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CHECKLIST OF PYRENEAN ALPINE-STAGE MACROFUNGI

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Macrofungi from the alpine stage of the Pyrenees are poorly known. In this paper we first describe the alpine habitats of this mountain chain, then provide an overview with bibliography for all known taxa, with information on distribution and habitat. In addition to the 214 taxa of macrofungi previously known from the Pyrenees, 83 new taxa are reported from the French side of the Pyrenees. The total number of taxa reported for the alpine stage of the Pyrenees is now 297, of which 19 are *Ascomycetideae*, 260 *Agaricomycetideae*, 11 *Gasteromycetideae* and 7 *Aphyllophoromycetideae*. The genera richest in species are: *Inocybe* (53 taxa), *Entoloma* (41 taxa), *Cortinarius* (36 taxa), *Hygrocybe ss. lato* (20 taxa) and *Melanoleuca* (12 taxa). Of the 297 taxa reported, 103 are true arctic-alpine fungi.

Key-words: Andorra, arctic-alpine communities, chorology, France, Fungi, Inventory, mycocoenology, Spain.

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INTRODUCTION

The fungus flora of the alpine stage in the Alps has been the subject of relatively intense study since Jules Favre's observations in 1955. French mycologists such as R. Kühner, D. Lamoure, G. Bruchet, M. Eynard, M. Bon, J.-L. Cheype, Swiss mycologists such as E. Horak and B. Senn-Irlet and Italian mycologists such as P.G. Jamoni and E. Bizio have contributed extensively to the knowledge of taxonomy, ecology and distribution of alpine fungi from the Alps (e.g. Kühner et Lamoure 1970, Bruchet 1970, Eynard 1977, Lamoure 1982, Bon 1985a, 1985b, 1989, 1991, Kühner & Lamoure 1986, Senn-Irlet 1986, 1988, 1993, Bon et Cheype 1987, Horak 1987a,1987b, 1993, Jamoni 1993, 1995a, 1995b, Cheype 1997, Bizio 1997).

The Pyrenees, a natural frontier between France and Spain, is a high mountain chain with many summits above 3000 meters. Despite relatively low latitudes, typically alpine habitats are present (Dupias 1985: 167). Nevertheless, the study of Pyrenean alpine macrofungi has only recently begun. So far, mainly the Catalan Pyrenees (especially in Spain and Andorra) has attracted interest, by Spanish mycologists from Catalonia such as J. Ballarà, L. Escànez, X. Llimona, J. Llistosella, J. Vila, and F. Esteve-Raventós and R. Galán from Madrid (Ballarà 1997, Escánez 1999, Esteve-Raventós

&Vila 1997, 1998, Galán & al. 1997, Vila & Llimona 1998, Vila & Esteve-Raventós 1998, Vila et al. 1997, 1998, 2000).

Very few French mycologists have studied Pyrenean alpine macrofungi. Noticeable exceptions include Bon who studied J. Ballarà's alpine collections from the Catalan Pyrenees (Bon & Ballarà 1995, 1996, 1997), Lassueur (1988) who recorded one *Scutellinia* species and Magni (1989) who recorded three *Bovista* species from the French side of the Central Pyrenees. Some unpublished data by N. de Munnick from Ariège (a French Department located on the eastern-central side of the mountain) could also be mentioned. At present, very few studies have been carried out on the high central massifs of the chain such as the Ordesa National Parc in Spain (Esteve-Raventós et al.1997) and data from French side of the Pyrenees remain very scarce. These facts can probably be partly explained by some characteristics of this mountain chain such as (1) the topography of the Pyrenees, with very steep valleys and slopes is not favourable to a large extension of alpine snow-bed communities, which are so rich in alpine macromycetes; and (2) on account of the low latitude, high altitudes must be reached to attain the alpine stage and the differential height to climb on foot is generally more than one thousand meters except for very few sites.

Our studies of alpine macrofungi of the central part of the French Pyrenees started in 2002 (Corriol & Largier 2004, Corriol 2006). Thereafter, an inventory project of the fungi of the Midi-Pyrénées region (France) has been initiated with financial support from the European Union and the regional authorities (Corriol et *al*. 2004). A mycological database has been created, populated with data collected between 2002 and 2004 (bibliographic data, own field data and unpublished data from regional mycologists and other correspondents).

In this paper we report all published taxa of macrofungi (*sensu* Arnolds 1981) from the Pyrenean Alpine stage, information from our own collections made between 2002 and 2006, and some collections made by correspondents. Attempts are made to associate each collection with type of alpine habitat.

THE STUDY AREA

The Pyrenees

The Pyrenees are a 440 km long west-east oriented mountain chain located between 42° and 43° north latitude (see Fig. 1). It spreads from Atlantic ocean to Mediterranean sea, with a 150 km maximum width and separates the Iberian peninsula from France. French side at the north is narrow and strongly sloping. Spanish side at the south is twice as wide and has a more gradual slope. At the eastern part of the axial chain, a little country, Andorra is encircled between France and spain. The axial zone is formed by primary sediments mainly consisting of siliceous rocks but also locally by hard limestone and dolomite. From one side to the other, a secondary cover made of calcareous and marleous sediments envelops the axial zone. Tertiary sediments only play an important role in the pre-Pyrenees of the spanish side. Quaternary glaciations had a big impact on geomorphology, building deep valleys, large cirques, numerous lakes in high altitude depressions, etc. The higher summits (many of them beyond 3000 m) are found between the Anie's peak (2504 m) at the west, 100 km from the Atlantic ocean, and the Canigou (2785 m) at the east, 48 km far from the Mediterranean sea. The Aneto's peak (3404 m), in central spanish side is the top of the Pyrenees. (Dupias 1985).

The climate is very contrasted between north and south sides, particularly in central part of the chain. At the french side, it is fundamentally oceanic (except at the east of Andorra where it is more

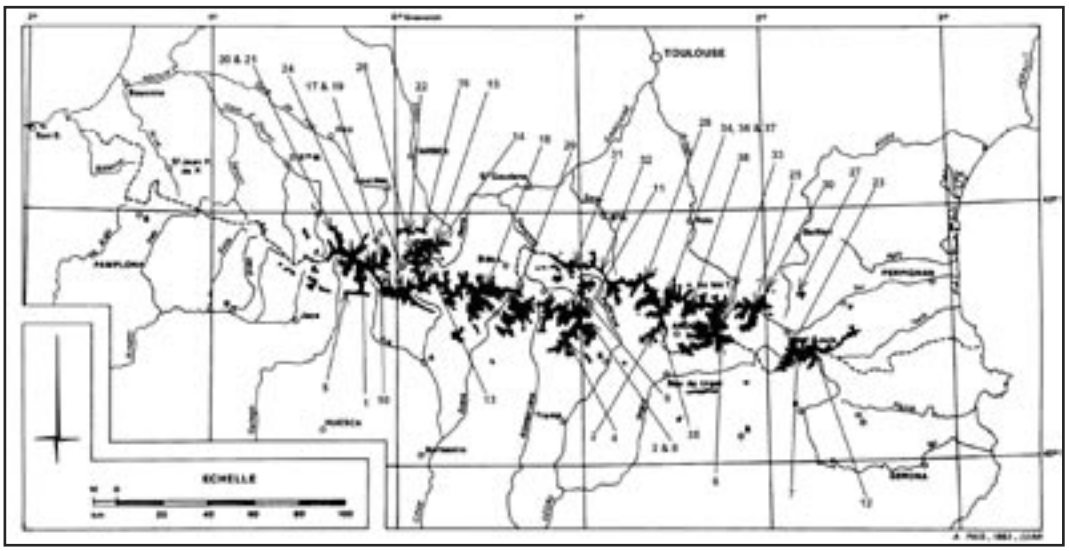

Fig. 1. The alpine sites prospected, on the map of alpine stage of the Pyrenees, according to Païs in Dupias (1985).

continental). High amounts of precipitations are due to north-western cyclones. Annual precipitation mostly amounts to more than 1000 mm in normal years, while up to 2600 mm has been recorded in the western part. Some internal deep valleys (e.g. Gavarnie, Aure, Aran) and the Cerdan plateau at the eastern part are more protected and are, hence, more continental. To the south of the frontier crest, one can find more areas with distinctly continental climate except in the occidental end which is very oceanic throughout. The mediterranean influences are important as soon as altitude decreases (Izard in Dupias 1985).

Moreover, the climate is strongly influenced by altitude. The altitudinal zonation of vegetation has four stages: the collinean (or mediterranean in the south side) stage, the mountain stage, the subalpine stage and the alpine stage (a nival stage is very fragmentarily represented on the highest summits).

The alpine stage in the Pyrenees

The alpine stage as studied here is considered in its strict sense. Its distribution along the chain is shown in Fig. 1. It is defined as comprising all altitudinal stations in which the micro-, meso- or macroclimatic conditions do not permit the growth of phanerophytes (lignose plants taller than 30 cm). Some of the ecological characteristics are a short vegetation period (less than a hundred days per year) and an annual average temperature of less than 0°C. Moreover, the temperature contrasts between day and night during the vegetation period are very strong, particularly due to the strong radiation of the ground related to the low density of the air. Also, solar radiation is intense and rich in ultra-violet rays. Precipitation is high throughout the year, mainly in the form of snow. Annual rainfall probably amounts to more than 1500 mm per year in average in every alpine locality of the

Pyrennees and twice as much in some of central and western parts of the chain. Air humidity is subject to sharp and rapid contrasts, between saturation and drought. The periglacial phenomena can be intense in the intermediate seasons (beginning and end of summer) creating physical disturbances in the substrates (gelifraction, cryoturbation).

In the Pyrenees as in most other high mountains of Europe, timbering has been strongly influenced by human activities. High-altitude sites were (and are still) used as summer pastures and the timberline has usually been lowered by clearings and cuttings for human and cattle needs. Over wide areas in the Pyrenees, this impact has been so important that the subalpine stage of whole valleys has been cleared and still only contain grasslands or heathlands, instead of the original mountain pine (*Pinus uncinata* Mill. ex Mirb.) native forests. Under these circumstances, it is not possible to use the current timberline as a good indicator of the beginning of the alpine stage.

Nevertheless, the alpine stage can be well characterised by typical alpine habitats and vegetation. Analysis of plant communities was therefore used to identify the alpine altitudinal stage. To our experience, the lower stations of alpine habitats in the Pyrenees are to be found above 2200 m. At that altitude, they represent mainly small habitats in microstational conditions (for example small confined snow-beds at north exposure). The surrounding habitats are however still related to the subalpine stage (for example *Nardus* grasslands of the *Nardion strictae* communities). They are usually poorer in alpine macrofungi as if the stational conditions were not optimal or as if the climatic stress was not important enough for the plant communities to develop the highly specialised alpine ectomycorrhizic symbiosis. The lower altitudinal limit of the typical continuous alpine stage varies a lot, depending notably on the exposure and position in the chain. In the peripheral massifs of the centre of the French side of the chain, the limit is situated between 2200 and 2300 m at northerly exposures, though in the internal massifs the limit is higher. In the oriental part, which has more Mediterranean influences, it can go up to 2600 m on favourably exposed slopes. It is mainly higher than that of the Alps on account of the lower latitude of the Pyrenees.

Study sites

An overview of studied sites is given in Table 1.

MATERIAL, METHODS AND TERMINOLOGY

Material and methods

All published taxa of macrofungi (*sensu* Arnolds 1981), reported from the Pyrenean Alpine stage, including information from our own collections made between 2002 and 2006, and some collections made by correspondents, are reported. Attempts are made to associate each collection with type of alpine habitat.

As a specific alpine Pyrenean fungi bibliography is sparse, we have mainly based our determinations on literature about the alpine zone of the Alps.

Our prospecting was focused on snow-bed communities of Salicetea herbaceae, but contiguous habitats were examined too. The Agaricomycetideae were mainly studied and some Ascomycota were probably overlooked. Some trivial taxa were determined in the field, but most of taxa observed in good state were collected for laboratory examination. Microanatomy of the collections was studied

both on fresh and dry material, with a microscope equipped with a 100x immersion lens. The best collections were photographed in the field. Only the records which correspond to the alpine stage as defined before are listed in the catalogue of species. Nevertheless, some dubious alpine collections have been included due to the lack of ecological and/or floristical instage given by the authors.

Terminology for habitat types

We used the terminology of the French prodrome of vegetation (Bardat *& al*., 2004) for description of alpine habitats of Pyrenees in which macrofungi were recorded. This vegetation classification accords with the Braun-Blanquet approach to phytosociology (e.g. Braun-Blanquet 1964). A list of phytocoena with brief desciption is given in Table 2.

RESULTS

Although a systematic inventory of macrofungi from the alpine stage of the Pyrenees has only been carried out for five years (2002–2006), 297 taxa have already been reported, mainly thanks to Catalan mycologists. Only 19 of these are Ascomycetideae and 7 are Aphyllophoromycetideae. Gasteromycetideae are quite well represented with 11 taxa. The best represented (and best known) group are the Agaricomycetidea with 260 recorded taxa. Arctic-alpine taxa are well represented, with 103 taxa. The remaining list consists in widely distributed taxa, especially grassland fungi and ectomycorhizal fungi with wide range, usually associated with trees at lower altitude. The genera richest in species are: *Inocybe* (53 taxa, including 30 arctic-alpine), *Entoloma* (41 taxa including 4 arctic-alpine), *Cortinarius* (36 taxa, including 27 arctic-alpine), *Hygrocybe ss. lato* (20 taxa, including 2 arctic-alpine) and *Melanoleuca* (12 taxa, not including any arctic-alpine taxa).

The richest habitats are represented by the snow-beds (Salicetea herbaceae). Alpine microheathlands (Loiseulerio-Vaccinietea) and grasslands (Festuco-Seslerietea, Caricetea curvulae and Carici-Kobresietea) are also interesting habitats for alpine fungi in the Pyrenees.

DISCUSSION

On account of the disparity of the data, the known distribution of macrofungal taxa along the mountain chain mainly represents the distribution of the data and not the real distribubution of the taxa. However, we noticed a surprising fact: except the recent report of *Russula alpigenes* in Néouvielle and Pic-du-Midi de Bigorre massifs, no Russulaceae had been been found in the central Pyrenees alpine stage although several *Russula* and *Lactarius* taxa are reported from the eastern part of the chain. We can clearly see on Fig. 1 two distinct sectors of the alpine zone along the chain on either side of the Pallaresa River. These two sectors correspond to the distribution of alpine Pyrenean endemic phanerogams, for example *Androsace ciliata* DC. for the western part and *Cerastium pyrenaicum* J. Gay for the eastern part (Dupias 1985: 58, 60). It would be interesting to test the hypothesis that alpine macrofungal coenoses of these two sectors have evolved differently, with for example, an eventual impoverishment of the *Russulaceae* family in the central part.

Tab. 1. Overview of studied sites.

No.	Country	Region / department	Municipality	Site name	Altitude (m)	Other information
1	Spain	Central Pyrenees (Huesca)		Balneario de Panticosa, ibón Azul Superior		
2	Spain	catalan Pyrenees (Alt Urgell, Lleida)	Os de Civís	Coll de Conflent	2200	
3	Spain	catalan Pyrenees (Pallars Sobirà, Lleida)	Espot	El Estanyets, Super Espot		
4	Spain	catalan Pyrenees (Pallars Jussà, Lleida)	la Torre de Cabdella	Estany de Filià		
5	Spain	Central Pyrenees (Huesca)	Jaca	Hoz de Jaca, Sierra de Tendenera, north side of Peña Sabocos		
6	Spain	catalan Pyrenees (Cerdanya, Lleida)	Meranges	La Coma Ermada, Puigpedròs, malniu		acid soils
7	Spain	catalan Pyrenees (Ripollès, Girona)	Queralbs (Ribes de Fresser)	Núria valley	2200–2400	basic and acidic soils
8	Spain	catalan Pyrenees (Pallars Sobirà, Lleida)	Espot	Picardes orientals	2300	basic soils
9	Spain	catalan Pyrenees (Pallars Sobirà, Lleida)	València d'Àneu	Port de la Bonaigua		
10	Spain	central Pyrenees (Huesca)		Puerto de Bujaruelo, Umbría del Gabieto, in front of pescadores refuge		
11	Spain	catalan Pyrenees (Pallars Sobirà, lleida)	Espot	Sota la Roca de l'Estany, (National Park Aigüestortes i Estany de Sant Maurici)	2150–2200	basic soils
12	Spain	catalan Pyrenees (Ripollès, Girona)	Setcases	Ulldeter	2300–2500	
13	France	Hautes-Pyrénées	Saint-Lary Soulan	Néouvielle		on granite
14	France	Hautes-Pyrénées	Gèdre	Estaubé circus, in front of Les deux bornes	2200	on limestone
15	France	Hautes-Pyrénées	Bagnères-de-Bigorre	Cloutou	2400	on granite
16	France	Hautes-Pyrénées	Bagnères-de-Bigorre	Coume du Pic du Midi de Bigorre	2300–2350	mixt substrates

Tab. 1 (cont.). Overview of studied sites.

No.	Country	Region / department	Municipality	Site name	Altitude (m)	Other information
17	France	Hautes-Pyrénées	Gavarnie	Les Gabiétous	2300	on limestone
18	France	Hautes-Pyrénées	Loudenvielle	Les Gourgs blancs	2550	on granite
19	France	Hautes-Pyrénées	Gavarnie	Les Sarradets	2300–2450	on limestone
20	France	Pyrénées atlantiques	Eaux-Bonnes	North circus between Pène Médaa and Les trois dents, Gourette	2250–2400	on limestone
21	France	Pyrénées atlantiques	Eaux-Bonnes	North circus of Pic d'Amoulat and col du Plaa Ségouné, Gourette	2380–2445	
22	France	Hautes-Pyrénées	Beaucens	North face of Pene det Pouri	2250–2400	
23	France	Pyrénées orientales		North side of the Puigmal		
24	France	Hautes-Pyrénées	Cauteret	Oulettes du Vignemale	2200–2250	
25	France	Pyrénées orientales		Pic Carlitte		
26	France	Hautes-Pyrénées	Betpouey	Packe refuge	2510	
27	France	Aude		West side of Pic de Madres		
28	France	Ariège	Auluns-les-Bains	Pic rouge de Bassiès	2660	
29	France	Haute-Garonne	Bagnères-de-Luchon	Crabidès crest	2300	
30	France	Ariège	Orlu	Col de Terrès	2450	
31	France	Ariège	Sentein	Port d'Urets	2300	
32	France	Ariège	Couflens	Tuc de Bignau	2260–2350	

Tab. 1 (cont.). Overview of studied sites.

No.	Country	Region / department	Municipality	Site name	Altitude (m)	Other information
33	France	Pyrénées orientales	Porta	North side of Pic de Font Nègre, above the lake of Font nègre	2450	
34	Andorra	andorran Pyrenees	El Serrat	Arcalís		acidic soils (Laberche, 1989)
35	Spain	catalan Pyrenees (Pallars Sobirà, Lleida)	Tor (Alins)	Port de Cabús (between Andorra and Spain)	2300–2350	
36	Andorra	andorran Pyrenees	El Serrat	Bases del Port de Rat		acidic soils (Laberche, 1989)
37	Andorra	andorran Pyrenees	El Serrat	Tristaina lakes	2300–2550	acidic soils (Laberche, 1989)
38	Andorra	andorran Pyrenees	El Serrat	L'Estanyó	2300–2500	acidic soils (Laberche, 1989)

Tab. 2. List of phytocoena with brief description.

Description of habitats	Syntaxonomical units	Comment
Cliff and rockalpine habitats	Asplenietea trichomanis (Br.-Bl.) Oberd. class with two subunits, the Saxifragion mediae Br.-Bl. on calcareous substrates, and the Androsacion vandellii Br.-Bl. on siliceous substrates	These rocky habitats are not favourable for macrofungi, except for some lichens which are not studied here; furthermore, most of these alliance units are not strictly alpine since they represent edaphic climax that can be found at the subalpine or sometimes even mountain stages; some of the plant associations are however specific to alpine or nival stages
Scree habitats	Thlaspietea rotundifolii Br.-Bl. class with mainly two subunits, the Iberidion spathulatae Br.-Bl. on calcareous substrates, and the Androsacion alpinae Br.-Bl.: on siliceous substrates	
Alpine climacic acidophilousgrasslands	Caricetea curvulae Br.-Bl. class, Festucion supinae Br.-Bl. alliance	
Alpine climacic basophilous,cryophilous grasslands of windy exposed places	Carici rupestris-Kobresietea bellardii Ohba (Oxytropido-Elynion myosuroidis Br.-Bl.)	
Basophilous, rather chionophilous grasslands	Festuco-Seslerietea caeruleae Barbero & Bonin class, Primulion intricatae Br.-Bl. alliance	mainly subalpine, but can be found at the low alpine stage
Acidophilous, rather chionophilous grasslands	Caricetea curvulae Br.-Bl. class, Nardion strictae Br.-Bl. alliance	
Alpine dwarf heaths	Loiseleurio procumbentis-Vaccinietea microphylli Eggler ex Schubert class, with two subunits, the basophilous Arctostaphylo-Cetrarion nivalis Å.E. Dahl and the acidophilous Loiseleurio procumbentis-Vaccinion microphylli Br.-Bl.	
Alpine spring and oozing habitats	Montio fontanae-Cardaminetea amarae Br.-Bl. & Tüxen ex Klika & Hadač class, Cardamino amarae-Montenion fontanae Zechmeister & Mucina suballiance	
Alpine fen habitats	Scheuchzerio palustris-Caricetea fuscae Tüxen class, with two subunits, the acidophilous Eriophorion scheuchzeri Hadač and the basophilous Caricion incurvae Br.-Bl	
Alpine snow-bed habitats	Salicetea herbaceae Br.-Bl. class, with two subunits, the acidophilous Salicion herbaceae Br.-Bl. and the basophilous Arabidion caeruleae Br.-Bl.	both alliances known for their rich typically alpine macrofungi communities

An important factor to explain the distribution of macrofungal species richness on different habitat types is the presence of ectomycorhizal symbiote in plant communities, such as alpine dwarf willows and *Dryas octopetala*. However, several habitat types as alpine fens should be studied in more details, notably for biotrophic ascomycetes.

The 83 new taxa reported by us demonstrate how fragmentary the knowledge is of this remarkable part of the biodiversity of the higher summits in Pyrenees. However, this inventory forms a good starting point for further research, which should be conducted in the the near future. In comparison, in the Alps, 229 taxa were inventoried by Favre (1955) in the alpine stage of the Swiss national park and 325 taxa by Kühner & Lamoure (1986) (only Agaricomycetideae were studied) in the Vanoise area of French Alps. In northern Europe, Gulden (2005) quotes 332 different taxa in the Finse area of the Hardangervidda plateau in central south Norway, a boreo-alpine site. Gulden & Torkelsen (1996), completed by Noordeloos & Gulden (2004) and Eyssartier & Delannoy (2006) quote 209 different taxa in the arctic archipelago of Svalbard. The taxonomical distribution of the taxa reported in these studies is reported in Table 3. The distribution of the taxa is globally comparable. Some differences may be explained by the lack of study in some groups, such as Ascomycetideae or Aphyllophoromycetideae. The genus *Inocybe* seems to be better represented in the Alps and the Pyrenees than in boreo-arctic areas. The genera *Mycena* and *Galerina* wich are much well represented in Finse inventories were especially studied by Gulden (Gulden & Jenssen 1982, Gulden 1980). The genus *Galerina* was also particularly studied in Svalbard (Gulden & Vesterholt 1999). However, for *Galerina* species it seems to us that the Pyrenean alpine stage is less favorable than that of Finse, Svalbard or even the Alps: actually, the favorable habitats such as snow-bed with very long snow-cover, alpine fens or *Sphagnum* bogs are much rarer in the Pyrenean sites.

Vast amounts of field work is still needed in the Pyrenees, notably in the central part of the chain. More taxonomic work also remains to be done. At present, several collections in our herbarium are still unnamed. The ecology of the fungal species also needs to be studied in more detail since we can see that for many data, the ecological descriptions are still not sufficient. Mycocoenological conclusions are dependent on this preliminary phase.

COMMENTED LIST OF SPECIES

Ascomycota

Chlorosplenium cenangium (De Not.) Korf.

Previously published record: Vila et al. (1998).

Collections cited: site 12, 16 Jun 1997, 25 Jun 1997 and 2 Aug 1997.

Notes on habitat: The habitat is described as 'on dead twigs of *Rhododendron ferrugineum* at 2200–2450 m'. The altitude at which the collection was made leaves it open if the locality was alpine or subalpine. The substrate is a typical subalpine plant. If alpine, the habitat may be Loiseleurio-Vaccinion in which Rhododendron ferrugineum can be found in dwarf isolated forms.

Specimen examined: None.

Colpoma juniperi (P. Karst. ex P. Karst.) Dennis

Previously published record: Vila & al. (1998).

Collection cited: Site 12, 16 Jul 1997.

Tab. 3. Taxonomical distribution of macrofungi reported from different alpine and arctic areas.

Reference	This work	Favre (1955)	Kühner & Lamoure (1986)	Gulden & Torkelsen (1996), Noordeloos & Gulden (2004), Eyssartier & Delannoy (2006)	Gulden (2005)
Place	Pyrenees	Swiss national park (Alps)	Vanoise (French Alps)	Svalbard	Finse area (Norway)
Total number of taxa	297	229	325	209	332
Ascomycetideae	19	12	not studied	17	42
Aphyllophoromycetideae	7	3	not studied	20	49
Gasteromycetideae	11	12	not studied	10	6
Agaricomycetidea	260	202	325	145	235
Inocybe	53	56	60	14	18
Entoloma	41	21	42	13	24
Cortinarius	36	28	34	18	26
Hygrocybe	20	13	28	2	10
Melanoleuca	12	4	6	1	1
Russula	8	6	8	7	5
Hebeloma	7	4	12	5	6
Clitocybe	7	6	17	8	8
Bovista	7	4	not studied	1	1
Arrhenia	6	6	13	10	10
Lepista	6	2	3	1	1
Mycena	5	3	8	8	23
Scutellinia	5	0	not studied	2	7
Helvella	5	7	not studied	1	3
Galerina	4	5	12	15	20

Notes on habitat: The habitat is described as ‘on dead twigs of *Juniperus nana* at 2400 m’. According to the altitude and probable acidic substrate, it may be Loiseleurio-Vaccinion. However, more ecological data are needed (exposure, associated vegetation…) because dwarf *Juniperus communis* forms are widely distributed at subalpine well exposed slopes which can reach high altitudes at the oriental part of the chain.

Specimen examined: None.

Geopora arenicola (Lév.) Kers

Previously published record: Ballarà (1997).

Collection cited: Site 3, 18 Aug 1996.

Notes on habitat: The habitat is described as 'near *Dryas octopetala*, 2300–2350 m'. It may be Primulion intricatae, Oxytropido-Elynion, or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Specimen examined: None.

Geopora nicaeensis (Boud.) M. Torre

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* at 2220 m'. According to its altitude, this collection may come from superior subalpine stage calcareous grasslands of Primulion intricatae. However, we keep the data in the checklist since this species is known to grow in true alpine habitats at least in the Swiss Alps (Favre, 1955 as *Sepultaria foliacea* alpine form) and Norway (Schumacher, *in* Schumacher & Jenssen 1992) and could very likely be found in alpine stage in the Pyrenees too.

Specimen examined: None.

Helvella acetabulum (L.: Fr.) Quél.

Previously published record: Ballarà (1997).

Collection cited: Site 35, 31 Aug 1996.

Notes on habitat: The habitat is described as 'among *Dryas octopetala* at 2300 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Specimen examined: None.

Helvella arcto-alpina Harmaja

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 10, 17 Jul 1996.

Notes on habitat: The habitat is described as 'on limestone, between *Salix pyrenaica* at 2100 m'. According to the relatively low altitude, this is very likely a subalpine collection, may be from a Primulion intricatae grassland. We quote this data since *H. arcto-alpina* is a typical arctic-alpine species (Favre 1955, under the name of *Acetabula barlae* Boud.; Schumacher & Jenssen 1992) and could then be found in true alpine habitat in the Pyrenees too.

Specimen examined: None.

Helvella corium (O. Weberb.) Massee

Previously published record: Ballarà (1997).

Collection cited: Site 8, 18 Aug 1996.

Notes on habitat: The habitat is described as 'between mosses, not far from *Salix reticulata* and *Arctostaphylos uva-ursi*, 2300–2400 m'. It probably is Arabidion caeruleae.

Specimens examined: GC 02083006, site 21, 30 Aug 2002, Arabidion caeruleae, leg. & det. G. Corriol. – Not preserved, site 17, 10 Sep 2003, Arabidion caeruleae, leg. & det. G. Corriol. – GC 04091907, site 22, 19 Sep 2004, Salicion herbaceae, leg. & det. G. Corriol. – Not preserved, site 22, 9 Sep 2006, Salicion herbaceae, leg. & det. G. Corriol.

Helvella dovrensis T. Schumach. = *H. alpestris* Boud. ss. Favre (1955), Häffner (1987).

Previously published record: None.

Specimens examined: GC 04082501, site 24, 25 Aug 2004, Arabidion caeruleae, leg. G. Corriol, T. Le Moal, P. Burr & N. Lavaupot, det. G. Corriol. – GC 04082701, site 19, 27 Aug 2004, Arabidion caeruleae, leg. G. Corriol, P. Burr & P. Hériveau, det. G. Corriol. – Not preserved, site 19, 10 Sep 2004, Arabidion caeruleae, leg. & det. G. Corriol and 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Helvella solitaria (P. Karst.) P. Karst. *ss.* Harmaja (= *H. queletii* Bres.)

Previously published record: Ballarà (1997).

Collection cited: Site 3, 18 Aug 1996.

Notes on habitat: The habitat is described as 'among *Dryas octopetala*, 2300–2350 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Previously published record: Vila & al. (2001).

Collection cited: Site 7, 10 Aug 1999.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2300 m'. It may be *Arabidion* caeruleae or Oxytropido-Elynion. More ecological and floristical data are necessary.

Specimen examined: None.

Hyalopeziza nectrioidea (Rehm) Raschle

Previously published record: Vila & al. (1998).

Collection cited: Site 12, 25 Jun 1997 and 16 Jul 1997.

Notes on habitat: The habitat is described as 'on dead twigs of *Rhododendron ferrugineum* at 2200–2375 m'. See notes under *Chlorosplenium cenangium.*

Specimen examined: None.

Hymenoscyphus conscriptus (P. Karst.) Korf

Previously published record: None

Specimen: NdM 97100207/2048-9 (not examined by us), site 32, 2 Oct 1997, on *Salix reticulata* trunk and roots (Arabidion caeruleae), leg. & det. N. de Munnik.

Lachnum latebricola (Rehm) R. Galán & Raitv.

Previously published record: Vila & al. (1998).

Collection cited: Site 12, 25 Jun 1997.

Notes on habitat: The habitat is described as 'on dead twigs of *Rhododendron ferrugineum* at 2375 m'. See notes under *Chlorosplenium cenangium.*

Previously published record: Galàn & al. (1997).

Collection cited: Site 36, 10 Jul 1996. – Site 37, 15 Jul 1993 and 15 Jul 1995.

Notes on habitat: The habitat is described as 'on dead, melting-snow-covered branches of *Rhododendron ferrugineum* at 2405 m' and as 'on dead branches of *Rhododendron ferrugineum*'. See notes under *Chlorosplenium cenangium.*

Specimen examined: None.

Octospora borealis (Eckblad) Caillet & Moyne

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 12 Aug 1997.

Notes on habitat: The habitat is described as 'between mosses and *Dryas octopetala* at 2220 m'. According to its altitude, this collection may have been done at superior subalpine stage calcareous grasslands of Primulion intricatae. We quote it however since the authors have done many alpine records in this place at this altitude with *Salix retusa*.

Specimen examined: None.

Peziza badia Pers. : Fr.

Previously published record: Vila & al. (2001).

Collection cited: Site 12, 7 Aug 1999.

Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2350 m'. It certainly is a snow bed of the Salicetea herbaceae class, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Specimen examined: None.

Scutellinia minor (Velen.) Svrček

Previously published record: None.

Specimen examined: GC 03090204, site 24, 2 Sep 2003, Salicion herbaceae, leg. G. Corriol and T. Le Moal, det. G. Corriol.

Scutellinia scutellata (L. : Fr.) Lambotte

Previously published record: Rocabruna & al. (1994).

Collection cited: Site 37, 17 Jul 1993.

Notes on habitat: Coprophilous (on cow dung, at 2260 m).

Specimen examined: None.

Scutellinia cf. ***subhirtella*** Svrček

Previously published record: None.

Taxonomic notes: We hesitate to name this collection from this very extreme alpine snow bed as *S. subhirtella* is given by Schumacker (1990) as a boreo-temperate species. The macro- and microscopic features match quite well with this author's description, but the warts on the spores seem to be partially coalescent.

Specimen examined: GC 06083108, site 13, Montagne de Cap de Long, altitude 2575 m, 31 Aug 2006, *Salicion herbaceae*, between the liverwort *Anthelia juratzkana* (Anthelio-Salicetum herbaceae), leg. & det. G. Corriol.

Scutellinia trechispora **f.** ***brachyacantha*** Le Gal

Previously published record: Lassueur (1988).

Collection cited: department of Ariège, France (without more precision), 28 Aug 1988.

Notes on habitat: The habitat is described as 'at 2400 m altitude, in mosses'. According to its altitude, in Ariège department, it is probably a true alpine collection. Nevertheless, we miss habitat informations.

Specimen examined: None.

Scutellinia vitreola Kullman

Previously published record: None.

Specimen examined: GC 03090205, site 24, 2 Sep 2003, Salicion herbaceae, leg. G. Corriol and T. Le Moal, det. G. Corriol.

Basidiomycota

Agaricomycetideae

Agaricus campestris L.: Fr.

Previously published record: None.

Specimens examined: Not preserved, site 20, 23 Aug 2003, Arabidion caeruleae, leg. & det. G. Corriol. – Not preserved, site 16, 20 Aug 2004, Arabidion caeruleae, leg. G. Corriol & P. Burr, det. G. Corriol. – GC 05082901, site 26, 29 Aug 2005, Festucion supinae, leg. & det. G. Corriol.

Agaricus comtulus Fr.

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* at 2220 m'. As *Dryas octopetala* is characteristic of both cryophilous and psychrophilous basophilous grasslands more ecological and floristical information is needed to say wether the habitat is Oxytropido-Elynion or Primulion intricatae.

Specimen examined: None.

Alnicola amarescens (Quél.) Romagn. (f. *pyrenaica* Ballarà prov.)

Previously published record: Ballarà (1997).

Collection cited: Site 35, 10 Jul 1995 and 17 Jul 1995.

Notes on habitat: The habitat is described as 'among *Salix retusa* at 2300 m'. It is probably Arabidion caeruleae.

Specimen examined: None.

Amanita nivalis Grev.

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 12 Aug 1997 and 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2300 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical data are necessary.

Collection cited: Site 12, 14 Aug 1997.

Notes on habitat: The habitat is described as 'between *Salix retusa* and *Salix herbacea* at 2300 m'. It is probably Arabidion caeruleae.

Specimen examined: None.

Amanita oreina (J. Favre) R. Heim ex Bon

Previously published record: Ballarà (1997).

Collection cited: Site 34, 26 Aug 1995.

Notes on habitat: The habitat is described as 'among *Salix herbacea* and *Alchemilla pentaphylla*'. It is probably Salicion herbaceae.

Specimen examined: GC 05091421, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Arrhenia auriscalpium (Fr.) Fr.

Previously published record: Rocabruna & al. (1994).

Collection cited: Site 37, 17 Jul 1993.

Notes on habitat: The habitat is described as 'on mosses, ground, lichens at 2260 m'. One can't conclude on the habitat type without more ecological and floristical details.

Specimen examined: GC 03091004, site 17, 10 Sep 2003, Arabidion caeruleae, leg. & det. G. Corriol. – GC 06081613, site 16, 16 Aug 2006, Arabidion caeruleae, leg. G. Corriol, C. Hannoire and E. Trouillard, det. G. Corriol.

Arrhenia glauca (Batsch) Bon & Courtec.

Previously published record: Vila & al. (1997).

Collection cited: Site 7, 16 Aug 1996.

Notes on habitat: The habitat is described as 'on of mosses at 2220 m'. One can't conclude on the habitat type without more ecological and floristical details.

Specimen examined: None.

Arrhenia griseopallida (Desm.: Fr.) Watling

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 5, without date.

Notes on habitat: The habitat is described as 'on bryophytes in alpine pasture land, at 2250 m'. One can't conclude on the habitat type without more ecological and floristical details.

Specimens examined: Not preserved, site 21, 30 Aug 2002, Arabidion caeruleae, leg. & det. G. Corriol. – Not preserved, site 24, 2 Sep 2003, Salicion herbaceae, leg. G. Corriol and T. Le Moal, det. G. Corriol. – NdM 03091908/2249-05, site 30, 19 Sep 2003, Oxytropido-Elynion, leg. N. de Munnik, det. G. Corriol. – GC 04091909, site 22, 19 Sep 2004, Salicion herbaceae, leg. & det. G. Corriol. – GC 05091432, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Arrhenia lobata (Pers. : Fr.) Kühner & Lamoure ex Redhead

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 1, 31 Aug 1996.

Notes on habitat: The habitat is described as 'on bryophytes in very humid area at 2400 m '. It could be related to Scheuchzerio palustris-Caricetea fuscae or Cardamino-Montenion, but more ecological and floristical data are needed.

Specimen examined: Not preserved, site 19, 14 Sep 2005, Cardamino-Montenion, on bryophytes, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Arrhenia obatra (J. Favre) Redhead, Lutzoni, Moncalvo & Vilgalys

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 1, 31 Aug 1996.

Notes on habitat: The habitat is described as 'on naked soil and between bryophytes in *Salix herbacea* communities on acidic soil at 2400 m'. It is probably Salicion herbaceae.

Specimen examined: GC 06081614, site 16, 16 Aug 2006, Arabidion caeruleae, leg. G. Corriol, C. Hannoire and E. Trouillard, det. G. Corriol.

Arrhenia velutipes (P.D. Orton) Redhead, Lutzoni, Moncalvo & Vilgalys

Previously published record: Vila & al. (1997), Vila & al. (1998).

Collection cited: Site 7, 16 Aug 1996 and 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and between mosses and *Dryas octopetala*, at 2220 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Specimen examined: GC 06083103, site 13, Montagne de Cap de Long, altitude 2575 m, 31 Aug 2006, Eriophorion

scheuchzeri, leg. & det. G. Corriol.

Bolbitius vitellinus (Pers. : Fr.) Fr.

Previously published record: Vila & al. (2001).

Collection cited: Site 7, 10 Aug 1999.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical data are necessary.

Specimen examined: Not preserved, site 17, 14 Sep 2005, Nardion strictae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Chalciporus piperatus (Bull. :Fr.) Bataille

Previously published record: Ballarà (1997).

Collection cited: Site 35, 20 Aug 1995.

Notes on habitat: The habitat is described as 'among *Salix retusa* at 2300 m'. It is probably Arabidion caeruleae.

Collection cited: Site 3, 25 Aug 1996.

Notes on habitat: The habitat is described as 'among *Dryas octopetala* and *Vaccinium vitis-ideae* at 2350 m'. This is an unuasual association of plants. It may be Arctostaphylo-Cetrarion, but more floristical and ecological data is needed.

Specimen examined: None.

Clitocybe bresadoliana Singer var. *bresadoliana*

Previously published record: Vila & al. (1997).

Collection cited: Site 7, 16 Aug 1996.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* at 2300 m'. As *Dryas octopetala* is characteristic of both cryophilous and psychrophilous basophilous grasslands more ecological and floristical information is needed to say wether the habitat is Oxytropido-Elynion or Primulion intricatae.

Specimen examined: None.

Clitocybe bresadoliana* var. *dryadum Bon

Previously published record: Bon & Ballarà (1996).

Collection cited: Site 35, 10 Jul 1995.

Notes on habitat: The habitat is described as 'in the Carici-Salicetum retusae among *Salix reticulata* at 2300 m'. The Carici parviflorae-Salicetum retusae is the main Pyrenean association of basophilous snowbed from Arabidion caeruleae alliance, rich in dwarf willow.

Specimens examined: NdM 02081601/1947-13, site 31, 16 Aug 2002, Primulion intricatae with *Dryas octopetala* and *Salix pyrenaica*, leg. N. de Munnik, det. G. Corriol. – GC 02083001, site 21, 30 Aug 2002, Arabidion caeruleae, with Salix retusa, leg. & det. G. Corriol. – NdM 03091906/2249-5, site 30, 19 Sep 2003, Oxytropido-Elynion, among Dryas octopetala, leg. N. de Munnik, det. G. Corriol. – GC 04091017, site 19, 27 Aug 2004, Arabidion caeruleae, leg. G. Corriol, P. Burr & P. Hériveau, det. G. Corriol. – Not preserved, site 14, 22 Aug 2005, Primulion intricatae, leg. G. Corriol, C. Bergès & A.-M. Labouche, det G. Corriol. – Not preserved, site 22, 9 Sep 2006, Oxytropido-Elynion, leg. & det. G. Corriol.

Clitocybe candicans* var. *dryadicola (J. Favre) Lamoure

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 5, 27 Aug 1996.

Notes on habitat: The habitat is described as 'in alpine pasture land with patches of *Salix pyrenaica* and *Dryas octopetala*, at 2250 m'. It si probably Primulion intricatae.

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 12 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* at 2220 m'. As *Dryas octopetala* is characteristic of both cryophilous and psychrophilous basophilous grasslands more ecological and floristical information is needed to say wether the habitat is Oxytropido-Elynion or Primulion intricatae.

Other unpublished record: Not preserved, site 29, 3 Sep 2002, Oxytropido-Elynion, leg. & det. N. de Munnik.

Specimen examined: None.

Clitocybe clavipes (Pers. : Fr.) P. Kumm.

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2300 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical data are necessary.

Specimen examined: None.

Clitocybe costata Kühner et Romagn.

Previously published record: Vila & al. (2001).

Collection cited: Site 7, 23 Aug 1999.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* at 2220 m'. As *Dryas octopetala* is characteristic of both cryophilous and psychrophilous basophilous grasslands more ecological and floristical information is needed to say wether the habitat is Oxytropido-Elynion or Primulion intricatae.

Specimen examined: None.

Clitocybe hebelomoides Lamoure

Previously published record: Ballarà & Escànez (1999).

Collection cited: Site 2, 3 Oct 1997.

Notes on habitat: The habitat is described as 'between *Salix retusa, S. pyrenaica* and mosses, 2250–2300 m'.It is probably Arabidion caeruleae.

Specimen examined: None.

Clitocybe langei Singer *ex* Hora

Previously published record: Ballarà (1997).

Collection cited: Site 2, 17 Sep 1995.

Notes on habitat: The habitat is described as 'among *Dryas octopetala*, *Salix pyrenaica* and *S. retusa*'. According to the presence of *S. retusa* it may be Arabidion caeruleae, but more information is needed.

Specimen examined: None.

Collybia alpicola (M. Bon & Ballarà) Vila

Previously published record: Bon & Ballarà (1996).

Collection cited: Site 3, 19 Aug 1995.

Notes on habitat: The habitat is described as 'among *Dryas octopetala* at 2300 m'. As *Dryas octopetala* is characteristic of both cryophilous and psychrophilous basophilous grasslands more ecological and floristical information is needed to say wether the habitat is Oxytropido-Elynion or Primulion intricatae.

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 12 Aug 1997 and 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Loiseuleria procumbens*'.It is probably Loiseulerio-Vaccinion.

Previously published record: Ballarà & Escànez (1999).

Collection cited: Site 8, 31 Aug 1997.

Notes on habitat: The habitat is described as 'between *Salix retusa* and *Dryas octopetala*, 2300–2400 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical data are necessary.

Specimen examined: None.

Collybia dryophila (Bull. : Fr.) P. Kumm.

Previously published record: Vila & al. (1997).

Collection cited: Site 7, 16 Aug 1996.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* at 2220 m'. As *Dryas octopetala* is characteristic of both cryophilous and psychrophilous basophilous grasslands more ecological and floristical information is needed to say wether the habitat is Oxytropido-Elynion or Primulion intricatae.

Specimen examined: None.

Collybia fuscopurpurea (Pers. : Fr.) P. Kumm.

Previously published record: Ballarà & Escànez (1999).

Collection cited: Site 8, 13 Jul 1997.

Notes on habitat: The habitat is described as 'between *Vaccinium vitis-ideae, Dryas octopetala* and *Polytrichum* sp., 2300–2400 m'. This is an unuasual association of plants. It may be Arctostaphylo-Cetrarion, but more floristical and ecological data is needed.

Specimen examined: None.

Collybia loiseleurietorum M.M. Moser, Gerhold & Tobies

Previously published record: Bon & Ballarà (1997).

Collection cited: Site 35, 4 Jul 1996.

Notes on habitat: The habitat is described as 'with *Loiseleuria procumbens* at 2350 m'. It is probably Loiseleurio-Vaccinion.

Previously published record: Vila & al. (1997).

Collection cited: Site 7, 8 Aug 1996.

Notes on habitat: The habitat is described as 'between *Loiseuleria procumbens* and *Dryas octopetala* at 2300 m'. This is an unusual association of plants. It may be Arctostaphylo-Cetrarion, but more floristical and ecological data is needed.

Specimen examined: None.

Collybia pyrenaica Bon & Ballarà

Previously published record: Bon & Ballarà (1997).

Collection cited: Site 35, 24 Aug 1996.

Notes on habitat: The habitat is described as 'with *Loiseleuria procumbens* at 2350 m'. It is probably Loiseleurio-Vaccinion.

Notes on distribution : This taxon, close to *C. alpicola* (M. Bon & Ballarà) Vila seems so far, to be endemic to the Pyrenees alpine zone.

Specimen examined: None.

Conocybe aff. ***ambigua*** (Kühner ex) Watling , "f. microsporic"

Previously published record: None.

Taxonomic notes : This collection matches well with *C. ambigua* except for the spores (9–11,5 x 6,5–7 µm, with 1–2 µm large pore) which are too short. No other closer *Conocybe* species have been found neither in Bon (1992) nor in Meusers (1996).

Specimen examined: GC 03082806, site 16, 28 Aug 2003, Arabidion caeruleae, leg. & det. G. Corriol.

Conocybe magnicapitata P.D. Orton

Previously published record: None.

Taxonomic notes : This collection only differs from the description of Watling (1982) and Bon (1992) by the occurence of clamp-connections.

Specimen examined: GC 05091445, site 19, 10 Sep 2004, Arabidion caeruleae, leg. & det. G. Corriol.

Conocybe ochracea* f. *alpina J. Favre *inval.*

Previously published record: None.

Taxonomic notes : Our collections match very well the description by Favre (1955). Bon (1992) treated this taxon as a minute form with smaller spores of *C. kuehneriana* Sing.

Specimens examined: GC 04082003, site 16, 20 Aug 2004, Arabidion caeruleae, leg. G. Corriol & P. Burr, det. G. Corriol. – Not preserved, site 19, 10 Sep 2004, Arabidion caeruleae, leg. & det. G. Corriol.

Conocybe pseudopilosella (Kühner) Kühner & Watling

Previously published record: None.

Specimen examined: Not preserved, site 19, 10 Sep 2004, Arabidion caeruleae, leg. & det. G. Corriol.

Conocybe tenera (Schaeff.: Fr.) Fayod

Previously published record: None.

Specimen examined: Not preserved, site 21, 30 Aug 2002, Arabidion caeruleae, leg. & det. G. Corriol.

Coprinus martinii P.D. Orton

Previously published record: None.

Specimen examined: GC 04091003, site 19, 10 Sep 2004, Caricion incurvae, between bryophytes, *Carex bicolor* and *C. lepidocarpa*, leg. & det. G. Corriol. – Not preserved, site 19, 14 Sep 2005, Caricion incurvae, between bryophytes, *Carex bicolor* and *C. lepidocarpa*, leg. G. Corriol & N. Lavaupot, leg. G. Corriol.

Coprinus patouillardii Quél.

Previously published record: Rocabruna & al. (1994).

Collection cited: catalan Pyrenees (without more precision), 15 Jul 1993.

Notes on habitat: The habitat is described as 'on cow dung, at 2260 m'. Coprophilous.

Specimen examined: None.

Cortinarius albonigrellus J. Favre

Previously published record: Bon & Ballarà (1995) under « forma ? ».

Collection cited: Site 2, 19 Sep 1994.

Notes on habitat: The habitat is described as 'in the Carici-Salicetum retusae among *Salix retusa* and *S. reticulata* at 2050 m'. The altitude given by the authors is surprisingly low, but the plant association is typical of Pyrenean Arabidion caeruleae snow-bed communities rich in dwarf willows.

Previously published record: Bon & Ballarà (1997).

Collection cited: Site 25, 18 Sep 1996.

Notes on habitat: The habitat is described as 'among *Salix herbacea* at 2700 m'. According to the acidic rocks of this site, it is probably Salicion herbaceae.

Specimen examined: GC 05091418, site 19, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol., conf. D. Lamoure.

Cortinarius alpicola (Bon) Bon

Previously published record: Bon & Ballarà (1997).

Collection cited: Site 23, 2 Oct 1992.

Notes on habitat: The habitat is described as 'alpine calcareous grassland at about 2400 m'. According to exposure and calcareous soil, it may be Primulion intricatae, but more ecological and floristical data are necessary.

Previously published record: Bon & Ballarà (1997).

Collection cited: Site 3, 25 Aug 1996.

Notes on habitat: The habitat is described as 'among *Dryas octopetala* at about 2350 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2300 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2400 m'. It is a snow-bed community from Salicetea herbaceae, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Previously published record: Vila & al. (2001).

Collection cited: Site 12, 7 Aug 1999.

Notes on habitat: The habitat is described as 'between *Salix herbacea* and *S. retusa* at 2300 m'. It is probably Arabidion caeruleae.

Specimen examined: None.

Cortinarius alpicola **var.** ***salicis-herbaceae*** (Bon) Bon

Previously published record: Bon & Ballarà (1997).

Collection cited: Site 34, 26 Aug 1995.

Notes on habitat: The habitat is described as 'with *Salix herbacea*'. According to the acidic rocks of this site, it is probably Salicion herbaceae.

Specimen examined: GC 03090201, site 24, 2 Sep 2003, Salicion herbaceae, leg. G. Corriol and T. Le Moal, det.

G. Corriol. – GC 05083102, site 33, 31 Aug 2005, Salicion herbaceae, with *Salix herbacea*, leg G. Corriol, H. Chevallier, T. Guillonet & N. Point, det. G. Corriol.

Cortinarius anomalus (Fr. : Fr.) Fr. var. *anomalus*

Previously published record: None.
Specimen examined: Not preserved, site 20, 23 Aug 2003, Arabidion caeruleae, leg. & det. G. Corriol.

Cortinarius anomalus* var. *calcialpinus Bon

Previously published record: Bon & Ballarà (1996).
Collection cited: Site 3, 19 Aug 1995.
Notes on habitat: The habitat is described as 'among *Dryas octopetala* at 2300 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.
Previously published record: Esteve-Raventós & al. (1997).
Collection cited: Site 5, 14 Aug 1996.
Notes on habitat: The habitat is described as 'in alpine pasture land, on limestones, with *Salix pyrenaica*, at 2250 m'. It is probably Primulion intricatae.
Previously published record: Vila & al. (1998).
Collection cited: Site 7, 12 Aug 1997 and 27 Aug 1997.
Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2200–2300 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.
Specimen examined: None.

Cortinarius cedriolens (M.M. Moser) M.M. Moser

Previously published record: None.
Specimen examined: GC 05091408, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Cortinarius chamaesalicis Bon

Previously published record: Vila & al. (1998).
Collection cited: Site 12, 14 Aug 1997.
Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2350 m'. It certainly is a snow bed of the Salicetea herbaceae class, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.
Specimen examined: None.

Cortinarius chrysomalus Lamoure

Previously published record: Esteve-Raventós & al. (1997).
Collection cited: Site 1, 31 Aug 1996.
Notes on habitat: The habitat is described as 'in carpets of *Salix herbacea*, on siliceous substrate at 2400 m'. It is probably *Salicion herbaceae*.
Taxonomic note: In our collection, we could not see the basal violet mycelium on that collection, and the spores were a bit larger [8–10(11,5)– 5,5–6,5 µm] than in the litterature. Nevertheless, the other characters including the yellow veil and strongly ornemented apex of spores match well.
Specimen examined: GC 04091913, site 22, 19 Sep 2004, Salicion herbaceae, leg. & det. G. Corriol.

Cortinarius claricolor* var. *subturmalis Bon & Gaugué

Previously published record: Bon & Ballarà (1997).

Collection cited: Site 8, 25 Aug 1996.

Notes on habitat: The habitat is described as 'among *Dryas octopetala* at about 2375 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Specimen examined: None.

Cortinarius croceoconus Fr.

Previously published record: Bon & Ballarà (1995).

Collection cited: Site 38, 10 Sep 1994.

Notes on habitat: The habitat is described as 'in the Salici-Anthelietum between Salix herbacea at 2350 m'. The Anthelio juratzkanae-Salicetum herbaceae (which is supposed to be the 'Salici-Anthelietum' from the authors) is the main Pyrenean association of acidophilous snowbed from Salicion herbaceae alliance, rich in *Salix herbacea*.

Specimen examined: None.

Cortinarius delibutus* f. *dryadicola Ballarà & Escànez (= *C. illibatus* f. *dryadicola* Bon & Ballarà prov. = *C. delibutus* f. *saturatoides ss.* M. Bon & Ballarà)

Previously published record: Bon & Ballarà (1996, 1997).

Collection cited: Site 3, 19 Aug 1995, 18 Aug 1996 and 25 Aug 1996.

Notes on habitat: The habitat is described as 'among *Dryas octopetala* at about 2300 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Previously published record: Ballarà & Escànez (1999).

Collection cited: Site 8, 31 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala*, 2300 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Previously published record: Vila & al. (2001).

Collection cited: Site 7, 10 Aug 1999.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details is needed.

Specimen examined: None.

Cortinarius diasemospermus Lamoure

Previously published record: Vila & al. (1998).

Collection cited: Site 12, 14 Aug 1997.

Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2350 m'. It certainly is a snow bed of the Salicetea herbaceae class, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Specimen examined: GC 05091407, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Cortinarius favrei M.M. Moser ex Henderson

Previously published record: Bon & Ballarà (1996).
Collection cited: Site 34, 26 Aug 1995.
Notes on habitat: The habitat is described as 'among *Salix herbacea* at 2400 m'. It is probably Salicion herbaceae.
Previously published record: Vila & al. (1998).
Collection cited: Site 12, 2 Aug 1997.
Notes on habitat: The habitat is described as 'between *Salix retusa* at 2350 m'. It is probably Arabidion caeruleae.
Specimen examined: GC 06080502, site 13, small lake under the Maniportet glacier, altitude 2680 m, 5 Aug 2006, Salicion herbaceae, leg. & det. G. Corriol..

Cortinarius favrexilis Bon (forma ?)

Previously published record: Bon & Ballarà (1995).
Collection cited: Site 38, 10 Sep 1994.
Notes on habitat: The habitat is described as 'in the Salici-Anthelietum between *Salix herbacea* at 2350 m'. The Anthelio juratzkanae-Salicetum herbaceae (the 'Salici-Anthelietum' from the authors) is the main Pyrenean association of acidophilous snowbed from Salicion herbaceae alliance, rich in *Salix herbacea*.
Specimen examined: None.

Cortinarius gausapatus Fr

Previously published record: None.
Specimen examined: GC 06081301, Troumouse circus (at the east of site 14), altitude 2300 m, 13 Aug 2006, Arabidion caeruleae, leg. & det. G. Corriol.

Cortinarius hinnuleus Fr. (f. *pyrenaica* M. Bon et Ballarà prov.)

Previously published record: Bon & Ballarà (1996).
Collection cited: Site 2, 15 Jul 1995 and 16 Jul 1995.
Notes on habitat: The habitat is described as 'among *Salix pyrenaica*'. It is more likely subalpine Primulion intricatae, but more information is needed.
Specimen examined: None.

Cortinarius hinnuleus **var.** ***favreanus*** Bon

Previously published record: Vila & al. (2001).
Collection cited: Site 7, 10 Aug 1999.
Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.
Specimen examined: GC 04091008, site 17, 10 Sep 2004, Arabidion caeruleae, leg. G. Corriol, det. D. Lamoure.

Cortinarius hinnuleus **f.** ***subtypicus*** Favre *ex* Nespiak

Previously published record: Bon & Ballarà (1996).
Collection cited: Site 34, 26 Aug 1995.

Notes on habitat: The habitat is described as ‘among *Salix herbacea* at 2400 m’. It is probably Salicion herbaceae.

Specimens examined: Not preserved, site 22, 9 Sep 2006, *Salicion herbaceae*, leg. & det. G. Corriol. – GC 06081001, Estom Soubiran, high Lutour valley (at the east of site 24), altitude 2450 m, 10 Aug 2006, Salicion herbaceae, leg. & det. G. Corriol.

Cortinarius infractus* var. *olivellus M.M. Moser

Previously published record: Bon & Ballarà (1997).

Collection cited: Site 3, 25 Aug 1996.

Notes on habitat: The habitat is described as ‘among *Dryas octopetala*, 2300–2350 m’. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Specimen examined: None.

Cortinarius inops J. Favre

Previously published record: Ballarà (1997).

Collection cited: Site 35, 20 Jul 1996.

Notes on habitat: The habitat is described as ‘among *Salix reticulata* and *S. retusa* at 2300 m’. It is probably Arabidion caeruleae.

Specimen examined: GC 06081609, site 16, 16 Aug 2006, Arabidion caeruleae, leg. G. Corriol, C. Hannoire and E. Trouillard, det. G. Corriol.

Cortinarius laevipileus J. Favre

Previously published record: Vila & al. (1998) (under f. *microsporus* prov.), Vila & al. (2001).

Collection cited: Site 7, 27 Aug 1997 and 10 Aug 1999.

Notes on habitat: The habitat is described as ‘between *Dryas octopetala* and *Salix retusa* at 2220 m’. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical data are necessary.

Specimen examined: None.

Cortinarius lamourei Bon & Jamoni

Previously published record: None.

Collection cited:

Notes on habitat: The habitat is described as ‘

Specimen examined: GC 05091417, site 19, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. D. Lamoure.

Cortinarius minutalis (J. Favre) Lamoure

Previously published record: Bon & Ballarà (1996).

Collection cited: Site 35, 20 Aug 1995.

Notes on habitat: The habitat is described as ‘among *Salix reticulata* and *S. retusa* at 2300 m’. It si probably Arabidion caeruleae.

Specimen examined: GC 04091911, site 22, 19 Sep 2004, Salicion herbaceae, leg. & det. G. Corriol.

Cortinarius minutulus J. Favre

Previously published record: Vila & al. (2001).

Collection cited: Site 7, 10 Aug 1999.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical data are necessary.

Specimen examined: None.

Cortinarius paleifer Svrček

Previously published record: Vila & al. (2001).

Collection cited: Site 12, 7 Aug 1999.

Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2350 m'. It certainly is a snow bed of the *Salicetea herbaceae* class, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Specimen examined: None.

Cortinarius phaeochrous J. Favre

Previously published record: Bon & Ballarà (1995).

Collection cited: Site 2, 19 Sep 1994.

Notes on habitat: The habitat is described as 'in the Carici-Salicetum retusae among *Salix retusa* and *S. reticulata* at 2050 m'. The altitude given by the authors is surprisingly low, but the plant association is typical of Pyrenean Arabidion caeruleae snow-bed communities rich in dwarf willows.

Previously published record: Vila & al. (1997).

Collection cited: Site 7, 16 Aug 1996.

Notes on habitat: The habitat is described as 'between *Salix retusa* and *Dryas octopetala* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.

Specimen examined: None.

Cortinarius phaeopygmaeus J. Favre

Previously published record: Bon & Ballarà (1995).

Collection cited: Site 38, 10 Sep 1994.

Notes on habitat: The habitat is described as 'in the Salici-Anthelietum between *Salix herbacea* at 2350 m'. The Anthelio juratzkanae-Salicetum herbaceae (the 'Salici-Anthelietum' from the authors) is the main Pyrenean association of acidophilous snowbed from *Salicion herbaceae* alliance, rich in *Salix herbacea*.

Specimen examined: GC 04091913, site 22, 19 Sep 2004, Salicion herbaceae, leg. & det. G. Corriol..

Cortinarius polaris Høiland

Previously published record: Bon & Ballarà (1996).

Collection cited: Site 34, 26 Aug 1995.

Notes on habitat: The habitat is described as 'among *Salix herbacea* at 2400 m'. It is probably Salicion herbaceae.

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2300 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.

Specimen examined: None.

Cortinarius pratensis (Bon & Gaugué) Høiland (f. *salicis-herbaceae* M. Bon & Cheype prov.)

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2400 m'. It is a snowbed community from Salicetea herbaceae, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Specimen examined: None.

Cortinarius saniosus (Fr. : Fr.) Fr. (f. *praecox* M. Bon & Ballarà prov.)

Previously published record: Bon & Ballarà (1996).

Collection cited: Site 35, 17 Jul 1995.

Notes on habitat: The habitat is described as 'among *Dryas octopetala* at 2300 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Specimen examined: None.

Cortinarius scotoides J. Favre

Previously published record: None.

Specimen examined: Not preserved, site 24, 2 Sep 2003, Salicion herbaceae, leg. G. Corriol and T. Le Moal, det. G. Corriol.

Cortinarius stenospermus Lamoure

Previously published record: Bon & Ballarà (1995) under « forma ? ».

Collection cited: Site 38, 10 Sep 1994.

Notes on habitat: The habitat is described as 'in the Salici-Anthelietum between *Salix herbacea* at 2350 m'. The Anthelio juratzkanae-Salicetum herbaceae (the 'Salici-Anthelietum' from the authors) is the main Pyrenean association of acidophilous snowbed from Salicion herbaceae alliance, rich in *Salix herbacea*.

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 12 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.

Specimen examined: None.

Cortinarius subtilior J. Favre

Previously published record: Ballarà (1997).

Collection cited: Site 34, 24 Aug 1996.

Notes on habitat: The habitat is described as 'among *Salix herbacea* at about 2400 m'. It is probably Salicion herbaceae.

Specimen examined: None.

Cortinarius subtorvus Lamoure

Previously published record: Bon & Ballarà (1996).

Collection cited: Site 2, 16 Jul 1995.

Notes on habitat: The habitat is described as 'with *Salix reticulata* and *S. retusa* at 2100 m'

and ‘among *Dryas octopetala* at 2300 m’. For the first habitat, the altitude given by the authors is surprisingly low, but the association of willows is characteristic of Arabidion caeruleae snow-bed community. For the second one, it may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Previously published record: Bon & Ballarà (1996).

Collection cited: Site 35, 16 Sep 1995.

Notes on habitat: The habitat is described as ‘between *Dryas octopetala* and *Salix reticulata* at 2300 m’. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.

Specimen examined: None.

Cortinarius tenebricus J. Favre

Previously published record: Ballarà (1997).

Collection cited: Site 35, 20 Jul 1996.

Notes on habitat: The habitat is described as ‘among *Salix retusa* at 2300 m’. It is probably Arabidion caeruleae.

Specimen examined: Not preserved, site 17, 10 Sep 2003, Arabidion caeruleae, leg. & det. G. Corriol.

Cortinarius violaceorubens Moënne-Locc. & Reumaux (alpine form)

Previously published record: Bon & Ballarà (1997).

Collection cited: Site 8, 25 Aug 1996.

Notes on habitat: The habitat is described as ‘among *Dryas octopetala* at about 2375 m’. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Specimen examined: None.

Cystoderma carcharias (Pers. : Fr.) Fayod var. *alpinum* prov.

Previously published record: None.

Taxonomic notes: *C. carcharias* is usually known as an acidophilous forest species, from lowland to subalpine stage. Our collection from a dense alpine acidic grassland with *Festuca eskia* at 2320 m, differs from the type by the lack of smell. We have another collection (GC 04091023) from a grassland at 2250 which may be subalpine. We propose a provisional name for this inodorous form, waiting to study more collections.

Specimen examined: Not preserved, site 17, 14 Sep 2005, Nardion strictae, leg. G. Corriol & N. Lavaupot, det. G. Corriol. – GC 04091023, Les Sarradets, Gavarnie, France, 10 Sep 2004, Nardion strictae subalpine grassland at 2250 m, leg. & det. G. Corriol..

Cystolepiota seminuda (Lasch : Fr.) M. Bon

Previously published record: Vila & al. (2001).

Collection cited: Site 3, 22 Aug 1999.

Notes on habitat: The habitat is described as ‘on decomposing leaves of *Dryas octopetala* and *Salix reticulata* at 2240 m’. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.

Specimen examined: None.

Dermoloma pseudocuneifolium Herink *ex* Bon

Previously published record: Vila & Esteve-Raventós (1998).

Collection cited: Site 7, 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.

Specimen examined: None.

Entoloma alpicola (J. Favre) Noordel.

Previously published record: Bon & Ballarà (1996).

Collection cited: Site 34, 26 Aug 1995.

Notes on habitat: The habitat is described as 'among *Salix herbacea* at about 2400 m'. It is probably Salicion herbaceae.

Specimen examined: None.

Entoloma asprellum (Fr.) Fayod

Previously published record: Vila & al. (2001).

Collection cited: Site 12, 7 Aug 1999.

Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2350 m'. It certainly is a snow bed of the Salicetea herbaceae class, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Specimen examined: None.

Entoloma anatinum (Lasch : Fr.) Donk

Previously published record: None.

Specimen examined: GC 01083004, site 21, 30 Aug 2002, Arabidion caeruleae, leg. & det. G. Corriol.

Entoloma atromarginatum (Romagn. & J. Favre) Zschiesch.

Previously published record: None.

Specimen examined: GC 03082807, site 16, 28 Aug 2003, Arabidion caeruleae, leg. & det. G. Corriol. – Not preserved, site 17, 10 Sep 2003, Arabidion caeruleae, leg. & det. G. Corriol. – GC 05091448, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Entoloma caesiocinctum Kühner

Previously published record: Bon & Ballarà (1997).

Collection cited: Site 3, 18 Aug 1996.

Notes on habitat: The habitat is described as 'with *Dryas octopetala* and *Salix pyrenaica* at 2300 m'. It is probably Primulion intricatae.

Previously published record: Bon & Ballarà (1997).

Collection cited: Site 8, 25 Aug 1996.

Notes on habitat: The habitat is described as 'among *Dryas octopetala* at 2350 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Specimen examined: None.

Entoloma catalaunicum (Singer) Noordel.

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 5, 14 Aug 1996.

Notes on habitat: The habitat is described as 'in alpine pasture land in calcareous substrate, at 2200–2300 m'. It may be Primulion intricatae, but more ecological and floristical data are needed.

Specimen examined: Not preserved, site 21, 30 Aug 2002, Arabidion caeruleae, leg. & det. G. Corriol.

Entoloma chalybaeum (Fr. : Fr.) Noordel.

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 5, 14 Aug 1996.

Notes on habitat: The habitat is described as 'in alpine pasture land in basic soil, at 2200–2300 m'. It may be Primulion intricatae, but more ecological and floristical data are needed.

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2300 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.

Specimen examined: Not preserved, site 24, 2 Sep 2003, *Salicion herbaceae*, leg. G. Corriol and T. Le Moal, det. G. Corriol. – Not preserved, site 22, 9 Sep 2006, Salicion herbaceae, leg. & det. G. Corriol.

Entoloma chloropolium (Fr.) M.M. Moser

Previously published record: Vila & al. (2001).

Collection cited: Site 7, 10 Aug 1999.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.

Specimen examined: None.

Entoloma clandestinum* var. *acutissimum (J. Favre) Horak

Previously published record: None.

Taxonomic notes: Our second collection did not show an acute umbo, but the other characters match well with a minute alpine form of *E. clandestinum*.

Specimen examined: GC 03082802, site 16, 28 Aug 2003, Arabidion caeruleae, leg. & det. G. Corriol. – GC 05091403, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Entoloma conferendum (Britzelm.) Noordel.

Previously published record: Bon & Ballarà (1996).

Collection cited: Site 34, 10 Sep 1994 and 26 Aug 1995.

Notes on habitat: The habitat is described as 'among *Salix herbacea*'. It is probably Salicion herbaceae.

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 5, 14 Aug 1996.

Notes on habitat: The habitat is described as 'in alpine pasture land in calcareous substrate, at 2200–2300 m'. It may be Primulion intricatae, but more ecological and floristical data are needed.

Previously published record: Vila & al. (1998).

Collection cited: Site 12, 14 Aug 1997.

Notes on habitat: The habitat is described as 'between *Salix herbacea* and *Loiseuleria procumbens* at 2450 m'. In spite of this unusual association of plants, it may be a snow-bed community of the Salicion herbaceae on account of the acidic station (*Loiseuleria procumbens*) and the highly characteristic *Salix herbacea*.

Previously published record: Vila & al. (2001).

Collection cited: Site 4, 28 Sep 1999.

Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2210 m'. It certainly is a snow bed of the Salicetea herbaceae class, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Specimen examined: Not preserved, site 19, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Entoloma conferendum* var. *incrustatum (Largent & Thiers) Noordel. & Hauskn.

Previously published record: None.

Notes on distribution: According to Noordeloos (2004), this taxon would only be known from Austrian Alps in Europe. *E. conferendum* is easily recognisable in the field and probably not often checked under the microscope. In this, the variety with incrusting pigment may be only unappreciated.

Specimen examined: GC 05091443, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Entoloma excentricum Bres.

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 5, 14 Aug 1996.

Notes on habitat: The habitat is described as 'in alpine pasture land in calcareous substrate, at 2200–2300 m'. It may be Primulion intricatae, but more ecological and floristical data are needed.

Specimen examined: None.

Entoloma exile (Fr. : Fr.) Hesler

Previously published record: Vila & al. (1998), under f. *nuriense* Vila & Esteve-Rav. prov.

Collection cited: Site 7, 12 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 and 2300 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.

Previously published record: Vila & al. (2001), under f. *exile*.

Collection cited: Site 12, 7 Aug 1999.

Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2350 m'. It certainly is a snow bed of the Salicetea herbaceae class, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Previously published record: Vila & al. (2001), under f. *exile*.

Collection cited: Site 3, 22 Aug 1999.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix reticulata* at 2240 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.

Specimen examined: None.

Entoloma formosum (Fr. : Fr.) P. Kumm.

Previously published record: Ballarà (1997).

Collection cited: Site 8, 13 Aug 1996.

Notes on habitat: The habitat is described as 'among *Salix reticulata*, 2300–2400 m'. It is probably Arabidion caeruleae.

Specimen examined: None.

Entoloma fuscotomentosum F.H. Møller

Previously published record: Bon & Ballarà (1997).

Collection cited: Site 3, 25 Aug 1996.

Notes on habitat: The habitat is described as 'with *Dryas octopetala* and *Vaccinium vitis-ideae* at 2350 m'. It may be Arctostaphylo-Cetrarion, but more floristical and ecological data is needed.

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 12 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2300 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.

Specimen examined: None.

Entoloma griseocyaneum (Fr. : Fr.) P. Kumm.

Previously published record: Ballarà (1997).

Collection cited: Site 2, 16 Jul 1995.

Notes on habitat: The habitat is described as 'with *S. retusa* between 2300 and 2350 m'. It is probably Arabidion caeruleae.

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 5, 14 Aug 1996.

Notes on habitat: The habitat is described as 'in alpine pasture land on basic soil, at 2200–2300 m'. It may be Primulion intricatae, but more ecological and floristical data are needed.

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2300 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.

Specimen examined: Not preserved, site 17, 14 Sep 2005*, Arabidion caeruleae*, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Entoloma griseorubidum Kühner *ex* Noordel.

Previously published record: None.

Specimen examined: GC 05091438, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Entoloma incanum (Fr. : Fr.) Hesler

Previously published record: Bon & Ballarà (1996).

Collection cited: Site 3, 19 Aug 1995. – Site 35, 20 Aug 1995.

Notes on habitat: The habitat is described as 'among *Salix reticulata* at 2200 m' and 'among *Salix reticulata* and *S. retusa* at 2300 m'. Both are probably Arabidion caeruleae.

Previously published record: Vila & al. (1997).

Collection cited: Site 7, 8 Aug 1996.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 5, 14 Aug 1996.

Notes on habitat: The habitat is described as 'in alpine pasture land on basic soil, at 2200–2300 m'. It may be Primulion intricatae, but more ecological and floristical data are needed.

Specimen examined: None.

Entoloma incarnatofuscescens (Britzelm.) Noordel.

Previously published record: Vila & al. (1997).

Collection cited: Site 7, 16 Aug 1996.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* at 2220 m'. It may be Primulion intricatae or Oxytropido-Elynion. More ecological and floristical details are needed.

Specimen examined: None.

Entoloma infula (Fr.) Noordel.

Previously published record: None.

Specimen examined: Not preserved, site 21, 30 Aug 2002, Arabidion caeruleae, leg. & det. G. Corriol. – Not preserved, site 24, 2 sep 2002, Salicion herbaceae, leg. G. Corriol and T. Le Moal, det. G. Corriol. – Not preserved, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Entoloma jubatum (Fr. : Fr.) P. Karst.

Previously published record: None.

Specimen examined: GC 05091412, site 17, 14 Sep 2005, *Nardion*, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Entoloma lanicum (Romagn.) Noordel.

Previously published record: Vila & Esteve-Raventós (1998).

Collection cited: Sirte 7, 12 Aug 1997 and 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are needed.

Specimen examined: None.

Entoloma occultopigmentatum Arnolds & Noordel.

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 1, 18 Jul 1996.

Notes on habitat: The habitat is described as 'in nitrificate pasture land on acidic soil at 2300 m'. More floristical and ecological information are needed to state the type of habitat.

Specimen examined: None.

Entoloma papillatum (Bres.) Dennis

Previously published record: Vila & al. (2001).

Collection cited: Site 7, 10 Aug 1999.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are needed.

Specimen examined: None.

Entoloma poliopus (Romagn.) Noordel. var. *poliopus*

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 5, 14 Aug 1996.

Notes on habitat: The habitat is described as 'in alpine pasture land on basic soil at 2200–2300 m'. It may be Primulion intricatae, but more ecological and floristical data are needed.

Specimen examined: None.

Entoloma poliopus* var. *alpigenum (J. Favre) M. Bon

Previously published record: Bon & Ballarà (1996).

Collection cited: Site 35, 8 Jul 1995.

Notes on habitat: The habitat is described as 'among *Salix retusa* at 2300 m'. It is probably *Arabidion caeruleae.*

Previously published record: Vila & al. (1997).

Collection cited: Site 7, 16 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* at 2220 m'. It may be connected to Primulion intricatae or Oxytropido-Elynion. More ecological and floristical details are necessary.

Specimen examined: Not preserved, site 21, 30 Aug 2002, Arabidion caeruleae, leg. & det. G. Corriol. – Not preserved, site 19, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol. – GC 05091431, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol. – GC 06081605, site 16, 16 Aug 2006, Arabidion caeruleae, leg. G. Corriol, C. Hannoire and E. Trouillard, det. G. Corriol.

Entoloma poliopus* var. *discolor Noordel.

Previously published record: None.

Specimen examined: GC 03090203, site 24, 2 Sep 2003, Salicion herbaceae, leg. G. Corriol and T. Le Moal, det. G. Corriol.

Entoloma politoflavipes Noordel. & Liiv

Previously published record: Vila & al. (2001).

Collection cited: Site 7, 10 Aug 1999.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.

Specimen examined: None.

Entoloma prunuloides (Fr. : Fr.) Quél.

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 5, 14 Aug 1996.

Notes on habitat: The habitat is described as 'in alpine pasture land on calcareous substrate, at 2200–2300 m'. It may be Primulion intricatae, but more ecological and floristical data are needed.

Specimen examined: Not preserved, site 17, 10 Sep 2003, Arabidion caeruleae, leg. & det. G. Corriol. – GC 05091425, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Entoloma pseudoturci Noordel.

Previously published record: None.

Specimen examined: Not preserved, site 24, 25 Aug 2004, Arabidion *caeruleae*, leg. G. Corriol, T. Le Moal, P. Burr & N. Lavaupot, det. G. Corriol.

Entoloma rhombisporum* var. *floccipes Noordel.

Previously published record: None.

Specimen examined: GC 05091436, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Entoloma rusticoides (Gillet) Noordel.

Previously published record: None.

Specimen examined: GC 04091004, site 19, 10 Sep 2004, Arabidion caeruleae, leg. & det. G. Corriol.

Entoloma scabropellis Noordel.

Previously published record: Vila & Esteve-Raventós (1998).

Collection cited: Site 7, 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2300 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.

Specimen examined: None.

Entoloma sericellum (Fr. : Fr.) P. Kumm.

Previously published record: Ballarà (1997).

Collection cited: Site 8, 13 Aug 1996.

Notes on habitat: The habitat is described as 'among *Salix reticulata*, 2300–2400 m'. It is probably Arabidion caeruleae.

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 12 Aug 1997 and 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and mosses at 2300 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Specimen examined: Not preserved, site 20, 23 Aug 2003, Arabidion caeruleae, leg. & det. G. Corriol. – GC 05091424, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol. – Not preserved, site 16, 16 Aug 2006, Arabidion caeruleae, leg. G. Corriol, C. Hannoire and E. Trouillard, det. G. Corriol. – Not preserved, site 22, 9 Sep 2006, Salicion herbaceae, leg. & det. G. Corriol.

Entoloma sericeum (Bull.) Quél. var. *sericeum*

Previously published record: Ballarà (1997).

Collection cited: Site 34, 26 Aug 1995.

Notes on habitat: The habitat is described as 'among *Salix herbacea* at 2350 m'. It is probably Salicion herbaceae.

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 5, 14 Aug 1996.

Notes on habitat: The habitat is described as 'in alpine pasture land on calcareous substrate at 2200–2300 m'. It may be Primulion intricatae, but more ecological and floristical data are needed.

Previously published record: Vila & al. (2001).

Collection cited: Site 4, 28 Sep 1999.

Notes on habitat: The habitat is described as 'between *Salix reticulata* and *S. herbacea* at 2210 m'. It is probably Arabidion caeruleae.

Specimen examined: Not preserved, site 16, 28 Aug 2003, Arabidion caeruleae, leg. & det. G. Corriol. – Not preserved, site 20, 23 Aug 2003, Arabidion caeruleae, leg. & det. G. Corriol.

Entoloma sericeum* var. *cinereopacum Noordel.

Previously published record: Vila & al. (1997).

Collection cited: Site 7, 16 Aug 1996.

Notes on habitat: The habitat is described as 'between *Salix retusa* and *Dryas octopetala* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.

Specimen examined: GC 05091447, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Entoloma sericeum* f. *nanum (J. Favre) Horak

Previously published record: Vila & al. (1998).

Collection cited: Site 12, 14 Aug 1997.

Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2350 m'. It certainly is a snow bed of the Salicetea herbaceae class, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Specimen examined: None.

Entoloma sericeum* f. *nolaniforme (Kühner) Noordel.

Previously published record: Ballarà (1997).

Collection cited: Site 3, 24 Aug 1996.

Notes on habitat: The habitat is described as 'among *Dryas octopetala*, 2300–2350 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Specimen examined: GC 06081607, site 16, 16 Aug 2006, Arabidion caeruleae, leg. G. Corriol, C. Hannoire and E. Trouillard, det. G. Corriol.

Entoloma serrulatum (Fr. : Fr.) Hesler

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 5, 14 Aug 1996.

Notes on habitat: The habitat is described as 'in alpine pasture land on calcareous substrate at 2200–2300 m'. It may be Primulion intricatae, but more ecological and floristical data are needed.

Previously published record: Vila & al. (1997).

Collection cited: Site 7, 16 Aug 1996.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* at 2220 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Specimen examined: Not preserved, site 21, 30 Aug 2002, Arabidion caeruleae, leg. & det. G. Corriol. – Not preserved, site 24, 2 Sep 2003, Salicion herbaceae, leg. G. Corriol and T. Le Moal, det. G. Corriol. – Not preserved, site 17, 10 Sep 2003, Arabidion caeruleae, leg. & det. G. Corriol. – Not preserved, site 24, 25 Aug 2004, Arabidion caeruleae, leg. G. Corriol, T. Le Moal, P. Burr & N. Lavaupot, det. G. Corriol.

Entoloma turci (Bres.) M.M. Moser

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 5, 27 Aug 1996.

Notes on habitat: The habitat is described as 'in alpine pasture land on calcareous substrate at 2200–2300 m'. It may be Primulion intricatae, but more ecological and floristical data are needed.

Specimen examined: Not preserved, site 24, 2 Sep 2003, Salicion herbaceae, leg. G. Corriol and T. Le Moal, det. G.

Corriol. – GC 05091409, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Entoloma undatum (Fr.→Gillet) M.M. Moser

Previously published record: Ballarà (1997).

Collection cited: Site 8, 18 Aug 1996.

Notes on habitat: The habitat is described as 'among mosses, close to *Salix reticulata*, 2300–2400 m'. It is probably Arabidion caeruleae.

Previously published record: Vila & al. (2001).

Collection cited: Site 7, 10 Aug 1999.

Notes on habitat: The habitat is described as 'between *Dryas octopetala*, mosses and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.

Specimen examined: None.

Galerina annulata (J. Favre) Singer

Previously published record: None.

Specimen examined: GC 06083107, site 13, Montagne de Cap de Long, altitude 2575 m, 31 Aug 2006, Cardamino-Montenion with *Salix herbacea*, leg. & det. G. Corriol.

Galerina pseudocerina A.H. Sm. & Singer

Previously published record: Ballarà (1997).

Collection cited: Site 35, 13 Jul 1996.

Taxonomic notes: According to Bon (1992) and Gulden (1992), our collection is affine to *G. pseudocerina*, but has smaller spores (8–11 x 5,5–7,5 µm), which makes it intermediate toward *G. mairei* Boutev. & P.-A. Moreau, a typical peat-bog species.

Notes on habitat: Ballarà described the habitat as 'among mosses, close to *Salix retusa* at 2300 m'. It is probably Arabidion caeruleae.

Specimen examined: GC 03082803, site 16, 28 Aug 2003, Arabidion caeruleae, leg. & det. G. Corriol.

Galerina pseudotundrae Kühner

Previously published record: Bon & Ballarà (1997).

Collection cited: Site 25, 12 Sep 1993.

Notes on habitat: The habitat is described as 'with *Salix herbacea* at 2700 m'. It is probably Salicion herbaceae.

Specimen examined: None.

Galerina rubiginosa (Fr.) Kühner ss. stricto Kühner

Previously published record: None.

Specimen examined: Not preserved, site 24, 2 Sep 2003, *Salicion herbaceae*, leg. G. Corriol and T. Le Moal, det. G. Corriol. – GC 06083105, site 13, Montagne de Cap de Long, altitude 2575 m, 31 Aug 2006, Eriophorion scheuchzeri, leg. & det. G. Corriol.

Hebeloma alpinum (J. Favre) Bruchet

Previously published record: Ballarà (1997).

Collection cited: Site 3, 27 Jul 1995 and 27 Jul 1996.

Notes on habitat: The habitat is described as 'on *Dryas octopetala*, 2300–2350 m'. It may be

Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.

Other unpublished record: NdM 03091902/2249-5, site 30, 19 Sep 2003, *Oxytropido-Elynion*, leg. & det. N. de Munnik.

Specimen examined: Not preserved, site 21, 30 Aug 2002, Arabidion caeruleae with *Salix retusa*, leg. & det. G. Corriol. – Not preserved, site 19, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol. – GC 05091406, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Hebeloma bruchetii Bon

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 5, 14 Aug 1996 and 27 Aug 1996.

Notes on habitat: The habitat is described as 'in soil, with *Salix pyrenaica* at 2200 m'. It may be Primulion intricatae, but more ecological and floristical data are needed.

Previously published record: Vila & al. (1997).

Collection cited: Site 11, 12 Sep 1996.

Notes on habitat: The habitat is described as 'between *Salix pyrenaica* at 2150 m'. This is very likely a subalpine instead of an alpine collection, according to the relatively low altitude and ectomycorhizal host, *Salix pyrenaica* which is characteristic from the subalpine basophilous, psychrophilous grasslands of the Primulion intricatae. However, we quote it because *H. bruchetii* is a true alpine species (Bruchet, 1970 as *H. repandum*) and does exist in the alpine stage of the Pyrenees too. It is noteworthy that this alpine *Hebeloma* can be associated to the Pyrenean endemic willow *S. pyrenaica* instead of its usual alpine host, *S. herbacea*.

Specimen examined: NdM 97100202/2048-9, site 32, 2 Oct 1997, Arabidion caeruleae with *Salix reticulata* and *Dryas octopetala*, leg. N. de Munnik, det. G. Corriol. – GC 06083104, site 13, Montagne de Cap de Long, altitude 2575 m, 31 Aug 2006, Eriophorion scheuchzeri, leg. & det. G. Corriol.

Hebeloma edurum Métrod *ex* Bon

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2300 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.

Specimen examined: None.

Hebeloma marginatulum (J. Favre) Bruchet

Previously published record: Ballarà (1997).

Collection cited: Site 2, 8 Oct 1994, 9 Oct 1994 and 10 Jul 1995.

Notes on habitat: The habitat is described as 'among *Salix retusa* and *S. reticulata,* 2300–2350 m'. It is probably Arabidion caeruleae, but more ecological and floristical data are needed.

Previously published record: Ballarà (1997) under « f. *flammuloides* Ballarà prov. ».

Collection cited: Site 2, 19 Sep 1994.

Notes on habitat: The habitat is described as 'among *Salix retusa* and *S. pyrenaica,* 2300–2350 m'. It is probably Arabidion caeruleae.

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 1, 31 Aug 1996.

Notes on habitat: The habitat is described as 'in *Salix herbacea* carpet, on acidic soil, at 2400 m'. It is probably Salicion herbaceae.

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.

Previously published record: Vila & al. (2001).

Collection cited: Site 4, 28 Sep 1999.

Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2210 m'. It certainly is a snow bed of the *Salicetea herbaceae* class, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Specimen examined: Not preserved, site 31, 30 Aug 2002, Arabidion caeruleae, with Salix retusa, leg. & det. G. Corriol. – Not preserved, site 17, 10 Sep 2003, Arabidion caeruleae, leg. & det. G. Corriol. – GC 04091905, site 22, 19 Sep 2004, Salicion herbaceae, leg. & det. G. Corriol. – GC 06081611, site 16, 16 Aug 2006, Arabidion caeruleae, leg. G. Corriol, C. Hannoire and E. Trouillard, det. G. Corriol. – Not preserved, site 22, 9 Sep 2006, Salicion herbaceae, leg. & det. G. Corriol.

Hebeloma mesophaeum (Pers.) Quél.

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2300 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.

Specimen examined: Not preserved, site 18, 3 Sep 2003, Salicion herbaceae, leg. & det. G. Corriol. – GC 04091903, site 22, 19 Sep 2004, Salicion herbaceae, leg. & det. G. Corriol. – GC 05091439, site 19, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Hebeloma theobrominum Quadr. (f. *chamaesalicis* M. Bon prov.)

Previously published record: None.

Taxonomic note: This taxon is characterized by small spores (8–10 x 4,5–5 µm in our collection), lageni-clavate to cylindro-clavate cystidia, amygdaliform spores, cacao-raphanoid smell. We could find some micro-drops on the lamellae. It could be the same alpine form as noticed by Bon (2002).

Specimen examined: GC 05091426, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Hebeloma versipelle (Fr.) Gillet *ss.* Bon (cf. var. *citerinii* M. Bon prov.)

Previously published record: None.

Taxonomic note: These collections, in the section *Indusiata* are characterised by small spores, not discolor cap, with poorly developped veil, and blackening stem. They match the alpine form of *H. versipelle* as given by Citerin (1993) and Bon (2002).

Specimen examined: GC 05091441, site 19, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol. – GC 05091435, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Hydropus scabripes* var. *quadrisporus Bas

Previously published record: Vila & al. (2001).

Collection cited: Site 12, 29 Aug 1998.

Notes on habitat: The habitat is described as 'between *Salix retusa* and grasses at 2300 m'. It is probably Arabidion caeruleae.

Specimen examined: GC 05091410, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Hygrocybe calciphila Arnolds

Previously published record: Bon & Ballarà (1996).

Collection cited: Site 35, 8 Jul 1995.

Notes on habitat: The habitat is described as 'among *Salix retusa* at 2300 m'. It is probably Arabidion caeruleae.

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* at 2220 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Specimen examined: None.

Hygrocybe cereacea (Fr. : Fr.) P. Kumm.

Previously published record: None.

Specimen examined: Not preserved, site 16, 16 Aug 2006, Arabidion caeruleae, leg. G. Corriol, C. Hannoire and E. Trouillard, det. G. Corriol.

Hygrocybe cereopallida (Clémençon) comb. ined. ≡ *Camarophyllus cereopallidus* Clémençon

Previously published record: None.

Specimen examined: Not preserved, site 19, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol. – Not preserved, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol. – Not preserved, site 16, 16 Aug 2006, Arabidion caeruleae, leg. G. Corriol, C. Hannoire and E. Trouillard, det. G. Corriol.

Hygrocybe coccinea (Schaeff. : Fr.) P. Kumm.

Previously published record: Vila & al. (2001).

Collection cited: Site 3, 22 Aug 1999.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix reticulata* at 2240 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are necessary.

Other unpublished record: Not preserved, site 32, 2 Oct 1997, Arabidion caeruleae with *Salix reticulata* and *Dryas octopetala*, leg. & det. N. de Munnik.

Specimen examined: Not preserved, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Hygrocybe colemanniana (A. Bloxam) P.D. Orton & Watling

Previously published record: Vila & al. (2001).

Collection cited: Site 4, 28 Sep 1999.

Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2210 m'. It certainly is a snow bed of the Salicetea herbaceae class, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Specimen examined: Not preserved, site 19, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol. – Not preserved, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Hygrocybe conica (Schaeff. : Fr.) P. Kumm. *ss. lato*

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 12 Aug 1997 and 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* at 2300 m' and 'between *Dryas octopetala* and *Salix retusa* at 2300 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion and Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical data are necessary.

Previously published record: Vila & al. (2001).

Collection cited: Site 4, 28 Sep 1999.

Notes on habitat: The habitat is described as 'between *Salix herbacea* and *Rhododendron ferrugineum* at 2210 m'. It is probably Salicion herbaceae.

Specimen examined: None.

Hygrocybe conica (Schaeff.: Fr.) P. Kumm. var. *conica ss.* stricto

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 5, 14 Aug 1996.

Notes on habitat: The habitat is described as 'in alpine pasture land on basic soil at 2250 m'. It may be Primulion intricatae, but more ecological and floristical data are needed.

Specimen examined: GC 05091427, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Hygrocybe fornicata* var. *streptopus (Fr.) Arnolds

Previously published record: None.

Specimen examined: GC 05091411, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Hygrocybe fuscescens (Bres.) P.D. Orton & Watling

Previously published record: GC 05091437, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Specimen examined: None.

Hygrocybe glacialis T. Borgen & Senn-Irlet

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 27 Aug 1997.

Notes on habitat: The habitat is described as 'between mosses at 2220 m'. One can't conclude on the habitat. More ecological and floristical details are needed.

Specimen examined: None.

Hygrocybe hygrocyboides (Kühner) Arnolds

Previously published record: None.

Notes on distribution: Our collection of this singular species matches well the description of Kühner (1977) from one French and one Swiss collection from the Alps.

The only other citation in bibliography seems to be an italian alpian collection (Candusso 1997).

Its discovery in arctic area is very recent (personnal communication, T. Borgen), from Greenland and Sweeden.

Specimen examined: GC 04092702, site 16, 27 Sep 2004, *Arabidion caeruleae*, leg. & det. G. Corriol.

Hygrocybe persistens (Britzelm.) Singer var. *persistens*

Previously published record: Ballarà (1997).

Collection cited: Site 2, 20 Aug 1995.

Notes on habitat: The habitat is described as 'in alpine grassland, close to *Salix retusa*, 2300–2350 m'. It is probably Arabidion caeruleae.

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 5, 14 Aug 1996.

Notes on habitat: The habitat is described as 'in alpine pasture land on basic substrate at 2250 m'. It may be Primulion intricatae, but more ecological and floristical data are needed.

Previously published record: Vila & al. (2001).

Collection cited: Site 4, 23 Jul 1999.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* at 2220 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Other unpublished record: Not preserved, site 32, 2 Oct 1997, *Arabidion caeruleae* with *Salix reticulata* and *Dryas octopetala*, leg. & det. N. de Munnik.

Specimen examined: None.

Hygrocybe pratensis (Pers. : Fr.) Murril

Previously published record: Bon & Ballarà (1996), Vila & al. (2001).

Collection cited: Site 34, 26 Aug 1995. – Site 4, 28 Sep 1999.

Notes on habitat: The habitat is described as 'among *Salix herbacea* at 2350 m' and 'between *Salix herbacea* at 2210 m'. It certainly is a snow bed of the Salicetea herbaceae class, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Specimen examined: Not preserved, site 20, 23 Aug 2003, Arabidion caeruleae, leg. & det. G. Corriol.

Hygrocybe pseudoconica J.E. Lange var. *pseudoconica*

Previously published record: None.

Specimen examined: Not preserved, site 19, 10 Sep 2004, Arabidion caeruleae, leg. & det. G. Corriol.

Hygrocybe pseudoconica* var. *tristis (Pers.) Bon

Previously published record: Bon & Ballarà (1996).

Collection cited: Site 35, 20 Aug 1995.

Notes on habitat: The habitat is described as 'among *Salix retusa* at 2300 m'. it is probably Arabidion caeruleae.

Specimen examined: Not preserved, site 16, 28 Aug 2003, Arabidion caeruleae, leg. & det. G. Corriol. – Not preserved, site 24, 2 Sep 2003, Salicion herbaceae, leg. G. Corriol and T. Le Moal, det. G. Corriol. – Not preserved, site 17, 10 Sep 2003, Arabidion caeruleae, leg. & det. G. Corriol. Not preserved, site 20, 23 Aug 2003, Arabidion caeruleae, leg. & det. G. Corriol. – Not preserved, site 16, 16 Aug 2006, Arabidion caeruleae, leg. G. Corriol, C. Hannoire and E. Trouillard, det. G. Corriol.

Hygrocybe psittacina (Schaeff.: Fr.) P. Kumm.

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 5, 14 Aug 1996.

Notes on habitat: The habitat is described as 'in alpine pasture land at 2250'. More ecological and floristical data are needed to state the type of habitat

Specimen examined: Not preserved, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Hygrocybe quieta (Kühner) Singer

Previously published record: None.

Specimen examined: GC 05091433, site 17, 14 Sep 2005, Nardion strictae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Hygrocybe reae (R. Maire) J.E. Lange

Previously published record: None.

Specimen examined: GC 05091430, site 17, 14 Sep 2005, Arabidion caeruleae, site 17, 14 Sep 2005.

Hygrocybe salicis-herbaceae Kühner

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2400 m'. It certainly is a snow bed of the Salicetea herbaceae class, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Specimen examined: None.

Hygrocybe spadicea (Scop.: Fr.) P. Karst.

Previously published record: None.

Specimen examined: Not preserved, site 15, 17 Aug 2002, Loiseleurio-Vaccinion, leg. & det. G. Corriol.

Hygrocybe virginea (Wulfen : Fr.) P.D. Orton & Watling

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2300 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are needed..

Previously published record: Vila & al. (2001).

Collection cited: Site 4, 28 Sep 1999.

Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2210 m'. It certainly is a snow bed of the Salicetea herbaceae class, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Other unpublished reccords: NdM 97100203/2048-9, site 32, 2 Oct 1997, *Arabidion caeruleae* with *Salix reticulata* and *Dryas octopetala*, leg. & det. N. de Munnik. – Not preserved, site 29, 3 Sep 2002, Nardion strictae, leg. & det. N. de Munnik.

Specimen examined: Not preserved, site 16, 28 Aug 2003, Arabidion caeruleae, leg. & det. G. Corriol. – Not preserved, site 17, 10 Sep 2003, Arabidion caeruleae, leg. & det. G. Corriol. – Not preserved, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol. – Not preserved, site 16, 16 Aug 2006, Arabidion caeruleae, leg. G. Corriol, C. Hannoire and E. Trouillard, det. G. Corriol.

Inocybe agardhii (N. Lund) P.D. Orton (f. *calcicola* Bon & Ballarà prov.)

Previously published record: Bon & Ballarà (1996).

Collection cited: Site 2, 8 Jul 1995.

Notes on habitat: The habitat is described as 'with *Salix reticulata* and *S. retusa* at 2150 m'. It is probably Arabidion caeruleae.

Specimen examined: None.

Inocybe* aff. *albidodisca* var. *reidii Stangl & J. Veselský

Previously published record: None.

Taxonomic notes: Our collection matches well this variety of *I. albidodisca* with some spores streched up to 18 µm. The other characters are those of *I. albidodisca*: the color and veil of the cap, the witish entirely pruinose stem and cystidia with wide wall (up to x 4 µm), not coloured in NH_3 solution; except the odor which is *Pelargonium* like, a character which could bring it near *I. subpaleacea* Kühner. This last species has a different macroscopical aspect (darker cap color and velvety veil).

Specimen examined: GC 03091013, site 17, 10 Sep 2003, Arabidion caeruleae, leg. & det. G. Corriol.

Inocybe alboperonata Kühner

Previously published record: Esteve-Raventós & Vila (1998).

Collections cited: Site 7, 12 Aug 1996 and 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Loiseleuria procumbens* at 2220 m ' and 'between *Dryas octopetala* and *Salix retusa* at 2220 m and at 2300m'. For the first collection, it may be Arctostaphylo-Cetrarion. For the second collection, it may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are needed.

Specimen examined: None.

Inocybe arthrocystis Kühner

Previously published record: None.

Specimen examined: GC 03082805, site 16, 28 Aug 2003, Arabidion caeruleae, leg. & det. G. Corriol.

Inocybe asterospora Quél.

Previously published record: None.

Specimens examined: Not preserved, site 17, 10 Sep 2004, Arabidion caeruleae, leg. & det. G. Corriol. – GC 04091912, site 22, 19 Sep 2004, Salicion herbaceae, leg. & det. G. Corriol.

Inocybe bivela Kühner

Previously published record: Vila & al. (2001).

Collection cited: Site 7, 10 Aug 1999.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are needed.

Specimen examined: None.

Inocybe calamistrata (Fr. : Fr.) Gillet

Previously published record: Vila & al. (2001).

Collection cited: Site 7, 10 Aug 1999.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are needed.

Specimens examined: GC 02083007, site 21, 30 Aug 2002, Arabidion caeruleae, leg. & det. G. Corriol. – Not preserved, site 19, 27 Aug 2004, Arabidion caeruleae, leg. G. Corriol, P. Burr & P. Hériveau, det. G. Corriol. – Not preserved, Troumouse circus (at the east of site 14), altitude 2300 m, 13 Aug 2006, Arabidion caeruleae, leg. & det. G. Corriol.

Inocybe canescens J. Favre

Previously published record: Esteve-Raventós & Vila (1997).

Collection cited: Site 7, 8 Aug 1996.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are needed.

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 1, 31 Aug 1996.

Notes on habitat: The habitat is described as 'in carpets of *Salix herbacea*, on siliceous substrate at 2400 m'. It is probably Salicion herbaceae.

Specimen examined: GC 04091009, site 17, 10 Sep 2004, Arabidion caeruleae, leg. & det. G. Corriol. – GC 06081601, site 16, 16 Aug 2006, Arabidion caeruleae, leg. G. Corriol, C. Hannoire and E. Trouillard, det. G. Corriol.

Inocybe aff. concinnula* f. *subconcinnula Kühner

Previously published record: None.

Taxonomic notes: Our collection matches well with the description of this taxon except for the color of the cap, which was much darker (dark brown), and the lack of yellow tints.

Specimen examined: GC 03082804, site 16, 28 Aug 2003, Arabidion caeruleae, with *Salix reticulata*, leg. & det. G. Corriol.

Inocybe corydalina Quél.

Previously published record: Esteve-Raventós & Vila (1998).

Collection cited: Site 7, 27 Aug 1996.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* at 2220 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Specimen examined: None.

Inocybe dulcamara (Alb. & Schwein.) P. Kumm.

Previously published record: Vila & al. (2001).

Collection cited: Site 7, 10 Aug 1999.

Taxonomic notes: The collection we examined could be searched near *I. dulcamara* f. *pygmaea* J. Favre, taking into account the form of its marginal cells being often pyriforme to « opuntia like » and its small size. Nevertheless, its hollow stem and small spores (6,5–9,5 x 4,5–6 µm) don't match with the original description (Favre 1955).

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are needed.

Specimen examined: NdM 03091904/2249-5 (cf. f. *pygmaea* J. Favre), site 30, 19 Sep 2003, *Oxytropido-Elynion*, leg. N. de Munnik, det. G. Corriol.

Inocybe dulcamara* var. cf. *homomorpha Kühner

Previously published record: Ballarà (1997).

Collection cited: Site 3, 18 Aug 1996.

Notes on habitat: The habitat is described as 'among *Salix retusa* and *S. reticulata*, 2300–2350 m'. It is probably Arabidion caeruleae.

Specimen examined: None.

Inocybe egenula J. Favre

Previously published record: None.

Taxonomic notes: In our collections, we found metuloid caulocystidia down to the extreme base of the stem, character which has been noticed by Senn-Irlet (1986) too.

Specimen examined: GC 03091010, site 17, 10 Sep 2003, Arabidion caeruleae, with *Salix herbacea*, leg. & det. G. Corriol. – GC 04091007, site 17, 10 Sep 2004, Arabidion caeruleae, with *Salix herbacea*, leg. & det. G. Corriol.

Inocybe fastigiata* f. *alpestris Heim

Previously published record: Bon & Ballarà (1996).

Collection cited: Site 2, 16 Jul 1995.

Notes on habitat: The habitat is described as 'amond *Dryas octopetala* at 2150 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Previously published record: Vila & al. (2001).

Collection cited: Site 7, 23 Jul 1999 and 22 Aug 1999.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 and 2240 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are needed.

Specimen examined: None.

Inocybe flavella P. Karst.

Previously published record: Esteve-Raventós & Vila (1998).

Collection cited: Site 12, 14 Aug 1997.

Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2350 m'. It is probably a snow-bed community from Salicetea herbaceae, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Specimen examined: None.

Inocybe friesii Heim (f. *minor* J. Favre prov.)

Previously published record: None.

Specimens examined: GC 04091022, site 19, 10 Sep 2004, Arabidion caeruleae, leg. & det. G. Corriol. – GC 05091444, site 19, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Inocybe geraniodora J. Favre var. *geraniodora*

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 5, 27 Aug 1996.

Notes on habitat: The habitat is described as 'in humus, linked to *Salix reticulata* in basic soil at 2300 m'. It is probably Arabidion caeruleae.

Specimen examined: None.

Inocybe geraniodora* var. *depauperata J. Favre

Previously published record: Vila & al. (2001).
Collection cited: Site 3, 22 Aug 1999.
Notes on habitat: The habitat is described as 'on decomposing leaves of *Dryas octopetala* and *Salix reticulata* at 2240 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are needed.
Specimen examined: None.

Inocybe geraniodora* var. *gracilenta J. Favre

Previously published record: None.
Specimen examined: Not preserved, site 19, 10 Sep 2004, Arabidion caeruleae, leg. & det. G. Corriol. – GC 04091010, site 17, 10 Sep 2004, Arabidion caeruleae, leg. & det. G. Corriol.

Inocybe geraniodora* f. *salicis-herbaceae Bon & Ballarà

Previously published records: Bon & Ballarà (1995) and Bon & Ballarà (1996).
Collections cited: Site 38, 10 Sep 1994 and site 34, 26 Aug 1995.
Notes on habitat: The habitat is described as 'in the Salici-Anthelietum between *Salix herbacea* at 2425 m' and 'with *Salix herbacea* at about 2350 m'. Both collections are from Salicion herbaceae.
Specimen examined: None.

Inocybe giacomi J. Favre *ex* Bon

Previously published record: Bon & Ballarà (1997).
Collection cited: Site 34, 24 Aug 1996.
Notes on habitat: The habitat is described as 'with *Salix herbacea* at about 2400 m'. It is probably Salicion herbaceae.
Specimen examined: None.

Inocybe humilis (J. Favre *ex* Horak) Esteve-Rav. & Vila

Previously published record: Esteve-Raventós & Vila (1998).
Collection cited: Site 12, 14 Aug 1997.
Notes on habitat: The habitat is described as 'between *Salix herbacea* and *S. retusa*, at 2300 m'. It is probably Arabidion caeruleae.
Specimen examined: None.

Inocybe hypotheja Kühner

Previously published record: Ballarà & Escànez (1999).
Collection cited: Site 2, 30 Aug 1997.
Notes on habitat: The habitat is described as 'between *Dryas octopetala* at 2300 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.
Specimen examined: None.

Inocybe johannae Kühner

Previously published record: Esteve-Raventós & Vila (1998).

Collection cited: Site 12, 2 Aug 1997 and 14 Aug 1997.

Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2350 m'. It is probably a snow-bed community from Salicetea herbaceae, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Specimen examined: None.

Inocybe lacera (Fr. : Fr.) P. Kumm. var. *lacera*

Previously published record: Esteve-Raventós & Vila (1998).

Collection cited: Site 12, 2 Aug 1997.

Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2350 m'. It is probably a snow-bed community from Salicetea herbaceae, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Specimen examined: None.

Inocybe lacera* var. *heterospora J. Favre *ex* Bon

Previously published records: Esteve-Raventós & Vila (1997), Ballarà & Escànez (1999).

Collection cited: Site 7, 16 Aug 1996. – Site 2, 30 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* at 2220 m' and 'between *Dryas octopetala* at 2300 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Previously published record: Esteve-Raventós & Vila (1998).

Collection cited: Site 12, 14 Aug 1997.

Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2350 m'. It is probably a snow-bed community from Salicetea herbaceae, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Specimens examined: GC 04091908, site 22, 19 Sep 2004, Salicion herbaceae, leg. & det. G. Corriol. – GC 06080502, site 13, Lacs verts, at north of Pic de Néouvielle, altitude 2630 m, 5 Aug 2006, Salicion herbaceae, leg. & det. G. Corriol.

Inocybe lacera* f. *subsquarrosa F.H. Møller

Previously published record: Vila & al. (2001).

Collection cited: Site 12, 7 Aug 1999.

Notes on habitat: The habitat is described as 'between *Salix herbacea* and *S. retusa*, at 2300 m'. It is probably Arabidion caeruleae.

Specimen examined: None.

Inocybe lanuginosa* var. *ovatocystis (Boursier & Kühner) Stangl

Previously published record: Esteve-Raventós & Vila (1998).

Collection cited: Site 12, 14 Aug 1997.

Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2350 m'. It is probably a snow-bed community from *Salicetea herbaceae*, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Specimen examined: None.

Inocybe leucoblema Kühner

Previously published record: Vila & al. (2001).

Collection cited: Site 7, 10 Aug 1999.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa*

at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are needed.

Specimen examined: GC 06090902, site 22, 9 Sep 2006, Salicion herbaceae, leg. & det. G. Corriol.

Inocybe leucoloma Kühner

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 5, 14 Aug 1996 and 27 Aug 1996.

Notes on habitat: The habitat is described as 'linked to *Salix pyrenaica* in alpine calcareous scree at 2200 m'. More ecological and floristical data are needed to state the type of habitat.

Specimen examined: None.

Inocybe luteipes J. Favre (f. *mixtipes* Esteve-Rav. & Vila prov.)

Previously published record: Esteve-Raventós & Vila (1998).

Collection cited: Site 7, 12 Aug 1996.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are needed.

Specimen examined: None.

Inocybe metrodii Stangl & J. Veselský (=*I. glabrescens* Velen *ss.* Kuyper)

Previously published record: Esteve-Raventós & Vila (1998).

Collection cited: Site 12, 14 Aug 1997.

Notes on habitat: The habitat is described as 'between *Salix herbacea* and *S. retusa*, at 2300 m'. It is probably Arabidion caeruleae.

Specimen examined: None.

Inocybe mixtilis (Britzelm.) Sacc.

Previously published records: Esteve-Raventós & Vila (1997), Esteve-Raventós & Vila (1998).

Collection cited: Site 7, 8 Aug 1996. – Site 7, 12 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are needed.

Previously published record: Vila & al. (1998).

Collection cited: Site 12, 2 Aug 1997.

Notes on habitat: The habitat is described as 'between *Salix retusa* at 2300 m'. It is probably Arabidion caeruleae.

Specimen examined: GC 06081002, Estom Soubiran, high Lutour valley (at the east of site 24), altitude 2450 m, 10 Aug 2006, Arabidion caeruleae, leg. & det. G. Corriol.

Inocybe monochroa J. Favre

Previously published record: Bon & Ballarà (1997).

Collection cited: Site 3, 18 Aug 1996.

Notes on habitat: The habitat is described as 'among *Dryas octopetala* at 2350 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Specimen examined: None.

Inocybe pelargoniodora Kühner

Previously published record: None.

Specimen examined: GC 02083002, site 21, 30 Aug 2002, Arabidion caeruleae, with *Salix retusa*, leg. & det. G. Corriol.

Inocybe piriodora (Britzelm.) Sacc.

Previously published record: Ballarà (1997).

Collection cited: Site 8, 25 Aug 1996.

Notes on habitat: The habitat is described as 'among *Dryas octopetala* and *Vaccinium vitis-ideae*, 2300–2400 m. It may be Arctostaphylo-Cetrarion, but more floristical and ecological data is needed.

Previously published record: Esteve-Raventós & Vila (1998) under « f. *chamaesalicis* M. Bon prov. ».

Collection cited: Site 7, 12 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* at 2220 m'. It may *be* Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Specimen examined: None.

Inocybe praetervisa Quél.

Previously published record: Vila & al. (2001).

Taxonomic notes: The published data is understood *ss. lato*, including *I. salicis-herbaceae* Kühn.) when ours is understood in a strict sense, excluding the arctic-alpine species.

Collection cited: Site 7, 23 Jul 1999.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are needed.

Specimen examined: GC 06081003, Estom Soubiran, high Lutour valley (at the east of site 24), altitude 2450 m, 10 Aug 2006, Arabidion caeruleae, leg. & det. G. Corriol.

Inocybe pseudohiulca* f. *alpigena Esteve-Rav. & Vila

Previously published record: Esteve-Raventós & Vila (1997).

Collection cited: Site 7, 8 Aug 1996.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are needed.

Specimen examined: Not preserved, site 21, 30 Aug 2002, Arabidion caeruleae, leg. & det. G. Corriol.

Inocybe rennyi (Berk. & Broome) Sacc.

Previously published record: None.

Taxonomic notes: This species has very striking spores, very variable in size and shape. In our collection, they can be stretched up to 22 µm long, with entolomoid to nodulose outline, some of them being even branched. This ubiquitous species was notably reported from the arctic zone from Greenland, but seemed to be unknow up to now from the European alpine zone (Bon 1997, Ferrari 2004).

Specimen examined: GC 03091015, site 17, 10 Sep 2003, Arabidion caeruleae, leg. & det. G. Corriol.

Inocybe rhacodes J. Favre

Previously published record: None.
Specimen examined: Not preserved, site 21, 30 Aug 2002, Arabidion caeruleae, leg. & det. G. Corriol.

Inocybe rufobrunnea J. Favre

Previously published record: Bon & Ballarà (1996).
Collection cited: Site 35, 8 Jul 1995.
Notes on habitat: The habitat is described as 'among *Salix retusa* at 2300 m'. It is probably Arabidion caeruleae.
Specimen examined: GC 04091015, site 19, 10 Sep 2004, Arabidion caeruleae, leg. & det. G. Corriol.

Inocybe rufofusca (J. Favre) Bon

Previously published record: None.
Specimen examined: GC 03091014, site 17, 10 Sep 2003, Arabidion caeruleae, leg. & det. G. Corriol.

Inocybe salicis-herbaceae Kühner

Previously published record: None.
Specimen examined: GC 04082004, site 16, 20 Aug 2004, Arabidion caeruleae, leg. G. Corriol & P. Burr, det. G. Corriol.

Inocybe solidipes Kühner

Previously published record: None.
Specimen examined: GC 04082002, site 16, 20 Aug 2004, Arabidion caeruleae, leg. & det. G. Corriol.

Inocybe soluta Velen.

Previously published record: Vila & al. (2001).
Collection cited: Site 12, 7 Aug 1999.
Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2350 m'. It is probably a snow-bed community from Salicetea herbaceae, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.
Specimen examined: None.

Inocybe squarrosoannulata Kühner

Previously published record: Esteve-Raventós & al. (1997).
Collection cited: Site 5, 27 Aug 1996.
Notes on habitat: The habitat is described as 'under *Salix pyrenaica* in alpine calcareous scree at 2200 m'. More ecological and floristical data are needed to state the type of habitat.
Specimen examined: None.

Inocybe subbrunnea Kühner

Previously published record: Vila & al. (2001), under *I. catalaunica* Singer. **Collection cited:** Site 7, 10 Aug 1999.
Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical

details are needed.
Specimen examined: None.

Inocybe* aff. *subpiricystis Kühner

Previously published record: Bon & Ballarà (1997).
Collection cited: Site 3, 18 Aug 1996.
Notes on habitat: The habitat is described as 'with *Salix pyrenaica* at 2300 m'. It may be Primulion intricatae.
Specimen examined: None.

Inocybe substraminipes Kühner

Previously published record: None.
Specimen examined: GC 04091011, site 19, 10 Sep 2004, Arabidion caeruleae, leg. & det. G. Corriol.

Inocybe tenebricoides Kühner

Previously published record: None.
Specimens examined: GC 03091009, site 17, 10 Sep 2003, Arabidion caeruleae, leg. & det. G. Corriol. – GC 04091910, site 22, 19 Sep 2004, Salicion herbaceae, leg. & det. G. Corriol.

Inocybe tenerella (J. Favre) Kühner

Previously published record: Esteve-Raventós & Vila (1998).
Collection cited: Site 7, 12 Aug 1996.
Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are needed.
Specimen examined: None.

Inocybe* aff. *tenerella (J. Favre) Kühner

Previously published record: None.
Taxonomic notes: Our collection differs from Favre's description (Favre 1955) by the darker color of the cap (dark brown) and the shape of the spores which are less obtuse, more ogival.
Specimen examined: GC 04091016, site 19, 10 Sep 2004, Arabidion caeruleae, leg. & det. G. Corriol.

Inocybe tetragonospora Kühner (f. *variispora* Bon & Ballarà prov.)

Previously published record: Bon & Ballarà (1997).
Collection cited: Site 8, 24 Aug 1996.
Notes on habitat: The habitat is described as 'among *Dryas octopetala* at 2350 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.
Specimen examined: None.

Laccaria affinis (Singer) Bon

Previously published record: None.
Specimen examined: Not preserved, site 16, 20 Aug 2004, Arabidion caeruleae, leg. G. Corriol & P. Burr, det. G. Corriol.

Laccaria laccata* var. *pseudobicolor Bon

Previously published record: Vila & al. (1998).

Collection cited: Site 12, 2 Aug 1997.

Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2350 m'. It is probably a snow-bed community from Salicetea herbaceae, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Specimen examined: None.

Laccaria montana Singer

Previously published record: Ballarà (1997).

Collection cited: Site 34, 26 Aug 1995.

Notes on habitat: The habitat is described as 'among mosses and *Salix herbacea'*. It is probably Salicion herbaceae.

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2400 m'. It is probably a snow-bed community from Salicetea herbaceae, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Specimen examined: GC 04091904, site 22, 19 Sep 2004, Salicion herbaceae, leg. & det. G. Corriol. – GC 06081606, site 16, 16 Aug 2006, Arabidion caeruleae, leg. G. Corriol, C. Hannoire and E. Trouillard, det. G. Corriol.

Laccaria pumila Fayod

Previously published record: Ballarà (1997).

Collection cited: Site 2, 16 Jul 1995.

Notes on habitat: The habitat is described as 'under *Salix pyrenaica*, 2300–2350 m'. It may be Primulion intricatae or Arabidion caeruleae. More ecological and floristical data are needed .

Specimens examined: NdM 97100201/2048-9, site 32, 2 Oct 1997, Arabidion caeruleae with Salix reticulata and Dryas octopetala, leg. & det. N. de Munnik, conf. G. Corriol. – GC 04091014, site 19, 10 Sep 2004, Arabidion caeruleae, leg. & det. G. Corriol. – GC 05091440, site 19, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol. Not preserved, site 13, Montagne de Cap de Long, altitude 2575 m, 31 Aug 2006, Salicion herbaceae, leg. & det. G. Corriol.

Laccaria tortilis (Bolton) Cooke

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 1, 31 Aug 1996.

Notes on habitat: The habitat is described as 'in humid zone with *Salix herbacea* carpets, on acid soil at 2400 m'. It is probably Salicion herbaceae.

Specimen examined: None.

Lactarius brunneoviolaceus M.P. Christ.

Previously published record: Vila & al. (1998).

Collections cited: Site 12, 2 Aug 1997 and 14 Aug 1997.

Notes on habitat: The habitat is described as 'between *Salix retusa* and *Salix herbacea* at 2300 m'. It is probably Arabidion caeruleae.

Specimen examined: None.

Lactarius dryadophilus Kühner

Previously published records: Ballarà (1997), Vila & al. (1997).

Collections cited: Site 2, 8 Sep 1996. – Site 7, 16 Aug 1996.

Notes on habitat: The habitat is described as 'among *Dryas octopetala*, 2300–2350 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Specimen examined: None.

Lactarius nanus J. Favre

Previously published record: Bon & Ballarà (1996).

Collection cited: Site 34, 1 Sep 1995.

Notes on habitat: The habitat is described as 'among *Salix herbacea* at 2500 m'. It is probably *Salicion herbaceae.*

Previously published records: Vila & al. (2001).

Collections cited: Site 12, 7 Aug 1999, site 4, 28 Sep 1999.

Notes on habitat: The habitat is described as 'between *Salix herbacea* and *Salix retusa* at 2300 m' and the same 'at 2210 m'. It is probably Arabidion caeruleae.

Specimen examined: None.

Lactarius salicis-herbaceae Kühner

Previously published record: Ballarà (1997).

Collection cited: Site 3, 18 Aug 1996.

Notes on habitat: The habitat is described as 'among *Salix retusa*, 2300–2350 m'. It is probably *Arabidion caeruleae*.

Previously published record: Vila & al. (2001).

Collection cited: Site 4, 8 Sep 1999.

Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2210 m'. It is probably a snow-bed community from Salicetea herbaceae, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Specimen examined: None.

Lepiota alba (Bres.) Saccardo

Previously published record: None.

Unpublished data: Site 31, 15 Aug 2002, Primulion intricatae with *Dryas octopetala* and *Salix pyrenaica*, leg. & det. N. de Munnik.

Specimen examined: Not preserved, site 21, 30 Aug 2002, Arabidion caeruleae, leg. & det. G. Corriol. – Not preserved, site 24, 2 Sep 2003, Salicion herbaceae, leg. G. Corriol and T. Le Moal, det. G. Corriol. – Not preserved, site 17, 10 Sep 2003, Nardion strictae, leg. & det. G. Corriol. – GC 05091423, site 17, 14 Sep 2005, Nardion strictae, leg. G. Corriol & N. Lavaupot, det. G. Corriol. – Not preserved, site 22, 19 Sep 2004, Nardion strictae, leg. & det. G. Corriol.

Lepiota oreadiformis Velen.

Previously published record: Vila & al. (1997).

Collection cited: Site 7, 16 Aug 1996.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* at 2220 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Specimen examined: None.

Lepista irina* var. *montana Bon

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 16 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* at 2220 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Specimen examined: Not preserved, site 17, 10 Sep 2003, Arabidion caeruleae, leg. & det. G. Corriol. – GC 05091415, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol. – Not preserved, site 19, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Lepista irinoides Bohus

Previously published record: Bon & Ballarà (1996).

Collection cited: Site 2, 17 Sep 1995.

Notes on habitat: The habitat is described as 'amond *Dryas octopetala* at 2150 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Specimen examined: None.

Lepista martiorum (J. Favre) Bon

Previously published record: None.

Specimen examined: GC 05091414, site 17, 14 Sep 2005, in rather chionophilous Nardion strictae with *Poa alpina*, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Lepista multiformis (Romell) Gulden

Previously published record: Bon & Ballarà (1997).

Collection cited: Site 27, 15 Sep 1993.

Notes on habitat: The habitat is described as 'alpine grassland on slightly acidic soil, with few *Salix herbacea* and *Loiseleuria procumbens*'. It may be Salicion herbaceae.

Specimen examined: None.

Lichenomphalia pararustica (Clémençon) comb. ined. (= *Omphalina pararustica* Clémençon)

Previously published record: None.

Taxonomic notes: This taxon belongs to the *Lichenomphalia velutina* complex, but has not yet been recombined in this genus which regroups the lichenised omphalinoid basidiomycetes (Redhead & al. 2002). It differs from *L. velutina* ss. stricto mainly by its four spored basidia (Moreau 2005).

Notes on habitat: The habitat is described as 'on a slope, on mosses and naked soil, at 2200 m'. The altitude at which the collection was made leaves it open if the locality was alpine or subalpine. More ecological informations are needed. However, as lichenomphalias are well represented in arctic and alpine environments, we report this collection.

Specimen examined: NdM 97100205/2048-9, site 32, 2 Oct 1997, habitat not precisely known (see above), leg. N. de Munnik, det. G. Corriol.

Lichenomphalia velutina (Quél.) Redhead, Lutzoni & Vilgalys

Previously published record: Ballarà (1997).

Collection cited: Site 35, 13 Jul 1996.

Notes on habitat: The habitat is described as 'Carici-Salicetum retusae, under Salix retusa at

2300 m'. The Carici parviflorae-Salicetum retusae is the main Pyrenean association of basophilous snowbed from Arabidion caeruleae alliance, rich in dwarf willow.

Specimen examined: None.

Marasmius epidryas Kühner

Previously published records: Bon & Ballarà (1995), Vila & al. (1997).

Collections cited: Site 2, 9 Oct 1994. – Site 7, 8 Aug 1996 and 16 Aug 1996.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* at 2150 m' and 'on rests of *Dryas octopetala* at 2220 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Other unpublished data: Not preserved, site 30, 19 Sep 2003, on *Dryas octopetala*, in *Oxytropido-Elynion*, leg. & det. N. de Munnik.

Specimen examined: Not preserved, site 16, 28 Aug 2003, on *Dryas octopetala*, in Oxytropido-Elynion, leg. & det. G. Corriol. – GC 06081613, site 16, 16 Aug 2006, on *Dryas octopetala*, in Oxytropido-Elynion, leg. G. Corriol, C. Hannoire and E. Trouillard, det. G. Corriol.

Melanoleuca brevipes (Bull.) Pat.

Previously published record: None.

Specimen examined: Not preserved, site 21, 30 Aug 2002, Arabidion caeruleae, leg. & det. G. Corriol.

Melanoleuca catalaunica Singer

Previously published record: Singer (1932).

Collection cited: Catalan Pyrenees close to Espot, at south-east of the Encantats, Spain.

Notes on habitat: The habitat is described as 'in alpine grassland' according to the original diagnosis. The only mention by Singer (*loc. cit*.) is given at 2150 m, which is obviously a subalpine locality; in the key given by this author, he indicates « alpine region of Pyrenees (2000–2300 m) »; however, we think this is more likely a subalpine species.

Specimen examined: None.

Melanoleuca cognata* var. *robusta (J.E. Lange) Kühner

Previously published record: None.

Unpublished data: NdM 03091905/2249-5, site 30, 19 Sep 2003, Oxytropido-Elynion, leg. & det. N. de Munnik.

Specimen examined: None.

Melanoleuca decembris Métrod *ex* Bon (f. *alpina* M. Bon & Ballarà prov.)

Previously published record: Bon & Ballarà (1997).

Collection cited: Site 35, 4 Jul 1996.

Notes on habitat: The habitat is described as 'on limestone at 2300 m'. More floristical and ecological data are needed for habitat type identification.

Specimen examined: None.

Melanoleuca diverticulata Bon & Moreno (f. *alpina* M. Bon & Ballarà prov.)

Previously published record: Bon & Ballarà (1996).

Collection cited: Site 35, 17 Sep 1995.

Notes on habitat: The habitat is described as 'among *Salix retusa* at 2300'. It is probably

Arabidion caeruleae.
Specimen examined: None.

Melanoleuca graminicola (Velen.) Kühner & R. Maire

Previously published record: None.
Specimen examined: NdM 03091903/2249-5, site 30, 19 Sep 2003, Oxytropido-Elynion, leg. & det. N. de Munnik, conf. G. Corriol.

Melanoleuca metrodiana Bon

Previously published record: Esteve-Raventós & al. (1997).
Collection cited: Site 5, 14 Aug 1996.
Notes on habitat: The habitat is described as 'in alpine pasture land on basic soil, at 2250 m'. It may be Primulion intricatae, but more ecological and floristical data are needed.
Specimen examined: None.

Melanoleuca pseudoluscina Bon

Previously published record: None.
Notes on distribution: This taxon seemed to be unknown from montainous areas up to now (Corriol 2005).
Specimen examined: GC 05091446, site 19, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Melanoleuca rasilis (Fr.) Singer var. *rasilis*

Previously published record: Esteve-Raventós & al. (1997).
Collection cited: Site 5, 14 Aug 1996.
Notes on habitat: The habitat is described as 'in alpine pasture land, at 2200 m'. More ecological and floristical data are needed to state the type of habitat.
Specimen examined: GC 05091402, site 17, 19 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol. – GC 06081602, site 16, 16 Aug 2006, Arabidion caeruleae, leg. G. Corriol, C. Hannoire and E. Trouillard, det. G. Corriol.

Melanoleuca stridula (Fr.) Singer *ss.* Kühner

Previously published record: Vila & al. (1998).
Collection cited: Site 7, 27 Aug 1997.
Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are needed.
Specimen examined: None.

Melanoleuca subalpina (Britzelm.) Bres. & Stangl

Previously published record: Ballarà (1997).
Collection cited: Site 3, 25 Jul 1993 and 20 Jul 1996. – Site 35, 10 Jul 1996.
Notes on habitat: The habitat is described as 'in an alpine grassland, 2300–2350 m' and 'among grass, not far from *Dryas octopetala*, at 2300 m'. The last collection may be Primulion intricatae or Oxytropido-Elynion. More ecological and floristical data are necessary.
Specimen examined: None.

Melanoleuca tristis M.M Moser

Previously published record: Vila & al. (1998).
Collection cited: Site 7, 12 Aug 1997.
Notes on habitat: The habitat is described as 'between *Loiseuleria procumbens* and *Dryas octopetala* at 2220 m'. It may be Arctostaphylo-Cetrarion, but more ecological and flortistical informations are needed.
Specimen examined: None.

Mycena epipterygia* var. *candida (Weinm.) M. Bon & P. Roux

Previously published record: Bon & Ballarà (1997).
Collection cited: Above the Bouillouses lake, in the neighborhood of site 25, without date.
Notes on habitat: The habitat is described as 'in a mire with *Carex* div. species and *Salix* of *repens* type at 2500 m'. The ecological and floristical data are too fragmentary to determine accurately habitat type, though it likely belongs to the Scheuchzerio-Caricetea class.
Specimen examined: None.

Mycena olivaceomarginata (Massee) Massee

Previously published record: None.
Specimen examined: Not preserved, site 21, 30 Aug 2002, Arabidion caeruleae, leg. & det. G. Corriol.

Mycena pura (Pers. : Fr.) P. Kumm.

Previously published record: Vila & al. (1997).
Collection cited: Site 7, 16 Aug 1996.
Notes on habitat: The habitat is described as 'between *Salix retusa* and *Dryas octopetala* at 2300 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are needed.
Specimen examined: Not preserved, site 21, 30 Aug 2002, Arabidion caeruleae, leg. & det. G. Corriol. – GC 05091422, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Mycena pura* f. *alba (Gillet) Kühner

Previously published record: Vila & al. (1998).
Collection cited: Site 7, 27 Aug 1997,
Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2300 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are needed.
Specimen examined: None.

Mycena pura* f. *purpurea (Gillet) Maas Geest.

Previously published record: None.
Specimen examined: Not preserved, site 17, 10 Sep 2003, Nardion strictae, leg. & det. G. Corriol.

Myxomphalia maura (Fr. : Fr.) Hora

Previously published record: Ballarà (1997).
Collection cited: Site 2, 15 Sep 1996.
Notes on habitat: The habitat is described as 'among *Funaria*'. It is likely a burnt soil micro-

habitat of the Funarion hygrometricae Hadec.
Specimen examined: None.

Panaeolus ater (J.E. Lange) Kühner & Romagn. ex Bon

Previously published record: None.
Unpublished data: Not preserved, site 29, 3 Sep 2002, Nardion strictae, leg. & det. N. de Munnik.
Specimen examined: None.

Panaeolus fimicola (Pers. : Fr.) Quél.

Previously published record: Ballarà & Escànez (1999).
Collection cited: Site 35, 8 Jun 1996, 4 Jul 1996 and 21 Jun 1997.
Notes on habitat: The habitat is described as 'between *Dryas octopetala* at 2300 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.
Previously published record: Vila & al. (2001).
Collection cited: Site 12, 7 Aug 1999.
Notes on habitat: The habitat is described as 'between *Salix herbacea* and *Salix retusa* at 2300 m'. It is probably Arabidion caeruleae.
Specimen examined: GC 05091428, site 17, 14 Sep 2005, Nardion strictae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Panaeolus foenisecii (Fr. : Fr.) Kühner

Previously published record: None.
Specimen examined: Not preserved, site 24, 25 Aug 2004, Arabidion caeruleae, leg. G. Corriol, T. Le Moal, P. Burr & N. Lavaupot, det. G. Corriol.

Panaeolus rickenii Hora

Previously published record: None.
Specimen examined: Not preserved, site 17, 10 Sep 2003, Nardion strictae, leg. & det. G. Corriol. – GC 05091429, site 17, 14 Sep 2005, Nardion strictae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Panaeolus sphinctrinus (Fr.) Quél.

Previously published record: None.
Specimen examined: Not preserved, site 14, 22 Aug 2005, coprophilous, leg. G. Corriol, C. Bergès & A.-M. Labouche, det G. Corriol.

Pholiotina coprophila **var.** ***exigua*** (Singer) Singer

Previously published record: None.
Specimen examined: GC 05082202, site 14, 22 Aug 2005, coprophilous, leg. G. Corriol, C. Bergès & A.-M. Labouche, det G. Corriol.

Psilocybe chionophila Lamoure

Previously published record: Ballarà & Escànez (1999).
Collection cited: Site 34, 25 Jun 1995.
Notes on habitat: The habitat is described as 'between mosses (*Polytrichum* sp.) and *Salix*

herbacea at 2300 m'. It is probably Salicion herbaceae.
Specimen examined: None.

Psilocybe inquilina (Fr. : Fr.) Bres.

Previously published record: None.
Specimen examined: Not preserved, site 16, 28 Aug 2003, Arabidion caeruleae, leg. & det. G. Corriol.

Psilocybe libertatis (Batsch: Fr.) F.H. Møller ss. Møller, P.D. Orton

Previously published record: None.
Taxonomic notes: This *Psilocybe*, well characterized by its dry pileipellis and small spores (5–7 x 4–5 µm) was first recognized in the alpine stage of the Alps by Bon & Cheype (1995).
Specimen examined: GC 03082801, site 16, 28 Aug 2003, Arabidion caeruleae, in minute pioneer moss carpet, leg. & det. G. Corriol.

Rhodocybe caelata (Fr.) R. Maire

Previously published record: Ballarà (1997).
Collection cited: Site 35, 28 may 1994.
Notes on habitat: The habitat is described as 'in alpine pasture land at 2300 m'. It may be Primulion intricatae, but floristical and ecological data are needed.
Specimen examined: None.

Rhodocybe nitellina (Fr.) Singer

Previously published record: Vila & al. (1998).
Collection cited: Site 7, 27 Aug 1997.
Notes on habitat: The habitat is described as 'under *Rhododendron ferrugineum* between mosses, at 2300 m'. Acording to the altitude, it is possible that the alpine stage is reached. However, as *Rhododendron ferrugineum* is a typical subalpine plant, more ecological informations are needed. If alpine, the habitat may be Loiseleurio-Vaccinion where *Rhododendron ferrugineus* can be found in dwarf isolated forms.
Specimen examined: None.

Rickenella mellea (Singer & Clémençon) Lamoure

Previously published record: Vila & al. (1997).
Collection cited: Site 11, 12 Sep 1996.
Notes on habitat: The habitat is described as 'between mosses at 2150 m'. Unless it is likely a subalpine locality, this is the first Pyrenean mention of this orophile species. We quote it as we think it is likely to be found in the alpine stage too.
Specimen examined: GC 04092701, 27 Sep 2004, little lake under Oncet lake under the Pic du midi de Bigorre, alt. 2250 m, Caricion fuscae, subalpine fen (our collection also comes from high subalpine stage), leg. & det. G. Corriol.

Rugosomyces carneus (Bull. : Fr.) M. Bon

Previously published record: Rocabruna & al. (1994).
Collection cited: Catalan Pyrenees, 4 Oct 1986.
Notes on habitat: The habitat is described as 'in a field at 2260 m'. One can't conclude on the habitat type. Ecological and floristical informations are necessary.
Previously published record: Ballarà & Escànez (1999).

Collection cited: Site 3, 24 Aug 1997.

Notes on habitat: The habitat is described as 'with *Salix pyrenaica* and *S. retusa* at 2250 m'. It may be Arabidion caeruleae according to the presence of *S. retusa*, but more information is needed.

Specimen examined: None.

Rugosomyces onychinus (Fr.) Raithelh.

Previously published record: Ballarà (1997).

Collections cited: Site 3, 4 Aug 1995 and 18 Aug 1996.

Notes on habitat: The habitat is described as 'among *Dryas octopetala*, 2300–2350 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Specimen examined: None.

Russula alpigenes (Bon) Bon

Previously published record: None.

Specimen examined: GC 05083101, site 33, 31 Aug 2005, Salicion herbaceae, with *Salix herbacea*, leg G. Corriol, H. Chevallier, T. Guillonet & N. Point, det. G. Corriol. – Not preserved, site 22, 9 Sep 2006, Salicion herbaceae, leg. & det. G. Corriol. – GC 06083102, site 13, Montagne de Cap de Long, altitude 2575 m, 31 Aug 2006, Salicion herbaceae, leg. & det. G. Corriol.

Russula delica Fr.

Previously published record: Vila & al. (1997).

Collection cited: Site 7, 8 Aug 1996.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* at 2220 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Previously published record: Ballarà (1997).

Collection cited: Site 8, 25 Aug 1996.

Notes on habitat: The habitat is described as 'among *Dryas octopetala* and *Vaccinium vitis-ideae*, 2300–2400 m'. It may be Arctostaphylo-Cetrarion, but more ecological and floristical informations are necessary.

Specimen examined: None.

Russula nana Killerm.

Previously published record: Bon & Ballarà (1996).

Collection cited: Site 3, 27 Jul 1995.

Notes on habitat: The habitat is described as 'among *Dryas octopetala* at 2200 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Previously published record: Bon & Ballarà (1997).

Collection cited: Site 34, 26 Aug 1995.

Notes on habitat: The habitat is described as 'with *Salix herbacea* at 2350 m'. It is probably *Salicion herbaceae*.

Other unpublished data: NdM 97100204/2048-9, site 32, 2 Oct 1997, Arabidion caeruleae with *Salix reticulata* and *Dryas octopetala*, leg. & det. N. de Munnik.

Specimen examined: None.

Russula nana* var. *alpina (A. Blytt & Rostr.) Bon

Previously published record: Bon & Ballarà (1996).

Collection cited: Site 3, 5 Aug 1995.

Notes on habitat: The habitat is described as 'among *Dryas octopetala* at 2350 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Specimen examined: None.

Russula norvegica Reid

Previously published record: Bon & Ballarà (1995).

Collection cited: Site 38, 10 Sep 1994.

Notes on habitat: The habitat is described as 'in the Salici-Anthelietum between *Salix herbacea* at 2350 m'. It is probably Salicion herbaceae.

Previously published record: Vila & al. (1997).

Collection cited: Site 6, 2 Aug 1987.

Notes on habitat: The habitat is described as 'between *Salix* sp. at 2750 m '.It is probably *Salicion herbaceae.*

Previously published record: Vila & al. (1997).

Collection cited: Site 7, 16 Aug 1996.

Notes on habitat: The habitat is described as 'between *Salix retusa* and *Dryas octopetala* at 2300 m' and 'between *Salix herbacea* and *Loiseleuria procumbens* at 2400 m '. The first habitat may be Arabidion caeruleae or Oxytropido-Elynion. The second habitat may be Salicion herbaceae. More ecological and floristical details are needed.

Previously published record: Vila & al. (1998).

Collection cited: Site 12, 14 Aug 1997.

Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2350 m'. It is probably a snow-bed community from *Salicetea herbaceae*, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Previously published record: Vila & al. (1998).

Collection cited: Site 12, 14 Aug 1997.

Notes on habitat: The habitat is described as 'between *Salix retusa* and *Salix herbacea* at 2300 m'. It is probably Arabidion caeruleae.

Specimen examined: None.

Russula oreina Singer

Previously published records: Bon & Ballarà (1996), Vila & al. (1997).

Collections cited: Site 3, 4 Aug 1995. – Site 7, 8 Aug 1996.

Notes on habitat: The habitat is described as 'among *Dryas octopetala* at 2200 m' and the same 'at 2220 m'. It may be Primulion intricatae, Oxytropido-Elynion or Arctostaphylo-Cetrarion. More ecological and floristical data are necessary.

Previously published record: Vila & al. (1998).

Collection cited: Site 12, 14 Aug 1997.

Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2450 m'. It is probably a snow-bed community from Salicetea herbaceae, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Specimen examined: None.

Russula puellaris Fr.

Previously published record: Bon & Ballarà (1997).
Collection cited: Site 34, 26 Aug 1995.
Notes on habitat: The habitat is described as 'with *Salix herbacea* at 2350 m'. It is probably Salicion herbaceae.
Specimen examined: None.

Russula sanguinea Fr.

Previously published record: Vila & al. (2001).
Collection cited: Site 7, 10 Aug 1999 and 24 Aug 1999.
Notes on habitat: The habitat is described as 'between *Juniperus communis* ssp. *nana*, *Dryas octopetala* and *Salix retusa* at 2300 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are needed.
Specimen examined: None.

Stropharia ochrocyanea Bon

Previously published record: Bon & Ballarà (1997).
Collection cited: Site 35, 31 Aug 1996.
Notes on habitat: The habitat is described as 'with *Dryas octopetala* and *Loiseleuria procumbens* at 2350 m'. It may be Arctostaphylo-Cetrarion, but more ecological and flortistical informations are needed.
Previously published record: Vila & al. (2001).
Collection cited: Site 3, 22 Aug 1999.
Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2240 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are needed.
Previously published record: Vila & al. (2001).
Collection cited: Site 4, 28 Sep 1999.
Notes on habitat: The habitat is described as 'between *Salix reticulata* and *S. herbacea* at 2210 m'. It is probably Arabidion caeruleae.
Specimen examined: GC 06081610, site 16, 16 Aug 2006, Arabidion caeruleae, leg. G. Corriol, C. Hannoire and E. Trouillard, det. G. Corriol.

Stropharia pseudocyanea (Desm.: Fr.) Morgan

Previously published record: Esteve-Raventós & al. (1997).
Collection cited: Site 4, 14 Aug 1996.
Notes on habitat: The habitat is described as 'in alpine pasture land on basic soil at 2250 m'. It may be *Primulion intricatae*, but more ecological and floristical data are needed.
Specimen examined: GC 05091434, site 17, 14 Sep 2005, Nardion strictae, leg. G. Corriol & N. Lavaupot, det. G. Corriol.

Stropharia semiglobata (Batsch : Fr.) Quél.

Previously published record: None.
Specimen examined: Not preserved, site 14, 22 Aug 2005, coprophilous, leg. G. Corriol, C. Bergès & A.-M. Labouche, det G. Corriol.

Tricholoma ramentaceum* f. *chamaesalicis Bon & Ballarà

Previously published record: Bon & Ballarà (1995).

Collection cited: Site 2, 9 Oct 1994.

Notes on habitat: The habitat is described as 'in the Carici-Salicetum retusae among *Salix retusa* and *S. reticulata* at 2050 m'. The altitude given by the authors is surprisingly low, but the plant association (Carici parviflorae-Salicetum retusae) is a typical Pyrenean basophilous snow-bed community rich in dwarf willow from Arabidion caeruleae.

Specimen examined: None.

Tricholoma sulphureum* var. *rhodophyllum Métrod

Previously published record: Bon & Ballarà (1997).

Collection cited: Site 2, Jul 1996.

Notes on habitat: The habitat is described as 'with *Salix retusa* and *S. pyrenaica* at about 2300 m '. On the picture published by the authors, the only willow species we can see is *Salix reticulata*. It may be Arabidion caeruleae, but more ecological and floristical data are needed.

Specimen examined: None.

Gasteromycetideae

Bovista aestivalis (Bonord.) Demoulin

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 12 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2300 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are needed.

Specimen examined: None.

Bovista dermoxantha (Vittad.) de Toni

Previously published record: None.

Specimen examined: GC 04091902, site 22, 19 Sep 2004, Salicion herbaceae, leg. G. Corriol, det. J. Mornand. – GC 05091420, site 19, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. J. Mornand.

Bovista glacialis Kreisel

Previously published record: None.

Notes on distribution: This alpine *Bovista* was up to now only known from very few localities in the French Alps (Mornand 1990). Since we found it in different places in the central Pyrenees, it is probably a more frequent species here than in the Alps.

Specimen examined: GC 04082005, site 16, 20 Aug 2004, Arabidion caeruleae, leg. G. Corriol & P. Burr, det. G. Corriol, conf. J. Mornand. – Not preserved, site 24, 25 Aug 2004, Arabidion caeruleae, leg. G. Corriol, T. Le Moal, P. Burr & N. Lavaupot, det. G. Corriol. – GC 04091025, site 19, 10 Sep 2004, Arabidion caeruleae, leg. & det. G. Corriol. – GC 05091401, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. J. Mornand. GC 06081604, site 16, 16 Aug 2006, Arabidion caeruleae, leg. G. Corriol, C. Hannoire and E. Trouillard, det. G. Corriol.

Bovista limosa Rostr.

Previously published record: Magni (1989).

Collection cited: Site 13, near the Cap de Long lake, 28 Aug 1988.

Notes on habitat: The habitat is not specified.
Specimen examined: None.

Bovista nigrescens Pers. : Pers.

Previously published record: Magni (1989).
Collection cited: Site 13, near the Cap de Long lake, 28 Aug 1998.
Notes on habitat: The habitat is described as 'pasture land'. We need more floristical and ecological data to interpret the type of habitat.
Other unpublished date: Not preserved, site 31, 15 Aug 2002, Primulion intricatae with *Dryas octopetala* and *Salix pyrenaica*, leg. & det. N. de Munnik.
Specimen examined: Not preserved, site 19, 27 Aug 2004, Arabidion caeruleae, leg. G. Corriol, P. Burr & P. Hériveau, det. P. Hériveau. – GC 04091005, site 19, 10 Sep 2004, Arabidion caeruleae, leg. & det. G. Corriol. – Not preserved, site 17, 14 Sep 2005, Arabidion caeruleae, leg. G. Corriol & N. Lavaupot, det. G. Corriol. – Not preserved, site 22, 9 Sep 2006, Salicion herbaceae, leg. & det. G. Corriol.

Bovista plumbea Pers. : Pers.

Previously published record: Magni (1989).
Collection cited: Site 13, near the Cap de Long lake, 28 Aug 1988.
Notes on habitat: The habitat is not specified.
Other unpublished date: Not preserved, site 31, 15 Aug 2002, Primulion intricatae with *Dryas octopetala* and *Salix pyrenaica*, leg. & det. N. de Munnik.
Specimen examined: None.

Bovista tomentosa (Vittad.) Quél..

Previously published record: None
Specimen examined: GC 06081603, site 16, 16 Aug 2006, Arabidion caeruleae, leg. G. Corriol, C. Hannoire and E. Trouillard, det. G. Corriol.

Lycoperdon marginatum Vitt. *ex* Moris & de Not.

Previously published record: Vila & al. (1998).
Collection cited: Site 7, 12 Aug 1997.
Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details are needed.
Specimen examined: None.

Lycoperdon umbrinum Pers. : Pers.

Previously published record: Vila & al. (1998).
Collection cited: Site 7, 8 Aug 1996.
Notes on habitat: The habitat is described as 'between *Loiseleuria procumbens* and *Vaccinium uliginosum* at 2400 m'. It is probably Loiseleurio-Vaccinion.
Specimen examined: None.

Tulostoma brumale Pers. : Pers.

Previously published record: None.
Specimen examined: Not preserved, site 20, 23 Aug 2003, Arabidion caeruleae, leg. & det. G. Corriol.

Vascellum pratense (Pers. : Pers.) Kreisel

Previously published record: None.

Unpublished data: Not preserved, Auzat (Ariège), 3 Sep 1995, leg J. Michel, det. N. de Munnik. – Not preserved, site 30, 19 Sep 2003, Oxytropido-Elynion, leg. & det. N. de Munnik.

Notes on habitat: For the first collection, the habitat is described as 'acidic alpine grassland at 2660 m'. It may be Festucion supinae.

Specimen examined: None.

Aphyllophoromycetideae

Clavulina cinerea (Bull.) J. Schröt.

Previously published record: Ballarà (1997).

Collection cited: Site 34, 24 Aug 1996.

Notes on habitat: The habitat is described as 'among *Salix herbacea*'. It is probably *Salicion herbaceae*.

Specimen examined: Not preserved, site 17, 10 Sep 2003, Arabidion caeruleae, leg. & det. G. Corriol.

Clavulina cristata (Holmsk.) J. Schröt.

Previously published record: None.

Specimen examined: Not preserved, site 21, 30 Aug 2002, Arabidion caeruleae, leg. & det. G. Corriol.

Clavulina rugosa (Bull.) J. Schröt.

Previously published record: Vila & al. (1998).

Collections cited: Site 12, 2 Aug 1997 and 14 Aug 1997.

Notes on habitat: The habitat is described as 'between *Salix herbacea* at 2350 m'. It is probably a snow-bed community from Salicetea herbaceae, but without more floristical or stational information, we cannot choose between the Salicion herbaceae or Arabidion caeruleae alliances.

Previously published record: Vila & al. (1998).

Collection cited: Site 7, 27 Aug 1997.

Notes on habitat: The habitat is described as 'between *Dryas octopetala* and *Salix retusa* at 2220 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical data are needed.

Specimen examined: None.

Polyporus melanopus (Pers.) Fr.

Previously published records: Ballarà (1997).

Collections cited: Site 8, 27 Jul 1995 and site 9, 5 Aug 1995.

Notes on habitat: The habitat is described as 'at a *Salix pyrenaica* base, 2300–2400 m' and 'at a *Rhododendron ferrugineus* base, 2250–2350 m'. The first collection may be from Primulion intricatae or Arabidion caeruleae. According to its altitude, the second collection may also be alpine. However the substrate is a typical subalpine plant. If alpine, the habitat may be Loiseleurio-Vaccinion in which *Rhododendron ferrugineum* can be found in dwarf isolated forms. For both collections, more ecological and floristical data are needed.

Specimen examined: None.

Ramaria roellinii Schild (f. *catalaunica* prov. Ballarà)

Previously published record: Ballarà (1997).

Collection cited: Site 8, 25 Aug 1996.

Notes on habitat: The habitat is described as 'among mosses, *Dryas octopetala* and *Salix retusa*, 2300–2400 m'. It may be Arabidion caeruleae or Oxytropido-Elynion. More ecological and floristical details would be desirable.

Specimen examined: None.

Ramaria stricta (Pers. : Fr.) Quél.

Previously published record: Ballarà (1997).

Collection cited: Site 35, 31 Aug 1996.

Notes on habitat: The habitat is described as 'among *Salix herbacea* on calcareous soil, not far from *Pinus uncinata* at 2300 m'. A true alpine species (*Salix herbacea*) and a true subalpine species (*Pinus uncinata*) are quoted together. Each of them probably inhabit in different microstational positions. This case well illustrates the difficulty to say wether a collection is alpine or not without acute floristical and ecological description:

Specimen examined: None.

Thelephora caryophyllea (Schaeff. : Fr.) Fr.

Previously published record: Ballarà (1997).

Collection cited: Site 35, 13 Jul 1996.

Notes on habitat: The habitat is described as 'on ground, with mosses, *Salix retusa* and *S. reticulata* at 2300 m'. It may be Arabidion caeruleae.

Previously published record: Esteve-Raventós & al. (1997).

Collection cited: Site 1, 31 Aug 1996.

Notes on habitat: The habitat is described as 'on humus, with *Salix herbacea*, on siliceous substrate at 2400 m'. It may *be Salicion herbaceae*.

Specimen examined: NdM 97100206/2048-9, site 32, 2 Oct 1997, Arabidion caeruleae, leg. N. de Munnik, det. G. Corriol. – Not preserved, site 21, 30 Aug 2002, Arabidion caeruleae, leg. & det. G. Corriol. – GC 04091002, site 19, 10 Sep 2004, Arabidion caeruleae, leg. & det. G. Corriol. – Not preserved, site 22, 19 Sep 2004, Salicion herbaceae, leg. & det. G. Corriol. – Not preserved, site 16, 16 Aug 2006, Arabidion caeruleae, leg. G. Corriol, C. Hannoire and E. Trouillard, det. G. Corriol. – Not preserved, Troumouse circus (at the east of site 14), altitude 2300 m, 13 Aug 2006, Arabidion caeruleae, leg. & det. G. Corriol.

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