Hymenoptera Aculeata from “Parc national du Mercantour” (France) and “Parco delle Alpi Marittime” (Italy) in the south-western Alps

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Summary
The author examined aculeate wasps and bees in the French “Parc national du Mercantour” in the southern Alps and in the neighbouring Italian “Parco delle Alpi Marittime” in Piemonte during three field trips in 2009 and 2010. Together 3083 specimens were examined, which belong to 472 species (256 bee species and 216 wasp species). The examined area includes some faunistic particularities. In lower mediterranean biotopes some very rare species occur with a southwest European distribution. An example is the Vespid Lep-tochilus moustierensis. In the higher alpine grassland some rare alpine species occur with a close restriction to the southern French Alps only, such as the digger wasp Diodontus wahisi or the chrysid wasp Philoctetes putoni.

Introduction
The species diversity of Aculeate wasps and bees in the southern French and Italian Alps is nearly unknown. Benoist (1928) published some data about Apidae from the Mercantour area. Otherwise, only scattered findings from this area are reported in various publications. During the summer of 2009 and 2010 I had the opportunity to participate in a research project of the European Distributed Institute of Taxonomy (EDIT) named "All Taxa Biodiversity Inventories + Monitoring". The examined area includes some faunistic particularities. In lower mediterranean biotopes some very rare species occur with a southwest European distribution. An example is the Vespid Lep-tochilus moustierensis. In the higher alpine grassland some rare alpine species occur with a close restriction to the southern French Alps only, such as the digger wasp Diodontus wahisi or the chrysid wasp Philoctetes putoni.

Zusammenfassung

The author examined aculeate wasps and bees in the French “Parc national du Mercantour” in the southern Alps and in the neighbouring Italian “Parco delle Alpi Marittime” in Piemonte during three field trips in 2009 and 2010. Together 3083 specimens were examined, which belong to 472 species (256 bee species and 216 wasp species). The examined area includes some faunistic particularities. In lower mediterranean biotopes some very rare species occur with a southwest European distribution. An example is the Vespid Lep-tochilus moustierensis. In the higher alpine grassland some rare alpine species occur with a close restriction to the southern French Alps only, such as the digger wasp Diodontus wahisi or the chrysid wasp Philoctetes putoni.
**Material and Methods**

**Collecting methods**

In 2009 and 2010 I could visit both Parks for three times. I spend three days in June 2009 and two days in July 2009 in the Alpi Marittime Park, and eight days in July 2009 and nine days in July 2010 in the Mercantour Park. During this time, I could examine most parts of the Parks, as well as a wide variety of habitats, from xerothermic habitats with a mediterranean vegetation and fauna in 400m up to Alpine grassland in about 2600m. Due to the unusual long winter in 2010, vegetation and fauna was approximately 3-4 weeks later in development in July, compared with the collecting period in July 2009.

Specimens were collected by hand netting, as well as with yellow pan traps. I used pan traps in most locations for one day or shorter. The results of each method are not mentioned here, but data are available for further study. Yellow pan traps mostly gathered Pompilidae, Chrysididae, small Crabronidae and some genera of Apidae like *Lasioglossum*. I used about 20-30 yellow pan traps during each sampling day. They had a diameter of about 30 cm, with 3 cm height, and were filled with water and some dishwashing liquid inside. All collected specimens are pinned and stored in the collection of the author. Some specimens were used for DNA extraction in the Barcoding project from the “Zoologische Staatssammlung München” in Germany and are stored in the München collection.

**Habitats**

The term **meadow** is used here in its original sense to mean a haymeadow, what means grassland cut annually for hay. It is not differentiated here from land which is primarily grazed by cattle (“grass pasture”). **Alpine grassland** is used for grassland, which was obviously not influenced by man, cattle or other domesticated animals.

Most collecting places in the lower areas are open xerothermic habitats. Open means that vegetation is scattered and open ground parts are available. Most of them originate from ancient vineyards or fields, or from large boulder areas. Only few of them comply with the definition of the **Steppenheide** habitats. “Steppenheide” is described from the large central Alpine valleys (e.g. Wallis in Switzerland or Aosta Valley in Italy).

**Collecting Locations**

All locations are sorted for Italy and France, and are listed alphabetically below and in the species list. Longitude and latitude as well as some additional information about habitats and collecting data are given. A few locations were visited twice. The related collecting period is marked under “records” as follows: A = June 2009, B = July 2009, C = July 2010. The altitude of the collecting place is also given in the material list for a direct comparison with the collecting altitude.

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**Fig 1:** Position of the Mercantour/Marittime territory, with a close-up of Mercantour National Park (PNM) and Alpi Marittime Natural Park (PNAM)
Collecting locations in the Mercantour Park in France

Only one location, La Foux d’Allos, is situated in the department Alpes de Haute Provence, the remaining in the department Alpes Maritimes.

1. Casterino/1700m.
Casterino is a very small village west of Tende, and the collecting place was 2 km NNW of Casterino 44.116 N 7.490 E. Collecting date: 09.07.2010. Habitat: Meadow near forest.

2. Col la Bonette/2300m
Col la Bonette is on the north-western Park border, and represents the highest point reachable by car in the Alps (2800 m). I put yellow pan traps east of Col la Bonette, in the Camp de Fourches, an old military village in 2300 m: 44.3337 N 6.8693 E. Collecting date: 17.07.2009.

3. Col de Cayolle
I collected in various places between on the south side between the foothill of Col de Cayolle to the highest point of the street, and some kilometres south of the Col in the mountains. Collecting date was 14.07.2010,
habitats were Alpine grasslands, and on 2180 m a steep hillside with boulder. Exact data are as follows:

- Col de Cayolle/1860 m, south of Col, Park Entrance, 44.244 N 6.756 E
- Col de Cayolle/2180 m, south of Col, near street 44.254 N 6.750 E
- Col de Cayolle/2300 m South of Col, pathway southwards to mountains, 44.253 N 6.742 E.

4. Col de Tende
The main collecting place in 2010 was the old military road between the Col and the Fort de Marguerite, about 2 kilometres west of Col de Tende. In 2009 I collected southwards some 100 meters below. Habitat was Alpine grassland, partly also meadow. Dates are:

- Col de Tende/B/1400m: South of Col du Tende, near Tunnel 44,1423 N 7,5679 E Collecting date: 12.07.2009
- Col de Tende/C/1830m around Fort de Marguerite 44.139 N 7.549 E, Collecting date: 08.07.2010

5. Estenc/1800m
Estenc is a small village south of Col de Cayolle, and the collecting place was a steep hillside with boulders, 0.5 km N of Estenc 44.240 N 6.751 E near the road, Collecting date: 14.07.2010.

6. Fontan/400m
Fontan is a village in the Roya valley in the south-easterly part of the Park. The collecting place was 1 km S of Fontan, on the entrance of the Cayros valley: 43.9951 N 7.5496 E Collecting date: 13.07.2009. Habitat was a steep hillside with xerothermophil shrub vegetation.

7. Isola
Isola is a village in the central northern part of the Park in the Tinée valley. I collected near the village, halfway on the road to the Ski village Isola 2000 and around Isola 2000. Places in detail:

- Isola village/900m 44.1849 N 7.0572 E. Collecting date: 14.07.2009. Collecting place was the hillside east of Isola near the street, with boulder and xerothermophil shrub vegetation.
- Isola/1600m. The collection place is about 8 km SW Isola 2000: 44.2082 N 7.0989 E 1591 m . Collecting date: 14.07.2009. I collected near the road on meadows and Alpine grassland, next to a wooden old house.
- Isola/2000m Collecting places were around Isola 2000 on various meadows: 44.1883 N 7.1530 E 1900 m . Collecting date: 14.07.2009

8. La Bollène/630m
La Bollène-Vésubie is about 8 km SE of St. Martin-Vésubie near the Vésubie valley. Collecting place was a steep hillside with xerothermophil shrub vegetation, about 1 km N of La Bollène on the small road to Flaut. 43.998 N 7.339 E 630 m. Collecting date: 12.07.2010.
9. La Brigue/800m
La Brigue is situated in a side valley of the Roya valley on the eastern border of the Mercantour Park. Collecting place was the steep hillside with xerothermophil shrub vegetation north of the village, along a small pathway to the mountains: 44.065 N 7.618 E 800 m. Collecting date: 10.07.2010. La Brigue lays shortly outside of the Park, but records from this place were included, because they belong to the same zoogeographic area as the neighbouring Saorge or Tende.

Fig. 7: La Brigue is a typical collecting location in the Roya valley in the eastern part of the Mercantour Parc.

10. La Foux-d’Allos/1900m
La Foux-d’Allos is a ski village at the end of the Verdon valley on the western border of the Park, south of Col d’Allos. It is the only collecting place in the department “Alpes de Haute Provence”: 44.294 N, 6.564 E. Collecting date: 15.07.2010. I collected on a pathway north of the village, along the hillside. Habitat was the stony border of the pathway between meadows.

Fig. 8: L’Authion is an isolated pic in the southern part of the parc. Here is the collecting place of *Andrena rogenhoferi*.

11. L’Authion/2000m
L’Authion is an isolated mountain in the southern-central part of the Park, 2 km NE of the famous Col Turini, known by the Rally Monte Carlo. I collected on various places around the cross road around the peak of L’Authion, mainly near the castle on the top: 3.990 N 7.407 E. Collecting date: 11.07.2010

12. Le Pra/1700m
Le Pra is a small village E of Col la Bonette on the end of the Tinée valley. Collecting place was a small river valley north of Le Pra to the mountains: 44.3238 N 6.8836 E 1700 m. Collecting date: 17.07.2009. Habitat was Alpine grassland.

Fig. 9: Le Pra is a typical alpine biotop and collecting place for *Omalus putoni* and other rare species.

13. Millefonts
Millefont is a very nice collecting place 6 km NW of St. Martin-Vésubie, north of the village St. Dalmas-Valdeblore. Collecting place was at the end of the small road from St. Dalmas, W of the parking. In both years I collected near the pathway, going westwards from the parking: 44.1025 N 7.1721 E. Collecting date: 15.07.2009 (B) and 13.07.2010 (C). Habitat is Alpine grassland with large boulder areas along the pathway.

Fig. 10: Millefonts was the most famous collecting place for alpine species in the present examination.
14. Mollières
Vallon de Mollières is a deep and narrow side valley of the Tinée valley, 11 km NW of St. Martin-Vésubie. I collected in the whole valley between the parking in the Tinée valley and the village of Mollières at the end of the valley. The findings from around the village are separated from the remaining findings: Collecting date: 16.07.2009
- Mollières valley/800-1400 m, mostly collected in 1100 m: 44.1410 N 7.1516 E 800-1400 m.
- Mollières/1600m: Meadows around Mollières village: 44.1557 N 7.1839 E.

15. Mont Giraud/2500m
Mont Giraud is a mountain area 1-2 kilometres north of Millefonts (location 10), and south of Vallon de Mollières (location 14). I collected near the ride along the Mollières Valley, around 2400-2600 m on Alpine grassland. The ride is the border of the inner zone of the Mercantour Park.

16. Saorge/700m
Saorge is a famous village above the Roya valley in the rocks. I collected in the area 2-3 km E of Saorge: 43.9882 N 7.5691, within ancient fields and vineyards with a scattered shrub and grassland vegetation, mostly with xerothermophil plants. Collecting date: 13.07.2009

17. St. Sauveur/700m
Collecting place was 6 km N of St.-Sauveur-sur-Tinée in the Tinée valley, north of the entrance of the Vallon de Mollières (location 14). Here I placed yellow pan traps along the old road, with a steep and stony hillside with some shrub vegetation: 44.1351 N 7.1002 E. Collecting date: 16.07.2009

18. Tende/900m
Collecting place was the hill N of Tende 44.0968 N 7.6018. I collected along the pathway on the hill, in a range of 700-1100 m. Collecting date: 12.07.2009. The hill is steep with dense shrubland vegetation of the “Steppenheide”-type.

19. Valmasque/2200m
The Valmasque valley starts near Casterino (location 1) westwards and ends near “Lac Vert”. I collected mainly in the steep hillside directly below Lac Vert in 2200 m: 44.105 N 7.448 E. Collecting date: 09.07.2010. Habitat was Alpine grassland along the rocky pathway.

Collecting locations in the Alpi Maritime Park (Piemonte, Italy).
20. Brignola/700m
Brignola is outside of the Park about 5 km NE of Entraque on the road to Cuneo. Collecting place was the former limstone pit N of Brignola: 44.2960 N 7.4559, Collecting date: 17.06.2009. The place was taken into account because it represents a typical habitat of the large limstone area on the northern limit of the Park.

21. Entraque/900m
Entraque is the village on the Park entrance, 20 km SW of Cuneo: 44.250 N 7.394 E. Collecting date: 17.06.2009. I collected in some places on the hillside S of Entraque.
22. Lago Rovine/A/1700m
Lago delle Rovine is in the centre of the Park SW of Entraque: 44.1853 N 7.3456 E. Collecting date: 17.06.2009. I collected on a paved pathway which stars on northern border of the lake to the right hand side (westwards) to the hillside (1500-1700m). Habitat was a large boulder area with some shrub vegetation, and partly Alpine grassland. Most specimens were collected along the pathway.
Collecting date: 17.06.2009 (A) and 10.07.2009 (B).

23. St Lorenzo/1300m
Along the northern border of the Park west of Valdieri is a valley with Alpine grassland vegetation and some forest. I collected mainly west of the village San Bernado along the pathway to the mountains: 44.2718 N 7.3305 E, and a few record are also from the road between St. Bernardo and St. Lorenzo. Collecting date: 10.07.2009

24. Tetti Grella/980m
Tetti Grella is a place below Entraque and Lago Rovine in the Park: 44.2062 N 7.3798 E 980 m. Collecting date: 17.06.2009. Habitat was a meadow along the river.

Valle Maira
Valle Maira is a valley west of Cuneo and about 35 km NW of the Park entrance near Entraque. Because of rain in the Park I collected for one day in Valle Maira. I add these data here, because specimens may also occur in the Parco delle Alpi Marittime. 13 species were collected in Valle Maira only, but not in the Park. Both collecting places were dry hillsides with the vegetation type “Steppenheide”.

25. Valle Maira/Macra/900m
Macra is E of San Damiano: 44.490 N 7.250 E. I collected near the village on the hillside north of the river. Collecting date: 16.06.2009.

26. Valle Maira Stroppo/1300m
Stroppo is at the end of the lower parts of the valley. I collected near the village on the hillside north of the river. 4.500 N 7.130 E. Collecting date: 16.06.2009.

Distribution
I use a simplified distribution pattern system here, what does not include the zoogeographical pattern by de Lat-tin (1967) or others. Some special distribution patterns are discussed separately with the species. The following types of distribution are used here:
- Mediterranean: distribution of the species is restricted to the Mediterranean zone only. Species may reach the lower areas of the southern Alps in northern Italy, but do not reach Switzerland or do not cross the Alps northwards.
- SW- Mediterranean: the same as the Mediterranean species, but in Europe restricted to France, Portugal and Spain only.
- Submediterranean: Species occur more northwards than Mediterranean species. Northern limit of distribution is Switzerland, some species also reach the southwestern part of Germany in the Rhine valley.
- SW- Submediterranean: the same as submediterranean species, but in Europe restricted to France, Spain and Portugal only, some reach also western Italy or SW-Germany.
- European: Species occur in whole Europe, their northern limit is in mid or northern France and Germany, most of them also occur in Scandinavia. Most of them have a wider distribution in Asia and Africa too.
- Alpin: Species are restricted to the higher areas in the Alps (above 1800 m). Some of them also occur in other higher European or Asian mountains outside of the Alps.
- Montan: The same as the Alpine species, but these species occur also in deeper areas (between 1200 and 1800 m) and in the low mountain ranges north of the Alps.

Identification and nomenclature
I identified most specimens using the nomenclature from the literature mentioned below. In Apidae I follow Amiet with the genus concept and do not divide genera as Osmia or Anthidium into smaller genera. For Osmia s. lat. and Anthidium s. lat., see also Scheuchl (2006) who gives an survey about the genus concept of Michener (2000).

- “Sphecids”: Ampulicidae, Crabronidae and Sphecidae: Bitsch et al. (1993-2001)
- Pompilidae (Schmid-Egger in prep., key to the Pompilidae of Central Europe)
- Chrysididae: There is no modern key for species of the target area, but Rosa (2006) keyed and revised most species of the Southern Alps.
It was not possible to identify all species of Apidae with the mentioned literature. The following experts identified and verified single specimens: Erwin Scheuchl (Andrena), P. Andreas Ebmer (Halictus and Lasioglossum), Andreas Müller (Osmia s. lat.), Christophe Praz (Megachile), Stefan Risch (Eucera), and Maximilian Schwarz (Nomada). All Chrysididae were examined by Paolo Rosa, Tachysphex (Crabronidae) by Jakub Straka, and Cossorcerus (Crabronidae) of the elongatulus-group by Hans-Joachim Jacobs. The species of the family Apidae are treated as “Bees”, and the remaining species of Aculeata families are summarized with “Wasps” in the text and in the discussion. For the examined area I use the term “Park”. It means both national Parks, Mercantour and Alpi Marittime.

**Records**

The number of collected specimen is given for males (♂) and females (♀) separately.

**Family Ampulicidae**

* Dolichurus bicolor Lepeletier, 1845  
  Records: France, Millefonts/C/2030m 1 ♀.  
  Distribution: European.

* Dolichurus corniculus (Spinola, 1808)  
  Records: France, Le Pra/1700m 1 ♂, Millefonts/C/2030m 1 ♂ 1 ♀, Italy, Brignola/700m 3 ♀, St Lorenzo/1000m 1 ♂.  
  Distribution: European.

**Family Apidae**

* Andrena alutacea E. Stoeckhert, 1942  
  Records: France, Le Pra/1700m 1 ♂ 1 ♀, Italy, Brignola/720m 1 ♂, Lago Rovine/B/1700m 2 ♀.  
  Distribution: European. The species has an eastern-central European distribution from Turkey to Austria, south-eastern Germany and eastern Switzerland (Schmid-Egger 2005). The population in the examined area is isolated from the remaining distribution area.

* Andrena asperrima Perez, 1895  
  Records: France, Tende/900m 1 ♀.  
  Distribution: SW-Mediterranean.

* Andrena barbareae Panzer, 1805  
  Records: France, Le Pra/1700m 1 ♀, Tende/900m 2 ♀, Italy, Lago Rovine/B/1700m 1 ♀.  
  Distribution: Montane.

* Andrena bicolor Fabricius, 1775  
  Records: France, Casterino/1700m 1 ♀, Col de Cayolle/2350m 1 ♂, Col de Tende/B/1400m 1 ♀, Col de Tende/C/1830m 1 ♀, Col de Tende/C/1830m 1 ♀, L’Authion/2000m 1 ♀. Le Pra/1700m 1 ♀, Millefonts/B/2030m 1 ♀, Mollières valley/1100m 1 ♀, Italy, Lago Rovine/B/1700m 1 ♂ 3 ♀, St Lorenzo/1000m 1 ♂, Valle Maira/Macra/900m 1 ♂.  
  Distribution: European.

* Andrena combinata (Christ, 1791)  
  Records: Italy, Lago Rovine/A/1700m 3 ♀.  
  Distribution: European.

* Andrena congruens Schmiedeknecht, 1883  
  Records: France, Isola/1600m 6 ♀, La Foux-d’Allos/1900m 1 ♀, L’Authion/2000m 1 ♀. Le Pra/1700m 1 ♂, Mollières/1600m 1 ♀.  
  Distribution: European.

* Andrena curvungula Thomson, 1870  
  Records: France, Millefonts/B/2030m 1 ♀.  
  Distribution: European.

* Andrena falsifica Perkins, 1915  
  Records: France, Millefonts/C/2030m 5 ♀.  
  Distribution: European.

* Andrena flavipes Panzer, 1799  
  Records: France, Col de Tende/B/1400m 1 ♀, Saorge/700m 1 ♀, Tende/900m 8 ♀.  
  Distribution: European.

* Andrena fulvago (Christ, 1791)  
  Records: Italy, Lago Rovine/A/1700m 4 ♀, Tende/870m 1 ♀.  
  Distribution: European.

* Andrena fulvata E. Stoeckhert, 1930  
  Records: Italy, Lago Rovine/A/1700m 3 ♀, Valle Maira/Stroppo/1300m 1 ♂.  
  Distribution: European.

* Andrena gelriae E. Stoeckhert, 1930  
  Records: France, La Brigue/800m 1 ♂.  
  Distribution: European.

* Andrena haemorrhoa (Fabricius, 1781)  
  Distribution: European.
**Andrena hattorfiana** (Fabricius, 1775)  
**Records:** France, Col de Tende/C/1830m 1♀.  
**Distribution:** European.

**Andrena humilis** Imhoff, 1832  
**Records:** France, Millefons/B/2030m 7♀.  
**Distribution:** European.

**Andrena intermedia** Morawitz, 1870  
**Records:** France, Casterino/1700m 1♂, Col de Tende/B/1400m 1♀, Col de Tende/C/1830m 1♂ 3♀, La Bollène/630m 2♀, L’Authion/2000m 1♀, Le Pra/1700m 4♂ 1♀, Millefons/B/2030m 5♂ 3♀, Mollières/1600m 1♂, Valmasque/2200m 1♀, Italy, Lago Rovine/A/1700m 16♂ 2♀, Lago Rovine/B/1700m 1♂ 2♀.  
**Distribution:** Montane.

**Andrena labiata** Fabricius, 1781  
**Records:** France, Col de Tende/C/1830m 2♀, Le Pra/1700m 1♀, Millefons/C/2030m 2♂ 1♀, Valmasque/2200m 1♂.  
**Distribution:** European.

**Andrena limata** Smith, 1853  
**Records:** France, Col de Tende/C/1830m 2♀.  
**Distribution:** Submediterranean, northwards to southern Germany.

**Andrena minutula** (Kirby, 1802)  
**Records:** France, Col de Tende/B/1400m 2♀, La Bollène/630m 1♀, La Brigue/800m 1♀, Mollières valley/1100m 3♀, St.Sauveur/700m 2♀, Tende/900m 7♀, Italy, Brignola/700m 1♀, St Lorenzo/1000m 2♀.  
**Distribution:** European.

**Andrena minutuloides** Perkins, 1914  
**Records:** France, La Brigue/800m 1♀, Le Pra/1700m 2♀, Tende/900m 2♀, Italy, Brignola/720m 1♀, Tetti Grella/980m 2♀.  
**Distribution:** European.

**Andrena montana** Warncke, 1973  
**Records:** France, Mont Giraud/2500m 1♀.  
**Distribution:** Alpine.

**Andrena nigroaenaea** (Kirby, 1802)  
**Records:** France, Col de Tende/C/1830m 7♀, Tende/900m 1♀, Italy, Lago Rovine/A/1700m 1♀.  
**Distribution:** European.

**Andrena nitida** (Müller, 1776)  
**Records:** Italy, Lago Rovine/A/1700m 1♂ 1♀, Lago Rovine/B/1700m 1♀.  
**Distribution:** European.

**Andrena nuptialis** Pérez, 1902  
**Records:** France, Col de Tende/B/1400m 1♀, Isola/1600m 1♀, Le Pra/1700m 1♀, Italy, Vallee Maira/Stroppio/1300m 1♀.  
**Distribution:** European.

**Andrena ovatula** (Kirby, 1802)  
**Records:** France, Saorge/700m 1♀, Tende/900m 5♀.  
**Distribution:** European.

**Andrena paucisquama** Noskiewicz, 1924  
**Records:** Italy, Tetti Grella/980m 1♂.  
**Distribution:** European.

**Andrena rogenhoferi** Morawitz, 1872  
**Records:** France, La Foux-d’Allos/1900m 1♀, L’Authion/2000m 7♀.  
**Distribution:** Alpine.

**Andrena rufizona** Imhoff, 1834  
**Records:** France, Mollières valley/1100m 1♀, Italy, Entraque/900m 1♀, Lago Rovine/B/1700m 1♂ 1♀.  
**Distribution:** Montane.
**Andrena semilaevis** Pérez, 1903  
Records: France, Col de Cayolle/2300m 1♀, Col de Cayolle/2350m 2♀, Col de Tende/C/1830m 2♀, Isola/2000m 1♀, La Bollène/630m 1♀, Mont Giraud/2500m 1♀, Italy, Lago Rovine/A/1700m 4♀, Lago Rovine/B/1700m 2♀.  
Distribution: European.

**Andrena subopaca** Nylander, 1848  
Records: Italy, Tetti Grella/980m 2♀.  
Distribution: European.

**Andrena tarsata** Nylander, 1848  
Records: France, Le Pra/1700m 2♂ 1♀, Millefonts/B/2030m 1♀.  
Distribution: Montane.

**Anthidium breviusculum** Perez, 1890  
Records: France, La Brigue/800m 1♀.  
Distribution: Mediterranean.

**Anthidium byssinum** (Panzer, 1798)  
Records: France, Col de Cayolle/2350m 1m, Italy, Valle Maira/Macra/900m 1♂ 1♀.  
Distribution: European.

**Anthidium caturigense** Giraud, 1863  
Records: France, La Bollène/630m 3♀, La Brigue/800m 1♀, Tende/900m 1♀, Italy, Valle Maira/Macra/900m 1♂, Valle Maira/Stroppo/1300m 1♀.  
Distribution: Submediterranean.

**Anthidium cingulatum** Latreille, 1809  
Records: France, Fontan/400m 1♀.  
Distribution: Submediterranean.

**Anthidium florentinum** (Fabricius, 1775)  
Records: France, Tende/900m 1♂.  
Distribution: Mediterranean.

**Anthidium interruptum** (Fabricius, 1781)  
Records: France, Fontan/400m 1♂, Distribution: Submediterranean.

**Anthidium lituratum** (Panzer, 1801)  
(=**Anthidium tenellum** Mocsasy, 1881)  
Records: France, La Brigue/800m 1♂, Tende/900m 1♀.  
Distribution: European.

**Anthidium loti** Perris, 1852  
Records: France, Saorge/700m 1♀.  
Distribution: Submediterranean.

**Anthidium manicatum** (Linnaeus, 1758)  
Records: France, Isola/1600m 1♂ 1♀, La Brigue/800m 1m, La Foux-d’Allos/1900m 1♀, Millefonts/B/2030m 1♀, Mollières valley/1100m 4♂ 1♀, Tende/900m 1♂, Italy, Brignola/720m 1♀, Lago Rovine/B/1700m 2♂ 2♀, Valle Maira/Macra/900m 1♀.  
Distribution: European.

**Anthidium oblongatum** (Illiger, 1806)  
Records: France, Col de Cayolle/1860m 3♀, La Bollène/630m 1♀, La Brigue/800m 2♀, Le Pra/1700m 2♀, Mollières valley/1100m 1♂ 2♀, Saorge/700m 3♀, Tende/900m 1♂ 2♀, Italy, Lago Rovine/A/1700m 1♀.  
Distribution: European.

**Anthidium punctatum** (Linnaeus, 1758)  
Records: France, Fontan/400m 1♂ 1♀, Fontan/400m 1♂ 1♀, La Foux-d’Allos/1900m 1♂ 1♀, Le Pra/1700m 3♂ 1♀, Tende/900m 2♂, Italy, Brignola/720m 2♀, Valle Maira/Stroppo/1300m 1♀.  
Distribution: Montane.

**Anthidium septemdentatum** Latreille, 1809  
Records: France, St Lorenzo/1000m 1♀, Valle Maira/Macra/900m 1♀.  
Distribution: European.

**Anthidium strigatum** (Panzer, 1805)  
Records: France, Col de Tende/B/1400m 1♀, Millefonts/B/2030m 1♀, Italy, Brignola/720m 1♀, St Lorenzo/1000m 1♀, Valle Maira/Macra/900m 1♀.  
Distribution: European.

**Anthophora aestivalis** (Panzer, 1801)  
Records: France, Col de Tende/B/1400m 1♀, Millefonts/B/2030m 1♀, Italy, Brignola/720m 1♀, St Lorenzo/1000m 1♀, Valle Maira/Macra/900m 1♀.  
Distribution: European.

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**Fig. 15:** *Anthidium loti,* here a female, is a rare mediterranean bee species.
Anthophora albigena Lepeletier, 1841
Records: France, Saorge/700m 5♂, 1♀.
Distribution: Mediterranean.

Anthophora balneorum Lepeletier, 1841
Records: France, Col de Tende/B/1400m 1♀, La Foux-d’Allos/1900m 2♂ 1♀, Italy, Lago Rovine/B/1700m 1♂ 1♀, Valle Maira/Macra/900♂ 1♀.
Distribution: Submediterranean.

Fig. 16: The bee Anthophora balneorum (♀) is a Mediterranean species and occurs in warmer valleys of the southern Alps.

Anthophora furcata (Panzer, 1798)
Records: Italy, Lago Rovine/A/1700m 1♂, St Lorenzo/1000m 1♂, Valle Maira/Stroppo/1300m 1♂.
Distribution: Mediterranean.

Anthophora quadrifasciata (Villers, 1789)
Records: France, Tende/900m 1♀.
Distribution: Mediterranean.

Anthophora quadrimaculata (Panzer, 1798)
Records: France, Col de Tende/C/1830m 1♀, La Foux-d’Allos/1900m 1♀, Mollières/1600m 1♂ 2♀.
Distribution: European.

Anthophora retusa (Linnaeus, 1758)
Records: Italy, St Lorenzo/1000m 2♀.
Distribution: European.

Bombus hortorum (Linnaeus, 1761)
Records: Italy, St Lorenzo/1000m 4♀.
Distribution: European.

Bombus humilis Illiger, 1806
Records: France, L’Authion/2000m 1♀, Italy, Lago Rovine/A/1700m 1♀, Lago Rovine/B/1700m 1♀, St Lorenzo/1000m 3♀.
Distribution: European.

Bombus hypnorum (Linnaeus, 1758)
Records: France, Millefons/C/2030m 1♀, Italy, Lago Rovine/A/1700m 1♀, St Lorenzo/1000m 1♀.
Distribution: European.

Bombus lapidarius (Linnaeus, 1758)
Records: France, Isola/2000m 2♀, La Bollène/630m 1♀, La Foux-d’Allos/1900m 1♀, L’Authion/2000m 2♀, Millefons/B/2030m 2♀, Mont Giraud/2500m 2♀, Saorge/700m 1♀.
Distribution: European.

Bombus lucorum-aggr.
Records: France, La Brigue/800m 1♀, L’Authion/2000m 1♀, common in many other places, but not collected.
Distribution: European.
Remark: The specimens were not checked for the remaining species of the lucorum-group

Bombus mesomelas Gerstaecker, 1869
Records: France, Col de Cayolle/1860m 1♀, Col de Cayolle/2350m 1♀, Col de Tende/B/1400m 1♀, Col de Tende/C/1830m 5♀, Isola/2000m 1♀, L’Authion/2000m 1♀, Le Pra/1700m 2♀, Millefons/B/2030m 1♀, Mont Giraud/2500m 1♀, Italy, Lago Rovine/A/1700m 1♀, Lago Rovine/B/1700m 2♀, St Lorenzo/1000m 4♀.
Distribution: Alpine.

Bombus monticola Smith, 1849
Records: France, Mollières/1600m 1♀.
Distribution: Alpine.

Bombus pascuorum (Scopoli, 1763)
Records: France, La Bollène/630m 3♀, La Brigue/800m 3♀, Saorge/700m 1♀, Italy, Brignola/700m 1♀, Entraque/900m 1♀, St Lorenzo/1000m 1♀, Valle Maira/Macra/900♂ 1♀.
Distribution: Mediterranean.

Anthophora albigena Lepeletier, 1841
Records: France, Saorge/700m 5♂, 1♀.
Distribution: Mediterranean.

Anthophora balneorum Lepeletier, 1841
Records: France, Col de Tende/B/1400m 1♀, La Foux-d’Allos/1900m 2♂ 1♀, Italy, Lago Rovine/B/1700m 1♂ 1♀, Valle Maira/Macra/900♂ 1♀.
Distribution: Submediterranean.

Fig. 16: The bee Anthophora balneorum (♀) is a Mediterranean species and occurs in warmer valleys of the southern Alps.

Anthophora furcata (Panzer, 1798)
Records: Italy, Lago Rovine/A/1700m 1♂, St Lorenzo/1000m 1♂, Valle Maira/Stroppo/1300m 1♂.
Distribution: Mediterranean.

Anthophora quadrifasciata (Villers, 1789)
Records: France, Tende/900m 1♀.
Distribution: Mediterranean.

Anthophora quadrimagulata (Panzer, 1798)
Records: France, Col de Tende/C/1830m 1♀, La Foux-d’Allos/1900m 1♀, Mollières/1600m 1♂ 2♀.
Distribution: European.

Anthophora retusa (Linnaeus, 1758)
Records: Italy, St Lorenzo/1000m 2♀.
Distribution: European.

Bombus hortorum (Linnaeus, 1761)
Records: Italy, St Lorenzo/1000m 4♀.
Distribution: European.

Bombus humilis Illiger, 1806
Records: France, L’Authion/2000m 1♀, Italy, Lago Rovine/A/1700m 1♀, Lago Rovine/B/1700m 1♀, St Lorenzo/1000m 3♀.
Distribution: European.

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Chelostoma distinctum (E. Stoeckhert, 1929)
Records: France, Mollères valley/1100m 2♀, France, Tende/900m 1♂, Italy, Brignola/700m 5♀, Entraque/900m 1♂ 2♀.
Distribution: European.

Chelostoma florisomne (Linnaeus, 1758)
Records: France, Le Pra/1700m 1♀, Millefonts/B/2030m 1♀, Millefonts/C/2030m 1♂.
Distribution: European.

Chelostoma grande (Nylander, 1852)
Records: France, Col de Cayolle/1860m 3♂, Isola/1600m 1m 5♀, Mollières valley/1100m 2♀, Mollières/1600m 3♀.
Distribution: Alpine, restricted to lower altitudes.

Chelostoma rapunculi (Lepeletier, 1841)
Records: France, Saorge/700m 1♂, Millefonts/B/2030m 1♀, Italy, Entraque/900m 1♂, St Lorenzo/1000m 3♂ 1♀, Valle Maira/Stroppio/1300m 1♂.
Distribution: European.

Coelioxys afra Lepeletier, 1841
Records: France, Saorge/700m 1♂, France, Tende/900m 2♂ 2♀, Italy, Valle Maira/Macra/900m 3♀.
Distribution: European.

Coelioxys argentea Lepeletier, 1841
Records: France, Saorge/700m 15♂ 1♀.
Distribution: Mediterranean.

Coelioxys aurulimbata Förster, 1853
Records: France, La Bollène/630m 1♂, Italy, Lago Rovine/B/1700m 1♂.
Distribution: European.

Fig. 17: The bee Coelioxys argentea (♂) is the parasit of Megachile albisecta and was common in Saorge.
Coelioxys echinata Förster, 1853

Coelioxys inermis (Kirby, 1802)
Records: France, La Foux-d'Allos/1900m 1♂. Distribution: European.

Colletes daviesanus Smith, 1846
Records: France, Molières/1600m 1♂. Distribution: European.

Colletes floralis Eversmann, 1852
Records: France, Col de Cayolle/2350m 3♂, Isola/1600m 2♂ 1♀. Distribution: Montane.

Colletes fodiens (Geoffrey, 1785)

Colletes impunctatus Nylander, 1852
Records: France, Col de Cayolle/2350m 1♂, Col de Cayolle/2350m 12♂ 9♀♀, Valmasque/2200m 1♂. Distribution: Montane.

Colletes nigricans Gistel, 1857
Records: France, Saorge/700m 5♂, Tende/900m 1♀. Distribution: Submediterranean.

Colletes similis Schenck, 1853
Records: Italy, Tetti Grella/980m 1♀. Distribution: European.

Dioxys cincta (Jurine, 1807)
Records: France, Col de Tende/C/1830m 1♀. Distribution: Submediterranean.

Dioxys tridentata (Nylander, 1848)
Records: France, La Brigue/800m 1♂, Le Pra/1700m 1♀, Molières/1600m 1♀, Tende/900m 2♂. Distribution: European.

Dufourea alpina Morawitz, 1865
Distribution: Alpine.

Dufourea dentiventris (Nylander, 1848)
Records: France, Col de Cayolle/2350m 1♂, Italy, Lago Rovine/B/17000m 1♀. Distribution: Montane.

Dufourea paradoxa Morawitz, 1867
Records: Italy, Lago Rovine/B/1700m 1♂ 1♀, Italy, Lago Rovine/B/1700m 2♂. Distribution: Alpine.

Epeolus alpinus Bischoff, 1930

Eucera longicornis (Linnaeus, 1758)
Records: France, La Foux-d'Allos/1900m 1♀, Italy, Lago Rovine/A/1700m 2♂. Distribution: European.

Halictus confusus Smith, 1853
Records: France, St.Sauveur/700m 1♀. Distribution: European.

Halictus gavarnicus Pérez, 1903
Records: France, Col de Cayolle/2350m 1♀. Distribution: Submediterranean.

Halictus langobardicus Blüthgen, 1944
Records: France, La Brigue/800m 1♂. Distribution: European.

Halictus maculatus Smith, 1848
Records: France, La Bollène/630m 1♀, Saorge/700m 1♂, Tende/900m 1♀. Distribution: European.

Halictus patellatus Morawitz 1873

Halictus quadricinctus (Fabricius, 1776)
Records: France, Fontan/400m 1♀, Mollières valley /1100m 5♂ 1♀, Saorge/700m 5m 3♀♀, Italy, Brignola/720m 2♀, St Lorenzo/1000m 1♂, St Lorenzo/1000m 1♂ 2♀. Distribution: European.

Halictus rubicundus (Christ, 1791)
Records: Italy, Lago Rovine/A/1700m 1♀, Lago Rovine/B/17000m 2♂ 1♀, St Lorenzo/1000m 2♀. Distribution: European.

Halictus scabiosae (Rossi, 1790)
Records: France, Col de Tende/B/1400m 1♂, Millefons/2030m 4♀, Saorge/700m 1♂ 2♀, Tende/900m 1♀. Distribution: European.

Halictus sexcinctus (Fabricius, 1775)
Records: Italy, St Lorenzo/1000m 3♀. Distribution: European.
Halictus smaragdulus Vachal, 1895
Records: France, Saorge/700m 1♀, Italy, Valle Maira/Valmasque/2000m 2♀.
Distribution: Submediterranean, northwards to Germany.

Halictus subauratus (Rossi), 1792
Records: France, Fontan/400m 1♂ 1♀, Valmasque/1100m 2♀, Mollières/1600m 1♂, Italy, Lago Rovine/B/1700m 2♀.
Distribution: European.

Halictus tumulorum (Linnaeus, 1758)
Records: France, La Foux-d’Allos/1900m 1♀, Le Pra/1700m 3♂, Mollières/1100m 2♀, Mollières/1600m 1♂, Italy, Lago Rovine/A/1700m 3♀, Tetti Grella/980m 3♀.
Distribution: European.

Halictus spec.
Remark: The collection of the Oberöstereichisches Landesmuseum Linz/Austria includes some males of an undescribed Halictus species from lower parts of Mercantour. The taxon belongs to the Halictus simplex-species group and will be described soon by P. Andreas Ebmer (Ebmer, pers. comm.). I could collect some females, which may belong to this species, but identification is not possible without males.

Heriades crenulatus Nylander, 1856
Records: France, La Bollène/630m 2♂, Saorge/700m 6♀ 4♀, Tende/900m 1♂.
Distribution: European.

Heriades truncorum (Linnaeus, 1758)
Records: France, La Bollène/630m 1♀, France, Mollières valley/1100m 2♂ 3♀, Mollières/1600m 5♀, Saorge/700m 3♂ 1♀, Italy, Lago Rovine/B/1700m 2♂ 1♀.
Distribution: European.

Hylaeus annulatus (Linnaeus, 1758)
Records: France, Millefons/C/2030m 3♂ 1♀, France, Valmasque/2200m 1♂, Italy, Lago Rovine/B/1700m 2♀.
Distribution: Montane.

Hylaeus brachycephalus (Morawitz, 1868)
Records: France, Isola/1600m 1♂ 2♀.
Distribution: SW-Mediterranean.

Hylaeus brevicornis Nylander, 1852
Records: France, La Brigue/800m 1♂, Saorge/700m 2♀.
Distribution: European.

Hylaeus clypearis Schenck, 1853
Records: France, La Brigue/800m 3♂ 6♀, Mollières/1600m 1♂ 2♀, Saorge/700m 1♂ 2♀, Tende/900m 1♂ 1♀.
Distribution: European.

Hylaeus communis Nylander, 1852
Records: France, Fontan/400m 1♀, La Brigue/800m 1♂, Le Pra/1700m 1♂ 2♀, Mollières valley/1100m 1♂ 4♀, Mollières/1600m 4♂ 2♀, Saorge/700m 1♂ 4♀, Tende/900m 2♀, Italy, St Lorenzo/1000m 1♂ 1♀, Valle Maira/Stroppolo/1300m 1♀.
Distribution: European.

Hylaeus confusus Nylander, 1852, aggr.
Records: France, Isola/1600m 1♀, Le Pra/1700m 1♀, Mollières valley/1100m 1♂ 1♀, Saorge/700m 3♂ 5♀, St Sauveur/700m 1♀, Tende/900m 2♀, St Lorenzo/1000m 1♂ 1♀.
Distribution: European.

Remark: The specimens were not checked for Hylaeus gibbus Saunders, 1850.

Hylaeus cornutus Curtis, 1831
Records: France, Tende/900m 1♂.
Distribution: Alpine.

Hylaeus alpinus (Morowitz, 1867)
Records: France, Col de Cayolle/2350m 1♂, Col de Tende/C/1830m 2♂, L’Athon/2000m 1♂ 1♀, Le Pra/1700m 1♂ 1♀, Millefons/C/2030m 3♀, Valmasque/2200m 9♂ 2♀, Italy, Lago Rovine/B/1700m 4♂ 1♀.
Distribution: Alpine.

Hylaeus angustatus (Schenck, 1861)
Records: France, La Brigue/800m 1♂, Le Pra/1700m 1♀, Millefons/C/2030m 2♂, Tende/900m 1♂, Italy, Lago Rovine/B/1700m 2♂ 2♀.
Distribution: European.
**Hylaeus glacialis Morawitz, 1872**  
Records: France. Col de Cayolle/2300m 2♂, Le Pra 1700m 1♂, Millefons/C/2030m 2♂. Italy: Lago Rovine/A/1700m 1♀.  
Distribution: Alpine.

**Hylaeus nigratus (Fabricius, 1798)**  
Records: France, La Foux-d’Allos/1900m 1♂ 1♀, Italy, Lago Rovine/B/1700m 8m 3♀, Valle Maira/Macra/900m 1♂.  
Distribution: European.

**Hylaeus nivalis (Morawitz, 1867)**  
Records: France, Col de Cayolle/2180m 3♂, Col de Cayolle/2300m 3♂, Col de Cayolle/2350m 3♂, Le Pra/1700m 1♂, Millefons/B/2030m 1♂, Millefons/C/2030m 2♂ 2♀, Valmasque/2200m 1♂.  
Distribution: Alpine.

**Hylaeus pictus (Smith, 1853)**  
Records: France, Saorge/700m 1♀.  
Distribution: Mediterranean.

**Hylaeus punctatus (Brullé, 1832)**  
Records: France, La Brigue/800m 1♂ 1♀, Saorge/700m 2♂ 3♀.  
Distribution: European.

**Hylaeus punctulatissimus Smith, 1842**  
Records: France, La Brigue/800m 1♂.  
Distribution: European.

**Hylaeus signatus (Panzer, 1798)**  
Records: Italy, Entraque/900m 1♂, Valle Maira/Macra/900m 1♂.  
Distribution: European.

**Hylaeus sinuatus (Schenck, 1873)**  
Records: France, Fontan/400m 1♀, Tende/900m 1♀.  
Distribution: European.

**Hylaeus styriacus Förster, 1871**  
Records: France, Saorge/700m 1♂, Italy, Brignola/720m 1m, Valle Maira/Macra/900m 1♂.  
Distribution: European.

**Hylaeus variegatus (Fabricius, 1798)**  
Records: France, Casterino/1700m 2♀, Col de Cayolle/2180m 1♀, Col de Cayolle/2350m 2♀, Col de Tende/C/1830m 1♀, La Brigue/800m 1♂, L’Authion/2000m 1♀, Millefons/C/2030m 5♀, Italy, Brignola/720m 3♂, St Lorenzo/1000m 1♀, Tetti Grella/980m 2♀.  
Distribution: European.

**Lasioglossum aeratum (Kirby, 1802)**  
Records: France, Casterino/1700m 2♀, Col de Cayolle/2180m 1♀, Col de Cayolle/2350m 2♀, Col de Tende/C/1830m 1♀, La Brigue/800m 1♂, L’Authion/2000m 1♀, Millefons/C/2030m 5♀, Italy, Brignola/720m 3♂, St Lorenzo/1000m 1♀, Tetti Grella/980m 2♀.  
Distribution: European.
**Lasioglossum alipes** (Fabricius, 1781)
Records: France, Col de Cayolle/2300m 1♀, Col de Cayolle/2250m 6♀, Col de Tende/B/1400m 3♀, Col de Tende/C/1830m 2♀, L’Authion/2000m 3♀, Millefons/B/2030m 4♀, Valmasque/2200m 1♀, Italy, Lago Rovine/A/1700m 4♀, Lago Rovine/B/1700m 3♀, St Lorenzo/1000m 1♀, Valle Maira/Stroppio/1300m 1♀.
Distribution: European.

**Lasioglossum angusticeps** (Perkins, 1895)
Records: France, La Bollène/630m 1♀.
Distribution: European.

**Lasioglossum bavaricum** (Blüthgen, 1930)
Records: France, Le Pra/1700m 1♀, France, Mollières/1600m 1♀.
Distribution: Alpine.

**Lasioglossum breviventris** (Schenck, 1853)
Records: France, Millefons/C/2030m 1♀.
Distribution: Montane.

**Lasioglossum buccale** (Pérez, 1903)
Records: Italy, Entraque/900m 1♀.
Distribution: European.

**Lasioglossum calceatum** (Scopoli, 1763)
Records: France, La Bollène/630m 1♀, Italy, Lago Rovine/A/1700m 1♀, Lago Rovine/B/1700m 1♀, St Lorenzo/1000m 1♀.
Distribution: European.

**Lasioglossum convexiusculum** (Schenck, 1853)
Not collected in the Park.
Records: Italy, Valle Maira/Stroppio/1300m 1♀.
Distribution: European.

**Lasioglossum cupromicans** (Pérez, 1903)
Records: France, Col de Cayolle/2180m 1♀, Col de Cayolle/2300m 4♀, Col de Cayolle/2250m 2♀, Col de Tende/C/1830m 1♀, Fontan/400m 1♀, Millefons/C/2030m 1♀, Valmasque/2200m 1♀, Italy, Lago Rovine/A/1700m 2♀.
Distribution: Montane.

**Lasioglossum fulvicorne** (Kirby, 1802)
Records: France, Casterino/1700m 1♀, Col de Cayolle/1860m 1♀, Col de Tende/B/1400m 1♀, Col de Tende/C/ 1830m 2♀, Fontan/400m 1♀, Isola/1600m 1♀, La Bollène/630m 2♀, L’Authion/2000m 1♀, Le Pra/1700m 1♀, Millefons/B/2030m 1♀, Millefons/C/2030m 7♀, Mollières valley/1100m 1♀, Italy, Lago Rovine/A/1700m 5♀.
Distribution: European.

**Lasioglossum griseolum** (Morawitz, 1872)
Records: France, La Bollène/630m 1♀, La Brigue/800m 1♀.
Distribution: European.

**Lasioglossum interruptum** (Panzer, 1798)
Records: France, La Bollène/630m 2♀, La Bollène/630m 5♀, Saorge/700m 4♀, Tende/900m 1♀, Italy, Valle Maira/Stroppio/1300m 1♀.
Distribution: European.

**Lasioglossum laticeps** (Schenck, 1870)
Records: France, Col de Tende/C/1830m 2♀, Isola/1600m 5♀, Italy, Lago Rovine/B/1700m 2♀.
Distribution: European.

**Lasioglossum leucozonium** (Schenck, 1853)
Records: France, La Brigue/800m 1♀.
Distribution: European.

**Lasioglossum leucopus** (Kirby, 1802)
Records: France, Casterino/1700m 1♀, Col de Cayolle/2180m 1♀, Col de Cayolle/2300m 1♀, La Foux-d’Allos/1900m 1♀, Millefons/C/2030m 1♀, Italy, Tetti Grella/980m 1♀.
Distribution: European.

**Lasioglossum leucozoenium** (Schrank, 1781)
Records: France, Col de Tende/B/1400m 1♀, Saorge/700m 2♀, Italy, St Lorenzo/1000m 1♀.
Distribution: European.

**Lasioglossum lissoneatum** (Noskiewicz, 1926)
Records: France, La Brigue/800m 1♀.
Distribution: European.

**Lasioglossum malachurum** (Kirby, 1802)
Records: France, La Bollène/630m 1♀.
Distribution: European.

**Lasioglossum mediterraneum** (Blüethgen, 1926)
Records: France, Fontan/400m 1♀, La Bollène/630m 1♀.
Distribution: Mediterranean.

**Lasioglossum morio** (Fabricius, 1793)
Records: France, Col de Tende/B/1400m 1♂, Fontan/400m 1♀, Isola village/900m 2♀, La Foux-d’Allos/1900m 1♂, Le Pra/1700m 4♀, Le Pra/1700m 1♂, Mollières valley/1100m 1♀, Mollières valley/1100m 11♀, St Sauveur/700m 2♀, Italy, Lago Rovine/A/1700m 1♀, Lago Rovine/B/1700m 1♀, St Lorenzo/1000m 4♀, Valle Maira/Macra/900m 3♀.
Distribution: European.

**Lasioglossum nigripes** (Lepeletier, 1841)
Records: France, Millefons/B/2030m 1♀, Saorge/700m 2♀.
Distribution: European.
**Lasioglossum nitidulum** (Fabricius, 1804)
Records: France, Col de Cayolle/2350m 1♀, Col de Cayolle/2350m 2♀, Col de Tende/B/1400m 1♂, Col de Tende/C/1830m 4m 4♀, Isola/1600m 4♀, La Brigue/800m 2♀, La Foux-d’Allos/1900m 1♀, Le Pra/1700m 2♀, Millefons/B/2030m 1♀, Millefons/C/2030m 6♀, Mollières valley/1100m 3♀, Saorge/700m 2♀, St.Sauveur/700m 3♀, Tende/9000m 1♂ 2♀, Valmasque/2200m 1♀, Italy, Brignola/700m 1♂ 3♀, St Lorenzo/1000m 2♀, Valle Maira/Stroppio/1300m 2♂ 1♀.
Distribution: European.

**Lasioglossum parvulum** (Schenck, 1853)
Records: France, Col de Tende/C/1830m 1♀, Italy, Lago Rovine/A/1700m 1♀.
Distribution: European.

**Lasioglossum pauxillum** (Schenck, 1853)
Records: France, Fontan/400m 1♀, Tende/9000m 1♀.
Distribution: European.

**Lasioglossum podolicum** (Noskiewicz, 1925)
Records: France, Mollières valley/1100m 1♀, Tende/9000m 1♀.
Distribution: Submediterranean.

**Lasioglossum politum** (Schenck, 1853)
Records: France, Casterino/1700m 1♀, La Bollène/630m 4♀, La Brigue/800m 13♀, Saorge/700m 8♀.
Distribution: European.

**Lasioglossum punctatissimum** (Schenck, 1853)
Records: France, Saorge/700m 1♀, Italy, Valle Maira/Macra/9000m 1♀.
Distribution: European.

**Lasioglossum ruftarse** (Zetterstedt, 1838)
Records: France, Casterino/1700m 1♀.
Distribution: European.

**Lasioglossum subhirtum** (Lepeletier, 1841)
Records: France, Tende/9000m 3♀.
Distribution: European.

**Lasioglossum transitorium** (Schenck, 1868)
Not collected in the Park.
Records: Italy, Valle Maira/Macra/9000m 1♀.
Distribution: Submediterranean.

**Lasioglossum tricinctum** (Schenck, 1874)
Records: France, La Bollène/630m 2♀, Tende/9000m 1♀.
Distribution: European.

**Lasioglossum villosulum** (Kirby, 1802)
Records: France, La Bollène/630m 1♀, Saorge/7000m 2♀.
Distribution: European.

**Lasioglossum xanthopum** (Kirby, 1802)
Records: France, Tende/9000m 1♀.
Distribution: European.

**Lithurgus chrysurus** Fonscolombe, 1834
Records: France, Fontan/400m 1♂, Isola village/9000m 4♀ 9♀, La Bollène/630m 1♂, Italy, St Lorenzo/1000m 1♀.
Distribution: Submediterranean.

**Megachile albisecta** (Klug, 1817)
Records: France, La Brigue/800m 1♂, Saorge/7000m 9♀.
Distribution: Mediterranean.

**Megachile analis** Nylander, 1852
Records: France, La Foux-d’Allos/1900m 2♂, Italy, Lago Rovine/A/1700m 1♂.
Distribution: Montane.

**Megachile apicalis** Nylander, 1848
Records: France, Fontan/400m 1♀.
Distribution: Submediterranean, northwards to southern Germany.

**Megachile circumcincta** Kirby, 1802
Records: France, Millefons/C/2030m 1♀.
Distribution: European.

**Megachile deceptoria** Pérez, 1890
Records: France, Col de Cayolle/1860m 2♀.
Distribution: Mediterranean.

**Megachile ericetorum** Lepeletier, 1841
Records: France, Tende/9000m 2♂.
Distribution: European.

**Megachile flabellipes** Pérez, 1895
Records: France, Fontan/400m 1♀.
Distribution: Submediterranean.

**Megachile lagopoda** (Linnaeus, 1761)
Records: France, Isola/2000m 1♀, Saorge/7000m 1♀, Tende/9000m 1♂ 2♀, Italy, St Lorenzo/1000m 1♂ 4♀, St Lorenzo/1000m 2♀, Valle Maira/Macra/9000m 2♀.
Distribution: European.

**Megachile maritima** (Kirby, 1802)
Records: France, La Bollène/630m 1♂.
Distribution: European.
**Megachile opacifrons** Pérez, 1897
Records: France, Saorge/700m 1♀.
Distribution: Mediterranean.

*Fig. 19: Megachile opacifrons (♂) is a rare Mediterranean species.*

**Megachile parietina** (Geoffroy, 1785)
Records: Italy, St Lorenzo/1000m 1♀.
Distribution: Submediterranean, northwards to southern Germany.

**Megachile pilidens** Alfken, 1924
Records: France, Tende/900m 1♂, Italy, Valle Maira/Macra/900m 1♂ 1♀.
Distribution: European.

**Megachile pyrenaica** Pérez, 1890
Records: France, Col de Tende/C/1830m 1♂ 1♀, Isola/1600m 1♀, Le Pra/1700m 2♂ 1♀, Millefons/C/2030m 1♀, Valmasque/2200m 1♀, Italy, Lago Rovine/B/1700m 4♀, St Lorenzo/1000m 1♀.
Distribution: Montane.

*Fig. 20: A female of the bee Megachile pyrenaica is taking mud for its nest. The species was common in the park.*

**Megachile pyrenaea** Lepeletier, 1841
Records: France, Casterino/1700m 7♀, Col de Cayolle/2350m 3♀, Isola/1600m 1♀, La Brigue/800m 1♀, La Fouxe-d’Allos/1900m 1♀, Le Pra/1700m 1♀, Italy, Lago Rovine/A/1700m 9♂ 3♀, Lago Rovine/B/1700m 5♀, St Lorenzo/1000m 1♀.
Distribution: Montane.

**Megachile rotundata** (Fabricius, 1787)
Records: France, Fontan/400m 1♂, La Brigue/800m 2♀, Saorge/700m 6♀, Tende/900m 2♂.
Distribution: European.

**Megachile rufescens** (Lichtenstein, 1876)
Records: France, La Brigue/800m 2♀.
Distribution: Mediterranean.
Remark: The species is similar to *Megachile pyrenaica* and can be recognized e.g. by black tibiae in females (red in pyrenaica).

**Megachile versicolor** Smith, 1844
Records: Italy, Lago Rovine/B/1700m 1♂.
Distribution: European.

**Megachile willughbiella** (Kirby, 1802)
Records: France, Isola/1600m 1♀, La Foux-d’Allos/1900m 1♀, Le Pra/1700m 1♀, Millefons/C/2030m 2♀, Mollières/valley/1100m 1♀, Mollières/1600m 1♀.
Distribution: European.

**Melecta luctuosa** Scopoli, 1770
Records: France, Col de Tende/C/1830m 1♀.
Distribution: European.

**Nomada armata** Herrich-Schaeffer, 1839
Records: Italy, Entraque/900m 1♀, Valle Maira/Stroppo/1300m 1♀.
Distribution: European.

**Nomada flavoguttata** (Kirby, 1802)
Records: France, La Foux-d’Allos/1900m 1♂, Valmasque/2200m 2♂ 1♀.
Distribution: European.

**Nomada guttulata** Schenck, 1861
Records: Italy, Lago Rovine/B/1700m 1♀.
Distribution: European.
**Nomada marshamella** (Kirby, 1802)
Records: Italy, Lago Rovine/A/1700m 1♀.
Distribution: European.

**Nomada panzeri** Lepeletier, 1841
Records: France, Valmasque/2200m 1♀.
Distribution: European.

**Nomada roberjeotiana** Panzer, 1799
Records: France, Millefons/C/2030m 1♀.
Distribution: European.

**Nomada sexfasciata** Panzer, 1799
Records: Italy, Tetti Grella/980m 1♀.
Distribution: European.

**Nomada similis** Morawitz, 1872
Records: France, Col de Cayolle/2350m 2♂ 2♀, Col de Tende/C/1830m 1m, Millefons/C/2030m 1♂ 1♀.
Distribution: European.

**Nomada striata** Fabricius, 1793
Records: Italy, Lago Rovine/A/1700m 1♂.
Distribution: European.

**Osmia acuticornis** Dufour & Perris, 1840
Records: France, Mollières valley/1100m 1♀, Italy, Tetti Grella/980m 1♀.
Distribution: European.

**Osmia adunca** (Panzer, 1798)
Records: France, Col de Cayolle/1860m, Isola/1600m 1♀, La Brigue/800m 2♂, La Foux-d’Allos/1900m 5♂ 2♀, Mollières valley/1100m 1♀, Mollières/1600m 1♂ 7♀, Saorge/700m 1♂, Italy, Brignola/720m 1♂, Entraque/900m 2♂, Lago Rovine/B/1700m 1♀, St Lorenzo/1000m 1♂ 1♀, Valle Maira/Macra/900m 4♀.
Distribution: European.

**Osmia andrenoides** Spinola, 1808
Records: France, Fontan/400m 1♀, La Bollène/630m 1♂ 1♀, La Brigue/800m 1♂ 1♀, Saorge/700m 2♂ 2♀.
Distribution: European.

**Osmia anthocopoides** Schenck, 1853
Records: France, La Foux-d’Allos/1900m 1♂, France, Millefons/C/2030m 1♀, Italy, St Lorenzo/1000m 3♀, St Lorenzo/1000m 1♂ 1♀, Tetti Grella/980m 1♀.
Distribution: European.

**Osmia aurulenta** Panzer, 1799
Records: France, Col de Tende/B/1400m 1♀, La Bollène/630m 3♀, La Brigue/800m 1♀, Tende/900m 3♀, Italy, Entraque/900m 1♀.
Distribution: European.

**Osmia brachypogon** Pérez, 1879
Records: France, La Bollène/630m 1♀.
Distribution: Mediterranean, northwards to Valle d’Aosta (Italy, Amiet 2004).

**Osmia caerulescens** (Linnaeus, 1758)
Records: France, Isola/1600m 1♀, Tende/900m 1♀, Italy, Valle Maira/Macra/900m 1♀.
Distribution: European.

**Osmia claviventris** Thomson, 1872
Records: France, Millefons/C/2030m 1♀, Mollières valley/1100m 1♀, Mollières/1600m 1♀, Italy, Lago Rovine/A/1700m 2♂, Lago Rovine/B/1700m 1♂ 2♀, Valle Maira/Stroppio/1300m 1♀.
Distribution: European.

**Osmia dalmatica** Morawitz, 1871
Not collected in the Park.
Records: Italy, Valle Maira/Stroppio/1300m 1♂.
Distribution: Montane.
Remark: The species is only known from Valle d’Aosta in Italy, Wallis in Switzerland, Croatia and Slovenia (Amiet, 2004). The present record is the most southwestern finding in the Alps. Andreas Müller (pers. communication) reports unpublished findings from the Pyrenees (France) and from Spain. The species is restricted to large and xerothermic habitats of the “Steppenheide” in lower parts of the Alps.

**Osmia emarginata** Lepeletier, 1841
Records: France, Millefons/C/2030m 1♀.
Distribution: SW-Submediterranean, northwards to Belgium. Rare species, it occurs in the Park on its eastern distribution limit.

**Osmia gallarum** Spinola, 1808
Records: La Brigue/800m 1♀, Le Pra/1700m 2♀, Mollières valley/1100m 3♀, Tende/900m 2♀, Italy, Lago Rovine/A/1700m 6♀ 7♀, Lago Rovine/B/1700m 4♀.
Distribution: European.

**Osmia labialis** Pérez, 1879
Records: Italy, Lago Rovine/A/1700m 3♂ 2♀, Lago Rovine/B/1700m 1♀.
Distribution: European.

**Osmia leaiana** (Kirby, 1802)
Not collected in the Park.
Records: Italy, Valle Maira/Stroppio/1300m 1♀.
Distribution: European.
Osmia lepeletieri Pérez, 1879
Records: France, Col de Caillole/1860m 1♀, La Foux-d’Allos/1900m 3♂ 2♀, Mollières valley/1100m 1♂ 1♀, Italy, Lago Rovine/A/1700m 1♂, Lago Rovine/B/1700m 1♂.
Distribution: Montane.

Osmia leucomelana (Kirby, 1802)
Records: France, Col de Caillole/1860m 1♀, Isola village/900m 1♀, La Brigue/800m 1♂ 1♀, La Foux-d’Allos/1900m 1♀, Le Pra/1700m 1♀, Mollières valley/1100m 3♂, Mollières/1600m 2♀, Saorge/700m 1♂ 1♀, St Sauveur/700m 1♂ 1♀, Italy, Entraque/900m 2♂, Lago Rovine/B/1700m 1♂ 1♀, Vallee Maira/Stroppo/1300m 1♂ 1♀.
Distribution: European.

Osmia ligurica Morawitz, 1868
Records: France, La Bollène/630m 1♀.
Distribution: Mediterranean.

Osmia loti Morawitz, 1867
Records: France, Col de Caillole/2180m 1♂, Col de Caillole/2350m 2♀, La Foux-d’Allos/1900m 1♂, Millefons/B/2030m 3♂, Millefons/C/2030m 6♂ 1♀, Italy, Lago Rovine/A/1700m 4♂ 1♀, Lago Rovine/B/1700m 4♂ 7♀.
Distribution: European.

Osmia minutula Pérez, 1896
Records: France, Casterino/1700m 1♂, Col de Tende/B/1400m 1♀, La Brigue/800m 1♂, Tende/900m 2♀, Italy, Vallee Maira/Stroppo/1300m 1♀.
Distribution: Submediterranean.

Osmia mitis Nylander, 1852
Records: France, Isola/1600m 1♀, Millefons/C/2030m 5♀, Mont Giraud/2500m 1♂, Italy, Entraque/900m 1♂.
Distribution: European.

Osmia mustelina Gerstaecker, 1869
Records: Italy, Lago Rovine/A/1700m 1♀, Lago Rovine/B/1700m 1♀, St Lorenzo/1000m 1♀.
Distribution: European.

Osmia nasuta Friese, 1899
Records: France, Col de Caillole/2350m 1♂.
Distribution: Mediterranean.

Osmia nigricentrata (Zetterstedt, 1838)
Records: France, Millefons/C/2030m 1♀.
Distribution: European.

Osmia niveata (Fabricius, 1804)
Not collected in the Park.
Records: Italy, Vallee Maira/Macra/900m 1♀.
Distribution: European.

Osmia papaveris (Latreille, 1799)
Records: France, La Foux-d’Allos/1900m 3♀, Italy, Vallee Maira/Macra/900m 1♀.
Distribution: European.

Osmia ravouxi Pérez, 1902
Records: France, Col de Caillole/2350m 6m, Millefons/C/2030m 1♂ 2♀.
Distribution: European.

Osmia rufohirta (Latreille, 1811)
Records: France, Tende/900m 1♀, Italy, St Lorenzo/1000m 1♀, Vallee Maira/Macra/900m 1♀.
Distribution: European.

Osmia spinulosa (Kirby, 1802)
Records: France, La Brigue/800m 1♀, Italy, Entraque/900m 2♀.
Distribution: European.

Osmia tergestensis Ducke, 1897
Records: France, Col de Tende/B/1400m 1♀, Italy, Entraque/900m 2♀, St Lorenzo/1000m 1♀, Vallee Maira/Macra/900m 1♀.
Distribution: Submediterranean.

Osmia tridentata Dufour & Perris, 1840
Records: Italy, Tetti Grella/980m 1♀.
Distribution: European.

Osmia viridana Morawitz, 1874
Records: France, La Foux-d’Allos/1900m 1♀.
Distribution: Submediterranean.

Osmia xanthomelana (Kirby, 1802)
Records: France, Col de Caillole/2350m 1♀, Col de Tende/B/1830m 2♀, L’Authion/2000m 1♀.
Distribution: Montane.
Panurginus montanus Giraud, 1861
Records: France, Le Pra/1700m 1♂ 1♀, Mont Giraud/2500m 4♀, Col de Cayolle/2180m 1♀, Col de Cayolle/2300m 4♀ 1♂, Col de Cayolle/2350m 2♀, Millefonds/C/2030m 2♀, Valmasque/2200m 4♀ 1♂, Italy, Lago Rovine/B/1700m 4♀. Distribution: Alpine.
Remark: Warncke (1972) divided Panurginus montanus into some subspecies. The populations from the southwestern Alps belong to the ssp. alpinus Warncke 1972, described from Lautaret, Lac d’Allos and Col du Galibier. This species group needs revision and some subspecies of Warncke most probably represent valid species.

Panurgus calcaratus (Scopoli, 1763)

Panurgus banksianus (Kirby, 1802)
Records: France, Col de Cayolle/1860m 1♀, Col de Cayolle/2300m 1♀, Col de Cayolle/2350m 1♀ 1♂, Col de Tende/C/1830m 1♀, Isola/2000m 1♂, L’Authion/2000m 2♂, Le Pra/1700m 9♀ 4♀, Millefonds/B/2030m 4♀ 2♀, Millefonds/C/2030m 4♀, Mont Giraud/2500m 1♂, Italy, Lago Rovine/A/1700m 1♂, Lago Rovine/B/1700m 1♀, Brignola/700m 1♀. Distribution: European.

Panurgus dentipes Latreille, 1811
Records: France, Col de Cayolle/1860m 2♂, Col de Cayolle/2180m 2♂, Col de Tende/B/1400m 2♂, Col de Tende/C/1830m 3♀, Fontan/400m 1♀, Isola/1600m 8m 8♀, L’Authion/2000m 3♀, Le Pra/1700m 4♀, Le Pra/1700m 2♀ 1♂, Millefonds/B/2030m 6♀ 1♀, Millefonds/C/2030m 1♀ 4♀, Saorge/700m 2♀. Distribution: SW-Submediterranean, reaches SW-Germany.
Remark: The species does not cross the Alps versus north or east. It is common in the western valleys of the French Alps (e.g. Durance Valley, my observation) an in western Suisse, but absent e.g. in the Valle d’Aosta in Italy. It was also not found in Italy in the present examination, but occurs on Col de Tende near the border to Italy.

Rophites algirus Pérez, 1895
Records: France, La Foux-d’Allos/1900m 4♀, Italy, Entraque/900m 3♀, St Lorenzo/1000m 1♀, Tetti Grella/980m 4♀. Distribution: European.

Sphecodes crassanus Thomson, 1870
Records: France, La Bollène/630m 1♀. La Foux-d’Allos/1900m 1♀. Distribution: European.

Sphecodes ephippius (Linnaeus, 1767)
Records: France, Fontan/400m 1♂, Tende/900m 3♀ 1♀. Distribution: European.

Sphecodes ferruginatus von Hagens, 1882
Records: France, Col de Cayolle/2350m 1♀. Distribution: European.

Sphecodes geoffrellus (Kirby, 1802)
Records: France, Col de Cayolle/1860m 1♀, Col de Tende/C/2030m 6♀, Millefonds/C/2030m 4♀. Distribution: European.

Sphecodes gibbus (Linnaeus, 1758)
Records: France, La Brigue/800m 1♀, Mollières valley/1100m 1♀, Mollières/1600m 1♀, Tende/900m 1♂ 1♀. Distribution: European.

Sphecodes longulus von Hagens, 1882

Sphecodes monilicornis (Kirby, 1802)

Sphecodes niger von Hagens, 1874

Sphecodes reticulatus Thomson, 1870

Sphecodes rufiventris (Panzer, 1798)

Sphecodes zangherii Noskiewicz, 1931
Records: France, La Bollène/630m 1♀. Distribution: European.

Stelis breviuscula Nylander, 1848
Records: France, La Brigue/800m 1♀. Distribution: European.
**Stelis nasuta** (Latreille, 1809)
Records: France, La Foux-d’Allos/1900m 2♂ 1♀, Millefons/C/2030m 1♀.
Distribution: Submediterranean.

**Stelis punctulatissima** (Kirby, 1802)
Records: France, Mollières valley/1100m 1♀.
Distribution: European.

**Tetralonia fulvescens** Giraud, 1863
Records: France, Saorge/700m 1♂, Tende/900m 1♀, Italy, Brignola/720m 3m 1♀, Valle Maira/Macra/900m 3♂.
Distribution: Submediterranean.

**Thyreus histrionicus** (Illiger, 1806)
Records: France, Fontan/400m 1♂ 1♀, Tende/900m 1♂.
Distribution: European.

**Thyreus ramosus** (Lepeletier, 1841)
Records: France, Saorge/700m 1♂ 2♀.
Distribution: Submediterranean.

**Xylocopa valga** Gerstaecker, 1872
Records: France, Tende/900m 1♂.
Distribution: Submediterranean.

**Xylocopa violacea** (Linnaeus, 1758)
Records: France, Isola/1600m 2♂ 2♀, Le Pra/1700m 1♀, Millefons/B/2030m 1♀, Saorge/700m 1♀, Tende/900m 1♀, Italy, St Lorenzo/1000m 1♂ 1♀, Valle Maira/Stroppo/1300m 1♀.
Distribution: European.
Remark: The species was not known to occur above 1500m in the Alps before. In the present examination it was found in 2300m on flowers, and on a nesting place (old wooden house) in 1600m near Isola.

**Family Chrysididae**

**Chrysis bicolor** Lepeletier, 1806
Records: France, Tende/900m 1♂ 3♀.
Distribution: European.

**Chrysis cerastes** Abeille, 1877
Records: France, La Bollène/630m 1♀.
Distribution: Mediterranean, not in North Africa.

**Chrysis cortii** Linsenmaier, 1951
Records: France, La Brigue/800m 5♂ 1♀.
Distribution: SW- Submediterranean, northwards to Germany.

**Chrysis emarginatula** Spinola, 1808
Records: France, La Foux-d’Allos/1900m 1♂ 2♀.
Distribution: SW- Mediterranean

**Chrysis frivaldskyi** Mocsáry, 1882
Records: Italy, Brignola/720m 1♀, Valle Maira/Macra/900m 1♂.
Distribution: SE-Mediterranean.

**Chrysis germari** Wesmael, 1839
Records: France, Millefons/C/2030m 1♂, Saorge/700m 1m, St.Sauveur/700m 1♂, Tende/900m 1♂.
Distribution: European.

**Chrysis grohmanni** Dahlbom, 1854
Records: France, Saorge/700m 1♀.
Distribution: Mediterranean.

**Chrysura hirsuta** Gerstaecker, 1869
Records: France, Col de Cayolle/2180m 2♀, Millefons/C/2030m 1♀, Valmasque/2200m 1♀.
Distribution: Montane.

**Chrysis illigeri** Wesmael, 1839
Records: France, Millefons/C/2030m 1♂, Italy, Lago Rovine/B/1700m 2♂ 1♀.
Distribution: European.

**Chrysis lucida** Linsenmaier, 1951
Records: France, Millefons/C/2030m 1♀.
Distribution: Alpine.
Remark: The first record for France (Rosa in lit.).

**Chrysis mixta** Dahlbom, 1854
Records: France, Millefons/C/2030m 1♀, Tende/900m 1♂.
Distribution: SW- Submediterranean.

**Chrysis ruddii** Shuckard, 1837
Records: France, La Foux-d’Allos/1900m 1♂ 1♀.
Distribution: European.

**Chrysis rutiliventris** Abeille, 1879
Records: France, Col de Cayolle/2350m 1♂, Millefons/C/2030m 1♀.
Distribution: European.

**Stelis nasuta** (Latreille, 1809)
Records: France, La Foux-d’Allos/1900m 2♂ 1♀, Millefons/C/2030m 1♂.
Distribution: Submediterranean.

**Chrysis frivaldskyi** Mocsáry, 1882
Records: Italy, Brignola/720m 1♀, Valle Maira/Macra/900m 1♂.
Distribution: SE-Mediterranean.

**Chrysis germari** Wesmael, 1839
Records: France, Millefons/C/2030m 1♂, Saorge/700m 1m, St.Sauveur/700m 1♂, Tende/900m 1♂.
Distribution: European.
**Chrysis sculpturata** Mocsáry, 1912  
Records: France, Valmasque/2200m 1♀.  
Distribution: Submediterranean.  
Remark: Probably the first record for France (Rosa in lit.).

**Chrysis scutellaris** Fabricius, 1794  
Records: Italy, Valle Maira/Macra/900m 1♂1♀.  
Distribution: European.

**Hedychridium aereolum** Buysson, 1893  
Records: France, Col de Cayolle/2350m 3♀, Col de Tende/C/1830m 1♀, Col de Tende/C/1830m 1♀, Isola/1600m 1♀, Millefons/C/2030m 2♀, Millefons/C/2030m 5♀, Italy, Lago Rovine/B/1700m 1♀.  
Distribution: Alpine.

**Chrysura spec.**  
Records. Millefont/C/2030m 1♀.  
Remark: The specimen (*Chrysura near hirsuta*) is still under revision by Paolo Rosa. It may belong to an undescribed species.

**Cleptes aerosus** Förster, 1853  
Records: Italy, Brignola/720m 1♀.  
Distribution: Submediterranean.

**Hedychridium chloropygum** Buysson, 1888  
Records: France, Mollières valley/1100m 1♀, Saorge/700m 1♀.  
Distribution: Submediterranean.

**Hedychridium roseum** (Rossi, 1790)  
Records: Italy, Lago Rovine/B/1700m 1♂.  
Distribution: European.

**Chrysura cuprea** (Rossi, 1790)  
Records: France, La Brigue/800m 1♀, Italy, Valle Maira/Macra/900m 2♀.  
Distribution: European.

**Hedychridium rutilans** Dahlbom, 1854  
Records: France, Millefons/B/2030m 1♀.  
Distribution: SW-Submediterranean.

**Hedychridium cupratum** (Dahlbom, 1854)  
Records: France, Col de Cayolle/2350m 3♀.  
Distribution: Alpine.

**Chrysura hybrida** (Lepeletier, 1806)  
Records: France, Millefons/B/2030m 1♀.  
Distribution: SW-Submediterranean.

**Chrysura dichroa** (Dahlbom, 1854)  
Records: France, Fontan/400m 1♀, France, Millefons/B/2030m 4♀, Italy, Brignola/720m 1♀, St Lorenzo/1000m 1♀, Valle Maira/Macra/900m 1♀.  
Distribution: European.

**Chrysura laevigata** (Abeille de Perrin, 1879)  
Records: France, Casterino/1700m 1♀, Col de Cayolle/2180m 2♀, Col de Cayolle/2350m 1♀, La Brigue/800m 1♀, Millefons/C/2030m 1♂13♀.  
Distribution: Submediterranean.  
Remark: It is the first record for this species over 2000 m and therefore unexpected (Rosa in lit.).

**Chrysura refulgens** (Spinola, 1806)  
Records: France, Fontan/400m 2♀, La Bollène/630m 1♀, La Brigue/800m 3♀.  
Distribution: Submediterranean.

**Chrysura rufiventris** (Dahlbom, 1854)  
Records: France, La Brigue/800m 1♀.  
Distribution: Submediterranean.

**Chrysura simplex ampliata** Linsenmaier, 1968  
Records: France, La Foux-d’Allos/1900m 1♀, Millefons/B/2030m 2♀1♂, Italy, Entraque/900m 1♀.  
Distribution: European.

Remarks: Paolo Rosa identified the specimens as *simplex* ssp. *ampliata* Linsenmaier, 1968. Probably it is not a subspecies, but an ecological form of *simplex* living on the Alps. However it is the first record for France (Rosa in lit.).

**Chrysis sculpturata** Mocsáry, 1912  
Records: France, Valmasque/2200m 1♀.  
Distribution: Submediterranean.  
Remark: Probably the first record for France (Rosa in lit.).

**Hedychridium chloropygum** Buysson, 1888  
Records: France, Mollières valley/1100m 1♀, Saorge/700m 1♀.  
Distribution: Submediterranean.

**Hedychrich rum rutilans** Dahlbom, 1854  
Records: France, Mollières valley/1100m 1♂.  
Distribution: European.

**Holopyga fervida** (Fabricius, 1781)  
Records: France, Tende/900m 1♂.  
Distribution: European.

**Holopyga generosity Förster, 1853**  
Records: France, Col de Tende/B/1400m 1♂, Mollières valley/1100m 1♀, Tende/900m 1♂3♀.  
Distribution: European.

**Omalus biaccinctus** (Buysson, 1893)  
Records: France, Tende/900m 3♀.  
Distribution: European.
**Parnopes grandior** Pallas, 1771  
Records: France, Mollières valley/1100m 1♂ 1♀.  
Distribution: European.

**Philoctetes putoni** (Du Buysson, 1892)  
Records: France, Col de Cayolle/2300m 1♂ 1♀, Le Pra/1700m 2♀, Millefons/B/2030m 1♀, Millefons/C/2030m 4♀, La Foux-d’Allos/1900m 1♂.  
Distribution: Alpine, restricted to the SW-Alps only, northwards to Valle d’Aosta (Rosa, 2006).

![Fig. 21: *Philoctetes putoni* is a very rare alpine Chrysidid wasp. Most known records are from the Mercantour parc.](image1)

**Pseudomalus auratus** (Linnaeus, 1758)  
Records: France, Valmasque/2200m 1♂ 1♀, Italy, Lago Rovine/B/1700m 1♂.  
Distribution: European.

**Spinolia segusiana** (Giraud, 1863)  
Records: France, La Bollène/630m 1♂ 1♀, Saorge/700m 1♀.  
Distribution: Submediterranean. Rare species.  
Remark: The host, *Paragymnomerus spiricornis* (Vespidae), was not collected in both localities, but nearby in Tende.

![Fig. 22: The Chrysidid wasp *Spinolia segusiana* parasitizes the Vespid *Paragymnomerus spiricornis*.](image2)

**Spintharina versicolor** (Spinola, 1808)  
Records: France, La Foux-d’Allos/1900m 3♀, Italy, Brig-niola/720m 1m.  
Distribution: Submediterranean, northwards to Germany.  
Remark: The host, *Celonites abbreviatus* (Vespidae), is widely distributed in the lower areas of the Parks.

**Trichrysis cyanea** (Linnaeus, 1761)  
Records: France, Millefons/C/2030m 2♀.  
Distribution: European.

**Family Crabronidae**

**Ammoplanus perrisi** Giraud, 1869  
Records: France, Col de Cayolle/2180m 1♂.  
Distribution: European.

**Ammoplanus pragensis** Šnoflák, 1945  
Records: France, Col de Cayolle/2180m 3♂ 2♀.  
Distribution: Montane.

**Argogorytes hispanicus** (Mercet, 1906)  
Records: France, Le Pra/1700m 1♀.  
Distribution: Mediterranean.

**Argogorytes mystaceus** (Linnaeus, 1761)  
Records: France, Le Pra/1700m 1♀.  
Distribution: European.

**Astata boops** (Schrank, 1781)  
Records: France, Isola village/900m 1♂, Mollières valley/1100m 1♀.  
Distribution: European.

**Astata kashmirensis** Nurse, 1909  
Records: France, Saorge/700m 1♀, Tende/900m 2♂ 1♀.  
Distribution: European.

**Astata minor** Kohl, 1885  
Records: France, Le Pra/1700m 1♀, Mollières valley/1100m 1m, Italy, St Lorenzo/1000m 1♀.  
Distribution: European.

**Bembix tarsata** Latreille, 1809  
Records: France, Isola/1600m 1♂, La Brigue/800m 1♂, Mollières valley/1100m 1♂, Mollières/1600m 2♂, Saorge/700m 3♂ 6♀, Italy, Valle Maira/Macra/900m 2♂ 1♀.  
Distribution: Submediterranean.

**Cerceris arenaria** (Linnaeus, 1758)  
Records: France, La Brigue/800m 1♂.  
Distribution: European.
**Cerceris quadricincta** (Panzer, 1799)  
Records: France, Le Pra/1700m 2♂.  
Distribution: European.

**Cerceris rybyensis** (Linnaeus, 1771)  
Records: France, Millefonts/C/2030m 1♂.  
Distribution: European.

**Crabro alpinus** Imhoff, 1863  
Records: France, Valmasque/2200m 1♀.  
Distribution: Alpine, also in some other mountains in Central Europe.

**Crabro cribrarius** (Linnaeus, 1758)  
Records: France, Le Pra/1700m 11♂ 1♀, Millefonts/C/2030m 1♂.  
Distribution: European.

**Crabro peltatus** Fabricius, 1793  
Records: France, Le Pra/1700m 1m, Millefonts/B/2030m 2♀.  
Distribution: Alpine.

**Crossocerus assimilis** (F. Smith, 1856)  
Records: Italy, Lago Rovine/B/1700m 9♂ 2♀.  
Distribution: European.

**Crossocerus italicus** Beaumont, 1959  
Records: France, Col de Cayolle/2300m, Millefonts/B/C/2030m, Valmasque/2200m.  
Distribution: Alpine, north-westwards to Switzerland, described from Gran Sasso (Abruzzo, Central Italy).  
Remark: The species was not mentioned from the Alps before. See also Jacobs & Schmid-Egger (in prep.) for re-recognition and additional comments about this species.

**Crossocerus megacephalus** (Rossi, 1790)  
Records: Italy, Lago Rovine/B/1700m 1♀.  
Distribution: European.

**Crossocerus podagricus** (Vander Linden, 1829)  
Records: France, Mollières/1600m 1♀.  
Distribution: Alpine.

**Diodontus luperus** Shuckard, 1837  
Records: France, Millefons/C/2030m 2♂ 1♀, Italy, Lago Rovine/A/1700m 2♂, Lago Rovine/B/1700m 3♂ 3♀.  
Distribution: European.

**Diodontus minutus** (Fabricius, 1793)  
Records: France, Le Pra/1700m 1♀.  
Distribution: European.

**Diodontus wahisi** Leclercq, 1974  
Records: France, Casterino/1700m 1♀, Col de Cayolle/2350m 9♂ 2♀, Col de Tende/C/1830m 1♂ 1♀, Le Pra/1700m 1♂ 1♀, Millefonts/C/2030m 3♂ 6♀.  
Distribution: Alpine, restricted to southern French Alps and Pyrenees only.

**Dryudella femoralis** (Mocsáry, 1877)  
Records: France, Col de Cayolle/2180m 1♂, Col de Cayolle/2300m 1♀, Le Pra/1700m 1♂, Millefonts/C/2030m 1♀.  
Distribution: Montane.

**Dryudella freygessneri** (Carl, 1922)  
Records: France, Mollières/1600m 1♀.  
Distribution: Alpine.

**Ectemnius dives** (Lepeletier & Brullé, 1834)  
Records: Italy, Brignola/720m 1♀.  
Distribution: European.

**Ectemnius guttatus** (Vander Linden, 1829)  
Records: France, Col de Cayolle/2350m 1♂.  
Distribution: European.

**Ectemnius lapidarius** (Panzer, 1804)  
Records: France, Tende/900m 1♂.  
Distribution: European.
Ectemnius sexcinctus (Fabricius, 1775)
Records: France, Le Pra/1700m 2♂.  
Distribution: European.

Entomognathus brevis (Vander Linden, 1829)
Records: France, Molières/1600m 2♀, Italy, Valle Maira/Valle/1000m 1♀.  
Distribution: European.

Gorytes quadrifasciatus (Fabricius, 1804)
Records: France, Le Pra/1700m 1♀.  
Distribution: European.

Gorytes sulcifrons (A. Costa, 1869)
Records: France, Isola/1600m 1♀, Italy, Lago Rovine/B/17000m 2♂, St Lorenzo/1000m 4♀.  
Distribution: Mediterranean.

Harpactus laevis (Latreille, 1792)
Records: France, St Sauveur/700m 2♂, Tende/900m 2♀.  
Distribution: European.

Harpactus lunatus (Dahlbom, 1832)
Records: France, Millefons/C/2030m 2♀.  
Distribution: European.

Harpactus tumidus (Panzer, 1801)
Not collected in the Park.  
Records: Italy, Valle Maira/Macra/900m 1♀.  
Distribution: European.

Lestica clypeata (Schreber, 1759)
Records: France, La Bollène/630m 1♀, La Brigue/800m 1♀, Le Pra/1700m 1m, Molières valley/1100m 1♂, Tende/900m 1♂ 1♀, Italy, Brignola/720m 1♂, Lago Rovine/B/1700m 3♂, Tetti Grella/980m 1♂.  
Distribution: European.

Lindenius albilabris (Fabricius, 1793)
Records: France, Molières/1600m 1♀, Italy, Lago Rovine/B/1700m 1♂.  
Distribution: European.

Lindenius melinopus (Kohl, 1915)
Records: France, Casterino/1700m 1♀, Le Pra/1700m 4♂ 1♀, Millefons/B/2030m 2m 3♀, Millefons/C/2030m 15♀ 6♂, Mont Giraud/2500m 1♂.  
Distribution: W-Mediterranean.

Lindenius melinopus (♀) is a rare mediterranean digger wasp.

Miscophus eatoni Saunders, 1903
Records: France, Col de Tende/B/1400m 1♀, La Brigue/800m 1m, Italy, St Lorenzo/1000m 1♀.  
Distribution: SW-Submediterranean, northwards to south-western Germany.

Nitela borealis Valkeila, 1974
Records: Italy, Lago Rovine/B/1700m 1♀.  
Distribution: European.

Nitela lucens Gayubo & Felton, 2000
Records: Italy, Brignola/700m 1♀.  
Distribution: Submediterranean.

Nitela truncata Gayubo & Felton, 2000
Records: France, St Sauveur/700m 2♀, Italy, Brignola/700m 2♀.  
Distribution: Submediterranean.

Nysson ganglbaueri Kohl, 1912
Records: France, Le Pra/1700m 1♂.  
Distribution: Alpine.

Nysson maculatus Fabricius
Records: France, Tende/900m 1♀, Italy, St Lorenzo/1000m 1♀.  
Distribution: European.

Nysson maculosus
Records: France, La Brigue/800m 1♀.  
Distribution: European.

Oxybelus trispinosus (Fabricius, 1787)
Records: France, Le Pra/1700m 1♀, Millefons/C/2030m 1♀, Molières valley/1100m 1♂, St Sauveur/700m 1♀.  
Distribution: European.
Oxybelus uniglumis (Linnaeus, 1758)
Records: France, Millefons/C/2030m 1♂ 1♀.
Distribution: European.

Passaloecus gracilis (Curtis, 1834)
Records: France, Col de Cayolle/2350m 1♂, Fontan/400m 1♀, Tende/900m 2♀, Italy, Lago Rovine/B/1700m 1♀.
Distribution: European.

Passaloecus pictus Ribaut, 1952
Records: France, Saorge/700m 1♀.
Distribution: European.

Passaloecus singularis Dahlbom, 1844
Records: Italy, Brignola/700m 1♀.
Distribution: European.

Pemphredon inornata Say, 1824
Records: Italy, Brignola/700m 1♀.
Distribution: European.

Pemphredon lethifer (Shuckard, 1837)
Records: France, Saorge/700m 2♀, La Foux-d'Allos/1900m 3♀, Millefons/C/2030m 2♂, 1♀.
Distribution: European.

Philanthus triangulum (Fabricius, 1775)
Records: France, Saorge/700m 1♂, Tende/900m 2♂, Italy, Vallee Maira/Macra/900m 1♀.
Distribution: European.

Psenulus pallipes (Panzer, 1798)
Records: France, La Bollene/630m 1♀.
Distribution: European.

Soliarella compedita (Piccioli, 1869)
Records: France, Isola/1600m 1♀, La Brigue/800m 2♂, Millefons/C/2030m 1♂, Italy, St Lorenzo/1000m 1♂, Vallee Maira/Macra/900m 2♂ 4♀.
Distribution: European.

Tachysphex brullii (F. Smith, 1856)
Records: France, Le Pra/1700m 2♂, Italy, Lago Rovine/B/1700m 3♂ 1♀, Tetti Grella/980m 1♀, Vallee Maira/Macra/900m 1♀.
Distribution: Submediterranean.

Tachysphex fulvitaris (A. Costa, 1867)
Records: France, Fontan/400m 1♀, Italy, Lago Rovine/B/1700m 1♂.
Distribution: European.

Tachysphex nitidior Beaumont, 1940
Records: France, Fontan/400m 1♀, Italy, St Lorenzo/1000m 2♂ 1♀.
Distribution: Submediterranean.

Tachysphex obscuripennis (Schenck, 1857)
Records: France, Isola/1600m 1♂, Le Pra/1700m 2♂ 1♀, Millefons/C/2030m 1♂ 1♀, Vallee Maira/Macra/900m 5♀, Italy, Lago Rovine/B/1700m 3♂, St Lorenzo/1000m 3♂ 1♀, Vallee Maira/Stroppo/1300m 1♀.
Distribution: European.

Tachysphex pompiliformis (Panz, 1805)
Records: France, Isola/1600m 1♀, Le Pra/1700m 1♂ 2♀, Millefons/C/2030m 1♂, Molieres/1600m 2♀, Mont Giraud/2500m 1♂, St.Sauveur/700m 2♂ 2♀, Tende/900m 1m, Italy, Brignola/700m 1♀, Lago Rovine/A/1700m 1♀, Lago Rovine/B/1700m 1♂ 2♀, St Lorenzo/1000m 1♂.
Distribution: European.

Tachysphex psammobius (Kohl, 1880)
Records: Italy, St Lorenzo/1000m 1♀.
Distribution: European.

Tachysphex tarsinus (Lepeletier, 1845)
Records: Italy, Brignola/700m 1♂.
Distribution: European.

Tachysphex spec.
Records: Millefons/C.
Remark: The species is still under revision by Jakub Straka. It belongs to an undescribed species.

Tachysphex unicolor (Panzer, 1809)
Records: Italy, St Lorenzo/1000m 1♀.
Distribution: European.

Tachysphex unicolor (Panzer, 1809)
Records: Italy, St Lorenzo/1000m 1♀.
Distribution: European.

Tachysphex unicolor (Panzer, 1809)
Records: Italy, St Lorenzo/1000m 1♀.
Distribution: European.

Tachysphex unicolor (Panzer, 1809)
Records: Italy, St Lorenzo/1000m 1♀.
Distribution: European.

Tachysphex unicolor (Panzer, 1809)
Records: Italy, St Lorenzo/1000m 1♀.
Distribution: European.
Fig. 25: The females of the Mediterranean *Stenomutilla argentata* (Mutillidae) are wingless.

**Trypoxylon medium** Beaumont, 1945
Records: France, Col de Cayolle/2300m 3♀, La Foux-d'Allos/1900m 1♀, Millefonds/B/2030m 3♂, Millefonds/C/2030m 3♂ 3♀, Saorge/700m 1♂, Tende/900m 1♂, Valmasque/2200m 1♀.
Distribution: European.

**Trypoxylon minus** Beaumont, 1945
Records: France, Col de Cayolle/1860m 1♀. Col de Cayolle/2180m 1♂ 1♀, Fontan/400m 1♀, Isola/1600m 1♀, La Bollène/630m 2♂ 2♀, L’Authion/2000m 1♀, Le Pra/1700m 1♂, St. Sauveur/700m 1♀, Italy, Brignola/700m 1♂ 2♀, Lago Rovine/B/1700m 1♀.
Distribution: European.

**Family Mutillidae**

**Dasylabris maura** (Linnaeus, 1758)
Records: France, La Brigue/800m 1♀, Italy, Vallee Maira/Stroppo/1300m 1♀.
Distribution: European.

**Mutilla europaea** André, 1903
Records: France, La Brigue/800m 1♀, La Foux-d’Allos/1900m 1♂, Le Pra/1700m 1♂.
Distribution: European.

**Myrmilla erythrocephala** (Latreille, 1792)
Records: France, Tende/900m 1♀.
Distribution: Mediterranean.

**Physetopoda scutellaris** (Latreille, 1792)
Not collected in the Park.
Records: Italy, Vallee Maira/Stroppo/1300m 1♂,
Distribution: European.

**Smicromyrme rufipes** (Fabricius, 1787)
Records: France, Col de Cayolle/1860m 1♂.
Distribution: European.

**Stenomutilla argentata** (Villers, 1789)
Records: France, La Bollène/630m 1m, La Brigue/800m 1♂ 1♀, Saorge/700m 1♂, Tende/900m 1♂.
Distribution: Mediterranean.

**Trypoxylon minus** Beaumont, 1945
Records: France, Col de Cayolle/1860m 1♀, Col de Cayolle/2180m 1♂ 1♀, Fontan/400m 1♀, Isola/1600m 1♀, La Bollène/630m 2♂ 2♀, L’Authion/2000m 1♀, Le Pra/1700m 1♂, St. Sauveur/700m 1♀, Italy, Brignola/700m 1♂ 2♀, Lago Rovine/B/1700m 1♀.
Distribution: European.

**Family Pompilidae**

**Agenioideus nubecula** (Costa, 1874)
Records: France, Fontan/400m 2♀, La Brigue/800m 2♀, Saorge/700m 2♂, Italy, Brignola/700m 1♂.
Distribution: European.

**Anoplius viaticus** (Dahlbom)
Records: France, Le Pra/1700m 1♀, Millefonds/B/2030m 1♀.
Distribution: European.

**Anospilus orbitalis** (Costa, 1863)
Records: France, Fontan/400m 1♀, Saorge/700m 2♀.
Distribution: Mediterranean.

**Aporinellus sexmaculatus** (Spinola, 1805)
Not collected in the Park.
Records: Italy, Vallee Maira/Macra/900m 1♀.
Distribution: European.

**Aporus bicolor** Spinola, 1808
Records: France, La Bollène/630m 1♂, La Bollène/630m 2♂, Saorge/700m 2♀.
Distribution: Mediterranean.

**Arachnospila alpivaga** (Kohl, 1888)
Records: France, La Brigue/800m 1m, St. Sauveur/700m 1♀, Tende/900m 3♂ 3♀, Italy, Brignola/700m 2♂ 1♀, Vallee Maira/Macra/900m 2♂ 1♀, Vallee Maira/Stroppo/1300m 1♂.
Distribution: Submediterranean.

**Arachnospila anceps** (Wesmael, 1851)
Records: France, Col de Tende/C/1830m 1♀, Millefonds/C/2030m 1♂, Mollières/1600m 1♀, Italy, Brignola/700m 1♂, Lago Rovine/B/1700m 1♀.
Distribution: European.
Arachnospila ausa (Tournier, 1890)
Records: France, Tende/900m 2♂, Italy, Brignola/700m 1♀.
Distribution: European.

Arachnospila conjungens (Kohl, 1898)
Records: France, La Bollène/630m 1♂.
Distribution: Mediterranean.

Arachnospila fumipennis (Zetterstedt, 1838)
Records: France, Millefonts/C/2030m 2♀.
Distribution: Submediterranean.

Arachnospila ausa (Tournier, 1890)
Records: France, Tende/900m 1♀.
Distribution: European.

Arachnospila conjungens (Kohl, 1898)
Records: France, La Bollène/630m 1♂.
Distribution: Mediterranean.

Arachnospila fumipennis (Zetterstedt, 1838)
Records: France, Millefonts/C/2030m 2♀.
Distribution: Submediterranean.

Calidurgus fasciellus (Spinola, 1808)
Records: France, St.Sauveur/700m 1♀.
Distribution: European.

Cryptocheilus fabricii (Vander Linden, 1827)
Records: France, Fontan/400m 1♀, Tende/900m 1♀, 5♀.
Distribution: European.

Cryptocheilus notatus (Rossi, 1790)
Records: France, Col de Cayolle/1860m 1♀, Col de Tende/ B/1400m 3♀, Isola/1600m 1♀, Isola/1600m 2♀, La Bollène/630m 1m, La Bollène/630m 2♀, La Bollène/630m 4♀, Le Pra/1700m 1♀, Mollières/1600m 1♀, Tende/900m 1♀, Italy, Brignola/700m 4♀, Brignola/ 700m 5♀, Lago Rovine/B/1700m 2♀, St Lorenzo/1000m 1♀, Valle Maira/Macra/900m 1♀.
Distribution: European.

Cryptocheilus versicolor (Scopoli, 1763)
Records: France, Tende/900m 1♀.
Distribution: European.

Dipogon variegatus (Linnaeus, 1758)
Records: France, Fontan/400m 2♀, La Bollène/630m 2♂.
Distribution: European.

Entomobora plicata (Costa, 1883)
Records: France, La Bollène/800m 1♀.
Distribution: W-Mediterranean, distribution restricted to Corsica, Sardinia and a small area in south-eastern France (between Menton and Tende).

Eoferreola rhombica (Christ, 1791)
Records: France, Col de Tende/C/1830m 1♂, Millefonts/ C/2030m 1♀, Tende/900m 2♂.
Distribution: European.

Episyron gallicum (Tournier, 1889)
Not collected in the Park.
Records: Italy, Valle Maira/Stroppo/1300m 2m.
Distribution: Submediterranean.
**Evagetes crassicornis** (Shuckard, 1835)
Records: France, Col de Tende/C/1830m 1♂, Millefons/C/2030m 1♂, Italy, Tetti Grella/980m 1♀.
Distribution: European.

**Evagetes dubius** (Vander Linden, 1827)
Not collected in the Park.
Records: Italy, Valle Maira/Macra/900m 1♀.
Distribution: European.

**Evagetes sahlbergi** (Morawitz, 1893)
Records: France, Col de Cayolle/2300m 1♀, Le Pra/1700m 1♀, Millefons/C/2030m 1♀ 1♂.
Distribution: European.

**Homonotus sanguinolentus** (Fabricius, 1793)
Records: France, La Brigue/800m 1♀.
Distribution: European.

**Priocnemis exaltata** (Fabricius, 1775)
Records: France, Col de Cayolle/1860m 1♀, Le Pra/1700m 3♀.
Distribution: European.

**Priocnemis perturbator** (Harris, 1780)
Records: France, Le Pra/1700m 1♀.
Distribution: European.

**Priocnemis pusilla** (Schiodte, 1837)
Records: France, Fontan/400m 1♀, Le Pra/1700m 2♀.
Distribution: European.

**Priocnemis susterai** Haupt, 1927
Records: France, Le Pra/1700m 1♀, Millefons/C/2030m 1♀, Italy, Lago Rovine/A/1700m 1♀, Lago Rovine/B/1700m 1♀.
Distribution: European.

**Priocnemis vulgaris** (Dufour, 1841)
Records: France, Col de Tende/B/1400m 1f, Millefons/C/2030m 1♀.
Distribution: European.

**Tachyagetes flicornis** (Tournier, 1889)
Records: France, St.Sauveur/700m 1♀ 1♂, Tende/900m 1♀, Italy, Valle Maira/Stroppro/1300m 1♀.
Distribution: Submediterranean.

**Evagetes similis** (Fabricius, 1793)
Records: France, Casterino/1700m 1♀.
Distribution: European.

**Sapyga decemguttata** (Jurine, 1807)
Records: France, La Bollène/630m 1♀.
Distribution: European.

**Evagetes similis** (Fabricius, 1793)
Records: France, Casterino/1700m 1♀.
Distribution: European.

**Family Scoliidae**

**Scola hirta** (Schrank, 1781)
Records: France, La Bollène/630m 3♀.
Distribution: European.

**Scolia sexmaculata** (O.F. Müller, 1766)
Records: France, La Bollène/630m 1♂, La Brigue/800m 3♀, Mollières valley/1100m 2♂ 1f, Saorge/700m 2♀, Tende/900m 6♀ 1♂.
Distribution: European.

**Ammophila campestris** Latreille, 1809
Records: France, Col de Tende/C/1830m 1♂, La Foux-d’Allos/1900m 2♂, Le Pra/1700m 4♀ 1♂, Millefons/B/2030m 8♂ 3♀, Millefons/C/2030m 3♀ 2♂, Mollières/1600m 2♀, Italy, Lago Rovine/A/1700m 3♀, Lago Rovine/B/1700m 1♂, St.Lorenzo/1000m 1♂, Valle Maira/Macra/900m 4♀ 2♂.
Distribution: European.

**Ammophila heydeni** Dahlbom, 1845
Records: France, Fontan/400m 2♀, La Bollène/630m 2♀, La Brigue/800m 3♀ 1♂, Saorge/700m 2♀, Tende/900m 1♀, Italy, Valle Maira/Macra/900m 2♀ 1♂, Valle Maira/Stroppro/1300m 1♀.
Distribution: Submediterranean.

**Ammophila sabulosa** (Linnaeus, 1758)
Records: France, Le Pra/1700m 1♀, Millefons/C/2030m 1♀, Millefons/C/2030m 1♀, Mont Giraud/2500m 1♀.
Distribution: European.

**Evagetes dubius** (Vander Linden, 1827)
Not collected in the Park.
Records: Italy, Valle Maira/Macra/900m 1♀.
Distribution: European.

**Hoplammophila clypeata** (Mocsáry, 1883)
Records: France, La Bollène/630m 1♂.
Distribution: Mediterranean.

**Palmodes occitanicus** (Lepeletier & Serville, 1828)
Records: France, Fontan/400m 1♂.
Distribution: Mediterranean.

**Podalonia affinis** (W. Kirby, 1798)
Records: France, Le Pra/1700m 1♀ 1♂, Millefons/B/2030m 1♀ 1♂, Millefons/C/2030m 1♂, Mont Giraud/2500m 1♀.
Distribution: European.

**Evagetes dubius** (Vander Linden, 1827)
Not collected in the Park.
Records: Italy, Valle Maira/Macra/900m 1♀.
Distribution: European.

**Evagetes sahlbergi** (Morawitz, 1893)
Records: France, Col de Cayolle/2300m 1♀, Le Pra/1700m 1♀, Millefons/C/2030m 1♂ 1♀.
Distribution: European.

**Evagetes similis** (Fabricius, 1793)
Records: France, Casterino/1700m 1♀.
Distribution: European.

**Family Scoliidae**

**Scola hirta** (Schrank, 1781)
Records: France, La Bollène/630m 3♀.
Distribution: European.

**Scolia sexmaculata** (O.F. Müller, 1766)
Records: France, La Bollène/630m 1♂, La Brigue/800m 3♀, Mollières valley/1100m 2♂ 1f, Saorge/700m 2♀, Tende/900m 6♀ 1♂.
Distribution: European.

**Ammophila campestris** Latreille, 1809
Records: France, Col de Tende/C/1830m 1♂, La Foux-d’Allos/1900m 2♂, Le Pra/1700m 4♀ 1♂, Millefons/B/2030m 8♂ 3♀, Millefons/C/2030m 3♀ 2♂, Mollières/1600m 2♀, Italy, Lago Rovine/A/1700m 3♀, Lago Rovine/B/1700m 1♂, St.Lorenzo/1000m 1♂, Valle Maira/Macra/900m 4♀ 2♂.
Distribution: European.

**Ammophila heydeni** Dahlbom, 1845
Records: France, Fontan/400m 2♀, La Bollène/630m 2♀, La Brigue/800m 3♀ 1♂, Saorge/700m 2♀, Tende/900m 1♀, Italy, Valle Maira/Macra/900m 2♀ 1♂, Valle Maira/Stroppro/1300m 1♀.
Distribution: Submediterranean.

**Ammophila sabulosa** (Linnaeus, 1758)
Records: France, Le Pra/1700m 1♀, Millefons/C/2030m 1♀, Millefons/C/2030m 1♀, Mollières/1600m 2♀, St.Sauveur/700m 1♂, Italy, Lago Rovine/A/1700m 1♀, Lago Rovine/B/1700m 3♀ 1♂, St.Lorenzo/1000m 3♀ 1♀, Tetti Grella/980m 1♀, Valle Maira/Stroppro/1300m 1♀.
Distribution: European.

**Evagetes dubius** (Vander Linden, 1827)
Not collected in the Park.
Records: Italy, Valle Maira/Macra/900m 1♀.
Distribution: European.

**Hoplammophila clypeata** (Mocsáry, 1883)
Records: France, La Bollène/630m 1♂.
Distribution: Mediterranean.

**Palmodes occitanicus** (Lepeletier & Serville, 1828)
Records: France, Fontan/400m 1♂.
Distribution: Mediterranean.

**Podalonia affinis** (W. Kirby, 1798)
Records: France, Le Pra/1700m 1♀ 1♂, Millefons/B/2030m 1♀ 1♂, Millefons/C/2030m 1♂, Mont Giraud/2500m 1♀.
Distribution: European.
Ancistrocerus gazella (Panzer, 1798)
Records: France, Fontan/400m 1♀, Italy, Lago Rovine/B/1700m 1♂.
Distribution: European.

Ancistrocerus oviventris (Wesmael, 1836)
Records: France, Casterino/1700m 1♀, France, Col de Cayolle/1860m 1♂, Col de Cayolle/2350m 1♀, Col de Tende/C/1830m 1♂, Le Pra/1700m 1♂, Millefons/C/2030m 1♂, Millefons/2030m 2♀. France, Mont Giraud/2500m 1♀, Italy, Lago Rovine/A/1700m 1♀.
Distribution: European.

Ancistrocerus renimacula (Lepeletier, 1841)
Records: France, Tende/900m 1♂.
Distribution: Submediterranean.

Celonites abbreviatus (Villers, 1789)
Records: France, La Foux-d'Allos/1900m 4♂ 1♀, Le Pra/1700m 1♀, Molières valley/1100m 2♂, Tende/900m 1♀, Italy, Brignola/720m 1♀, Brignola/720m 3♀, Lago Rovine/B/1700m 1♀, Italy, Valle Maira/Macra/900m 1♂ 1♀.
Distribution: European.

Celonites mayeti Richards, 1962
Records: France, Tende/900m 1♂, Fontan/400m 1♂ 1♀.
Distribution: SW-Mediterranean, common in Spain, very rare in southern France.

Fig. 26: The honey wasp Celonites mayeti is only known from a few places in southern France and from Spain.

Ceramius tuberculifer Saussure, 1853
Records: France, Col de Cayolle/1860m 1♂ 1♀, La Foux-d’Allos/1900m 6♂ 1♀.
Distribution: SW-Mediterranean, northwards to Valle de Durance.
Ampulex 1|2011

Fig. 27: *Ceramius tuberculifer* (♀) is a large honey wasp species with a southwestern Mediterranean distribution.

*Dolichovespula norwegica* (Fabricius, 1781)
Records: France, Casterino/1700m 1♀.
Distribution: European.

*Dolichovespula sylvestris* (Scopoli, 1763)
Records: France, Col de Tende/B/1400m 1♀, France, Isola/1600m 1♀, La Bollène/630m 1♀, La Brigue/800m 2♀, La Fou d’Allos/1900m 1♀, Le Pra/1700m 1♀, Millefons/B/2030m 1♀, Tende/900m 1♀, Italy, Brignola/700m 1♀, Lago Rovine/B/1700m 2♀, St Lorenz/1000m 1♀.
Distribution: Mediterranean, northwards to southern Germany.

*Eumenes coarctatus* (Linnaeus, 1758)
Records: France, Mollières valley/1100m 1♂, Mollières/1600m 1♂, Italy, St Lorenz/1000m 2♂.
Distribution: European.

*Eumenes coarctatus lunalatus* Fabricius, 1804
Records: France, Fontan/400m 3♂, La Brigue/800m 2♂ 3♀, Mollières valley/1100m 1♂, Saorge/700m 2♂ 2♀, Tende/900m 2♂, Italy, Entraque/900m 1♂.
Distribution: Submediterranean.
Remarks: Nomenclature follows Gusenleitner (1999). The taxon *lunalatus* differs mainly in colour from *coarctatus* s.str. and replaces the latter in southern Europe. The state as a subspecies has to be verified, most probably is it only a colour form of *coarctatus* from southern Europe.

*Eumenes pedunculatus* (Panzer, 1799)
Records: France, Mollières valley/1100m 1♂.
Distribution: European.

*Eumenes subpomiformis* Bluethgen, 1938
Records: France, Col de Cayolle/2300m 1♂, Col de Cayolle/2350m 1♀, La Bollène/630m 1♀, La Brigue/800m 4♀, Le Pra/1700m 1♀, Mollières valley/1100m 4♀, Tende/900m 1♂, Italy, Lago Rovine/B/1700m 2♂ 1♀.
Distribution: European.

*Euodynerus curictensis* Bluethgen, 1940
Records: France, La Bollène/630m 1♂, La Brigue/800m 1♂, Tende/900m 2♂ 1♀, Italy, Lago Rovine/B/1700m 1m, Valle Maira/Stroppo/1300m 1♀.
Distribution: Submediterranean.

*Euodynerus dantici* (Rossi, 1790)
Records: France, Mollières valley/1100m 1♂.
Distribution: European.

*Euodynerus quadrifasciatus* (Fabricius, 1793)
Records: France, Millefons/C/2030m 1♂, France, Valmasque/2200m 1♀.
Distribution: European.

*Katamenes arbustorum* (Panzer, 1799)
Records: France, La Foux-d’Allos/1900m 2♂.
Distribution: Submediterranean.

*Leptochilus alpestris* (Saussure, 1856)
Records: France, La Bollène/630m 1♀, La Brigue/800m 1♀, France, Isola/1600m 1♀, La Bollène/630m 1♀, La Brigue/800m 2♀, Tende/900m 1♀, Italy, Lago Rovine/B/1700m 2♀, St Lorenz/1000m 1♀.
Distribution: Mediterranean, northwards to southern Germany.

*Leptochilus moustirsensis* Giordani Soika, 1973
Records: France, La Brigue/800m 1♀.
Distribution: SW Mediterranean, only known from two places in France: Moustiers (type locality) and Montpellier. The present female is the third finding of this very rare species.

Fig. 28: This photo represent the third finding of *Leptochilus moustiersensis* (♀). This Eumenid wasp has a southern French distribution only.
**Leptochilus regulus** (Saussure, 1855)
Records: France, Fontan/400m 1♂, Tende/900m 1♀.
Distribution: Submediterranean.

**Leptochilus tarsatus** (Saussure, 1856)
Records: France, St.Sauveur/700m 1♀, Italy, Lago Rovine/B/1700 4♂ 3♀.
Distribution: Submediterranean.

**Odynerus alpinus** Schultess, 1897
Distribution: Alpine.

**Odynerus melanocephalus** (Gmelin, 1790)
Records: France, La Foux-d’Allos/1900m 1♀.
Distribution: European.

**Odynerus reniformis** (Gmelin, 1790)
Records: France, La Foux-d’Allos/1900m 2♂ 2♀, Millefons/C/2030m 1♂.
Distribution: European.

**Odynerus spinipes** (Linnaeus, 1758)
Records: France, Col de Cayolle/2350m 2♂ 2♀.
Distribution: European.

**Paragymnomerus spiricornis** (Spinola, 1808)
Records: France, Mollières valley/1100m 1♀, Tende/900m 1♀.
Distribution: Submediterranean.

**Parodontodynerus ephippium** (Klug, 1817)
Records: France, Saorge/700m 1♀.
Distribution: Mediterranean.

**Polistes atrimandibularis** Zimmermann, 1930
Records: France, Mollières/1600m 1♀.
Distribution: Distribution: Submediterranean.

**Polistes biglumis** (Linnaeus)
Records: France, Col de Cayolle/2300m 1♀, Col de Cayolle/2350m 1♀, La Foux-d’Allos/1900m 1♀, Le Pra/1700m 5♂, Millefons/C/2030m 3♀, Mollières valley/1100m 1♀, Mollières/1600m 1♀, Tende/900m 2♀, Italy, Lago Rovine/A/1700m 2♀, Lago Rovine/B/1700m 8♀, St Lorenzo/1000m 2♀.
Distribution: European.

**Polistes dominula** (Christ, 1791)
Records: France, Fontan/400m 2♀, La Bollène/630m 4♀, La Brigue/800m 6♀, Mollières valley/1100m 2♀, Saorge/700m 2♀, Tende/900m 2♂ 1♀.
Distribution: European.

**Polistes atrimandibularis** Zimmermann, 1930
Records: France, Fontan/400m 1♀, La Bollène/630m 1♀, La Brigue/800m 3♀.

**Polistes nimpha** (Christ, 1791)
Records: France, Fontan/400m 1♀, La Bollène/630m 1♀, La Brigue/800m 3♀.

**Polistes semenowi** Morawitz, 1889
Records: France, Tende/900m 1♂.
Distribution: Distribution: Submediterranean.

**Pseudepipona lativentris** (Saussure, 1855)
Records: France, Tende/900m 1♀.
Distribution: Mediterranean.

**Stenodynerus bluethgeni** van der Vecht, 1971
Records: France, La Brigue/800m 1♀, Le Pra/1700m 1♂.
Distribution: European.

**Stenodynerus laticinctus** (Schulthess, 1897)
Records: France, Valmasque/2200m 5♀ 1♀.
Distribution: Alpine.

**Stenodynerus punctifrons** (Thomson, 1874)
Records: France, Col de Cayolle/2350m 1m, Col de Cayolle/2350m 3♀, La Foux-d’Allos/1900m 1♂, Le Pra/1700m 1♂.
Distribution: Alpine.

**Symmorphus gracilis** (Brullé, 1832)
Records: France, Isola/1600m 1♂, Le Pra/1700m 1♂, Italy, Lago Rovine/B/1700m 4♂, Distribution: European.

**Vespa crabro** Linnaeus, 1758
Records: France, Fontan/400m 1♀.
Distribution: European.

**Vespula austriaca** (Panzer, 1799)
Distribution: European.

**Vespula rufa** (Linnaeus, 1758)
Distribution: European.

**Vespula vulgaris** (Linnaeus, 1758)
Records: France, L’Aubhion/2000m 1♀, Le Pra/1700m 1♀.
Distribution: European.
Discussion

Zoogeography

Generalities

Together I could examine 3083 specimens, which belong to 472 species (256 species/1940 specimens of bees and 216 species/1143 specimens of wasps). For detailed species numbers, see table 1. Thirteen species were collected in Valle Maira only. Because they can be expected to occur in the Park, they are included here.

Table 1: Number of species

<table>
<thead>
<tr>
<th>Family</th>
<th>species</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMPULICIDAE</td>
<td>2</td>
</tr>
<tr>
<td>APIAE (BEES)</td>
<td>256</td>
</tr>
<tr>
<td>CHRYSIDIDAE</td>
<td>42</td>
</tr>
<tr>
<td>CRABRONIDAE</td>
<td>70</td>
</tr>
<tr>
<td>MUTILLIDAE</td>
<td>6</td>
</tr>
<tr>
<td>POMPILIDAE</td>
<td>37</td>
</tr>
<tr>
<td>Sapygidae</td>
<td>2</td>
</tr>
<tr>
<td>SCOLIIDAE</td>
<td>2</td>
</tr>
<tr>
<td>SPHECIDAE</td>
<td>12</td>
</tr>
<tr>
<td>TIPHIIDAE</td>
<td>2</td>
</tr>
<tr>
<td>VESPIDAE</td>
<td>41</td>
</tr>
<tr>
<td>total</td>
<td>472</td>
</tr>
</tbody>
</table>

The Hymenoptera species can be assigned to different zoogeographic zones. The zoogeographical system used here is a simplified system only, and summarizes some of the established zones mostly used in entomology. In table 2, the species numbers for each zone are listed.

Table 2: Number of species (and percentage) from different zoogeographic zones.

<table>
<thead>
<tr>
<th></th>
<th>mediterranean</th>
<th>submediterranean</th>
<th>european</th>
<th>montane</th>
<th>alpine</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>bees</td>
<td>21</td>
<td>31</td>
<td>173</td>
<td>18</td>
<td>13</td>
<td>256</td>
</tr>
<tr>
<td>% bees</td>
<td>8 %</td>
<td>12 %</td>
<td>68 %</td>
<td>7 %</td>
<td>5 %</td>
<td>100 %</td>
</tr>
<tr>
<td>wasps</td>
<td>26</td>
<td>33</td>
<td>136</td>
<td>3</td>
<td>18</td>
<td>216</td>
</tr>
<tr>
<td>% wasps</td>
<td>12 %</td>
<td>15 %</td>
<td>63 %</td>
<td>1 %</td>
<td>8 %</td>
<td>100 %</td>
</tr>
<tr>
<td>total</td>
<td>47</td>
<td>64</td>
<td>309</td>
<td>22</td>
<td>30</td>
<td>472</td>
</tr>
<tr>
<td>% total</td>
<td>10 %</td>
<td>14 %</td>
<td>65 %</td>
<td>5 %</td>
<td>6 %</td>
<td>100 %</td>
</tr>
</tbody>
</table>
Another fraction of the alpine species is restricted to the western or south-western Alps only. Their range is often limited in the north-east by the Aosta region (in the north-west Italian Alps) or in the Wallis (south-west Swiss Alps). Southwards, they reach the Mercantour Park region, what represent also the southern limit of the Alps. An example for such a distribution pattern is Philoctetes putoni. Other species occur in the south-western part of the Alps only (northwards to around Barcelonette), but they are absent northwards in Aosta or Wallis region. Examples are Panurgus montanus alpinus (what is probable a valid species) and Diodontus wahlisi. Tachysphex excelsus Turner, 1917 in Bitsch at al. (2007) was described from the area north of Mercantour (St. Veran, Mt. Visio, Barcelonette, etc.) and is another representative for the group of the western Alps endemics. It can also be expected in the Mercantour Park. According to Jakub Straka it is a valid species different from populations outside of the Alps. Within the genera Hylaeus and Lasiosglossum more species of this distribution pattern can be expected, but both genera are not examined here in deep. Andrena montana is also a species that may consist of some sibling species restricted to small areas in the Alps.

The montane species descend to lower altitude as the alpine species, but they also occur in regions about 2000 m or higher. They are not restricted to the Alps or other high mountains, and occur in some Central European lower mountain ranges (e.g. Andrena intermedia, Andrena rufisona, Dryudella femoralis). The so-called “boreoalpine” or “boreomontane” species are also summarized as montane in the present examination. These species hold a divided distribution area: Alps and Scandinavia, with some scattered populations in lower mountain ranges in-between. Some of them also occur in the dunes of the Baltic Sea in north Germany or north Polish areas (Colletes floralis, Colletes impunctatus, Osmia xanthomelana). In the Alps these species settle in various “open” habitats above 1600 m. Some of them do not occur above 1800 m (Chelostoma grande).

A special species group are the representatives of the large “inner alpine dry valleys”. These xerothermic (very hot and dry) habitats are characterized by typical vegetation, the “Steppenheide”. The major “inner alpine dry valleys” in the Alps are the Vinschgau in Alto Adige (northeast Italy), Valtellina (Lombardia/Italy), the Wallis (southwestern Switzerland), Valle d’Aosta (north-west Italy), and the Valle de Durance (east France). Smaller areas exist also in the Mercantour Park (in lower valleys as Roya valley etc.). A typical inhabitant of this type of habitat is Chelostoma grande, common in the Mercantour Park. Osmia dalmatica, another characteristic species of the Steppenheide area, was not found in the Park, but in Valle Maira near Cuneo. The Steppenheide also hosts many Mediterranean species. Some of them advance deeply in the Alps and are therefore also characteristic for the Steppenheide (e.g. Paragymnomenus ephippius and its parasite, Spinolia segusiana, or Ceramius tuberculifer and its parasite, Chrysis emarginatula). The common masarid wasp Celonites abbreviatus with its parasite, Spinharina versicolor is also widely distributed in the whole Alps and occurs mostly in the “Steppenheide” or similar habitats.

Mediterranean and Submediterranean

The “mediterranean” species represent the second important species group in the Park. These species need zones with high climate condition (temperature, sun exposure, dryness). Their distribution northwards or to higher altitudes is mainly restricted by temperature. The most exigent species (for temperature) occur only near the coast of the Mediterranean sea and inhabit only extreme hot places in the lower valleys like Roya, Tinée or Vésubie in the Mercantour Park. Examples are the Sphecid wasps Hoplammophila clypeata or Sphex flavipennis.

With decreasing thermal requirements, these species enlarge their distribution area versus North and to higher altitude. Some of them such as the Honey wasp Ceramius tuberculifer reach altitudes of around 1800 m at the end of the large river valleys. Ceramius tuberculifer was found in Foux d’Allos at the final end of the Gard River valley. The most expansive species of the Mediterranean type reach south-west Germany (e.g Panurgus dentipes, Ceratina chalybea, Agenioideus rubecula). These species also occur in the lowlands of North Italy and penetrate the warm Alpin valleys from south-eastwards. The Mediterranean parts of the fauna from Valle Maira, Susa valley (Piemonte), or Aosta Valley also contain several Mediterranean species with high thermal requirements.

It is not possible to give a clear limitation between strong mediterranean species and “submediterranean” species, because there are many transitions in the northern distribution limit of these species. For practical reason, I treat all species here as “mediterranean”, which do not cross the Alps versus north or do not reach Switzerland. The remaining species and therefore all mediterranean species occurring in Switzerland or southwest Germany are treated here as submediterranean.

The (sub)mediterranean species can also be divided into species restricted to south-west Europe only (e.g Panurgus dentipes, Ceratina chalybea, Ceramius tuberculifer, Celonites mayeti), and species which are widely
Another particularity is the finding of some very rare species with a small overall distribution area. They all had been found in lower places of the Mercantour Park, all of them in the Roya valley. These are *Entomobora plicata*, *Celonites mayeti* and *Leptochilus moustirsensis*.

Nature conservation

An important question in the present examination was about the state of conservation and protection of the species. This subject cannot be discussed in detail, but I will give some short impressions I have obtained while carrying out the field work.
I treat only the higher alpine grassland (above 1800 m) and the xerothermic open grassland in the lowland. Other biotops as alpine grassland between 1000 and 1800 m or forests were not assessed sufficiently.

**Higher alpine grassland**

The higher grassland of the Alps (above 1800 m) is confronted with some risks for the natural fauna and flora. The first is tourism, and here mainly damage caused by ski tourism. Modern ski areas influence the landscape and flora markedly. Artificial grass varieties replace the natural flora, for which insects will lack resources and decrease in numbers. The area around Isola 2000 is a characteristic example for such a large destruction of landscape by men.

The second and more fatal risk for alpine vegetation and fauna is overgrazing by cattle, goats and sheeps. This problem is normally known from areas far away (Sahel zone, eastern Turkey, Iran), but it is a serious and badly respected problem in the whole Alps. A too high stocking rate changes vegetation markedly, and insects will not find suitable resources (feeding, nesting, etc.). For an entomologist, collecting in a cattle pasture is a bad experience, because the number of insects is low to zero.

The problem will often not be noticed by tourism managers and politicians, because cattle-influenced pasture is also green like natural grassland, and differences in species quality can be found by experts only. Adequate and detailed examinations about this subject are rare, but the negative effects on fauna are significant.

My impression in the Mercantour Park was that both risks do not occur or only cause marginal and local damages, and that nature in general is in a really good state. Most biotops above 1800 m are not influenced by man. This is without doubt the reason for the high species diversity in wasps and bees. In the Maritime Park, I found the Valley south of Termi dei Valdieri (around Refuge Regina Elena, in around 1800 m) heavily overgrazed by cattle.

**Xerothermic biotops in the lowland**

The other group of "valuable" biotops (from a Hymenopteran viewpoint) are the dry meadows and "Steppenheide" biotops in the southern river Valleys. They mostly result from ancient agricultural use, and are comparatively small (compared with Wallis or Aosta valley). Nevertheless, they are numerous and occur in a dense network of similar and closely related biotop structures, which facilitate the species exchange. This results in high species diversity and some very rare and remarkable species. The risk for such biotopes is natural afforestation. Upcoming shrub vegetation can be observed in many collecting places (e.g. in Saorge). This development should carefully be observed within the next years.

**General aspects – Mercantour Park**

The Park possesses a very rich aculeate fauna. The alpine and montane Fauna of the Mercantour Park is nearly complete (compared with the expectations from literature). Some important and rare species occur in high and unexpected population density. Suited biotops similar to the examined biotops exist in large numbers (what I could see by passing on the road). Also the fauna of the dry river valleys is very rich and contains some really rare and highly remarkable species.

Summarizing the Mercantour Park contains a very exceptional fauna, what is worth to be protected. As far as I can see, the efforts for nature conversation in the Park are successful.

**General aspects – Alpi Marittime Park**

The Italian Park is smaller and situated on the north side of the main mountain range. This geographical conditions results in a marked lower species diversity, and I could not found most of the main target species from Mercantour in the Alpi Marittime. Nevertheless the fauna is rich in species, e.g. around Lago Rovine and more species can be expected, when collecting in other places. Another potential biotop structure is the dry meadows on the north side of the Park (near Entraque and westwards). I could only examine a few places, but I think many more species live here. Also the limystone habitats north of the Park may contain an interesting mediterranean fauna. I could only collect near Brignola, some kilometres northwards of the Park, but my visit was to short and results were because of the heat to poor to get a final impression.

**Target species for nature conservation**

In the table 3 the major target species are defined for use in nature conservation. These species are suited for an evaluation of the Park or parts of it. I chose only the most important species. Criteria are mainly distribution aspects (small distribution area, rarely collected, etc.). For a detailed evaluation of the Park and the use of the Aculeate species in a nature conservation management the ecology of the species should also be taken into account. With this information, many more target species also with regional significance could be chosen from the main species list.
Acknowledgment

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I also thank the Park team for their perfect help and support to get a collecting permission and important information: Marie-France Leccia in Nice (Mercantour), Marta De Biaggi in Entraque (Alpi Marittime) and Jérôme Molto (Mercantour). Jérome tried to meet me, but we did not succeed because of not working mobile phone connection in the mountains as well as large distances even between two neighbouring alpine valleys. My thanks go also to Marie Pierre Chauzat from Marseille, who spend a day in the field with me. Juan Carlos Monje (Stuttgart) and Alexander Kroupa Marseille, who spend a day in the field with me.

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Literature


(Ammobates, Ammobatoïdes, Anthophora, Biastes, Ceratina, Dasyypoda, Epeoloides, Epeolus, Euceria, Macropis, Melecta, Melitta, Nomada, Pasites, Tetralonia, Thyreus, Xylocopa).


