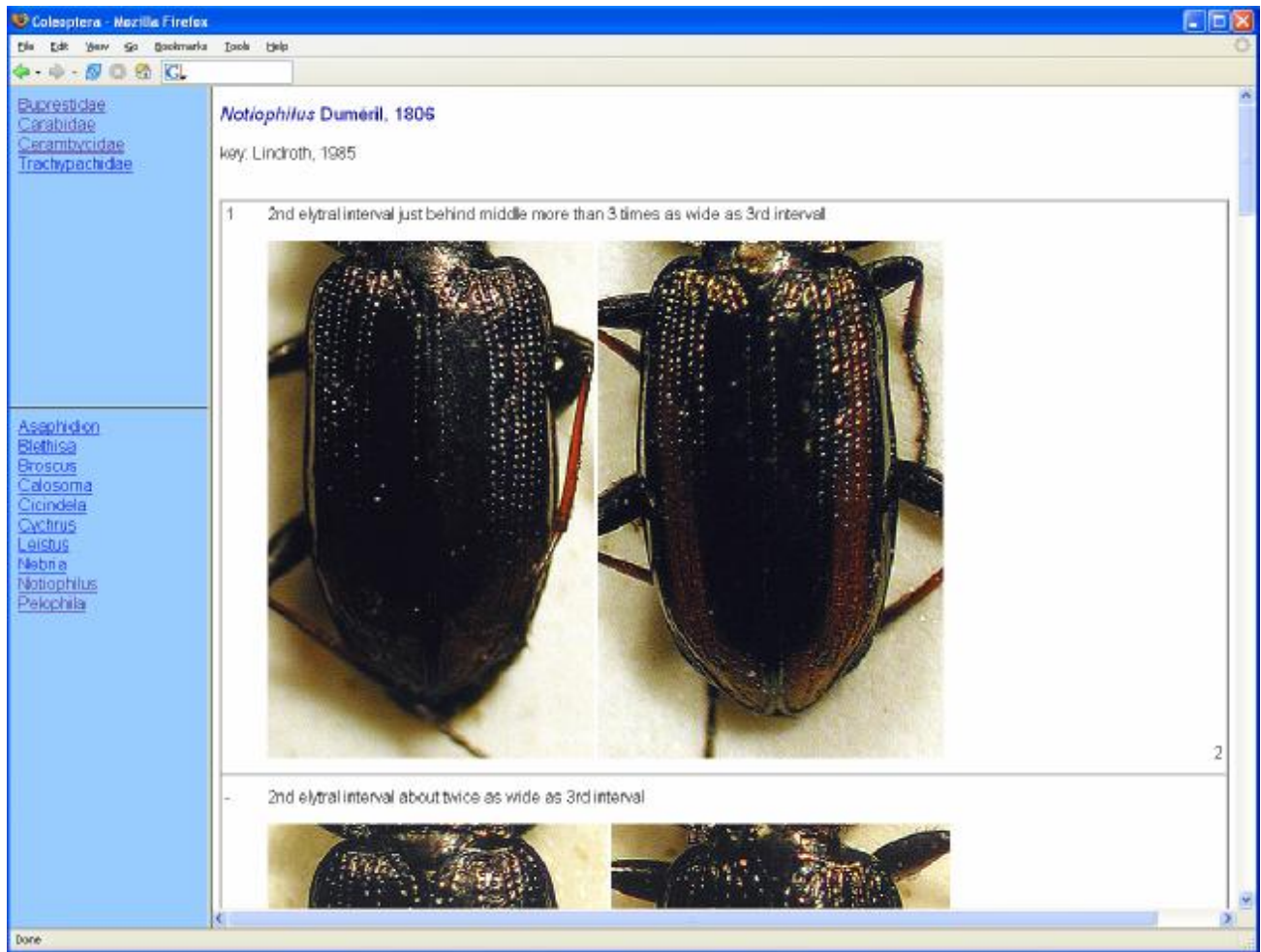
The image shows a Mozilla Firefox browser window displaying a list of beetle families and genera on the left side. The main content area contains two photographs of beetles. The top photograph shows a dark beetle from a dorsal perspective on a light-colored surface. The bottom photograph is a close-up of a beetle's elytra, showing their characteristic longitudinal striations. Below this close-up, the text 'N. aequalis, sp of elytra' is visible. The browser's status bar at the bottom left shows the word 'Done'.

10.3. Species Determination

Having some extra detail images of a species may be sufficient to ensure a correct determination. However, in addition to detailed images, it is also possible to provide a determination key for a given genus. If a key is available, a **Determination** link is shown below the thumbnail images:



This will open the determination key for the genus:



10.4. Adding New Images to the Image Database

There is a great need for images in all insect groups. If you have images for a new species, please send them to the database administrator. Due credit will be given to the provider of an image. It is, however, assumed that all images supplied to the database will be free to use in any non-commercial purposes. When a picture is used outside of the database, the original source should be mentioned. For example, you can use expressions like

Image: Finnish Entomological Database

Or, if the original provider of the picture is known,

Image: Finnish Entomological Database/N. N.

In addition to images, html documents on determination issues (keys, comparisons, etc.) can also be added to the database. If you have written these kinds of documents, please send them to the database administrator. This way other collectors can take benefit of your work, too.