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New Records of Wild Bees (Hymenoptera, Apoidea) for Wildlife in Algeria

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ABSTRACT

Our investigations were owned during the spring and summer periods in the region of Tizi-Ouzou (Algeria) on solitary and social bees. Among the Hymenoptera Apoidea listed on natural vegetation, we counted nine species and four subspecies not previously reported in Algeria. These species were distributed into five families: Colletidae, Halictidae, Andrenidae, Apidae and Megachilidae. These wild bees are captured in study plots located at different altitudes (between 180m and 840m). The taxonomic list of these species containing, geographical distribution, flight periods and visited flowers, was also reported.

Key words: Algeria Apoidea, new taxa, biogeography, floral choices, flight periods.

INTRODUCTION

Since the works of Saunders (1901.1908), Alfken (1914), Schulthess (1924) and Benoist (1961), no taxonomic list of bees was published for Algeria. Louadi (1999a) have listed only species of the genera *Halictus* and *Lasioglossum* harvested in the region of Constantine (eastern Algeria). Others studies focused on the Algerian wildlife were reported, among other things than those of Louadi (1999,b), Louadi *et al*. (1998a, b, 2008), Aouar-Sadli (2009). The objective of this study was to present the new taxa cited for first time in Algeria. The present work focuses on the new Algerian bee species. We report the presence of nine species and four subspecies not previously reported in Algeria.

This study presents the taxonomic list of these taxa with geographical distribution, flight periods and visited flowers.

MATERIALS AND METHODS

Four localities were chosen in the region of Tizi-Ouzou: Azazga (36°44' N- 4°22' E, 500m) in the east, Boukhalfa (36°43'E 4°2'N, 180m) in the west, Makouda (40°93'N

1°98'E, 670m) in the North and Aït Mahmoud (36° 30′-N 3° 59′ E, 840m) in the South. This arrangement allows a better coverage of the study area. In these localities, three techniques for collecting bees were regularly used on wild plants and vacant lots: plastic tubes, transparent bags and a mouth aspirator. Hand nets are the best tools for collecting bees as they allow catching specimens without too much damage, and make field observation possible.

These catches are made during the flowering periods between January and August. The contemporary distribution of different taxa was established on the basis of the available literature. The detailed knowledge of literary authors who are interested in the North Africa wildlife, has allowed us to represent the distribution of species in this region of Africa. We used several other references to get the maximum information and give an overview on the overall geographical distribution of most of our taxa (Lepeletier, 1841; Lucas, 1849; Friese, 1895-1901; Dusmet and Alonso, 1928; Michener, 2000; Gusenleitnen and Schwarz, 2002). The results of this synthesis are reported in the table below, and each species is accompanied by her range.

RESULTS

During our investigations, we collected in the four stations visited, nearly a hundred species of Apoidea of which 13 are newly listed for wildlife in Algeria. These species belong to five families: Colletidae, Andrenidae, Halictidae, Megachilidae and Apidae. Determinations were made by P. Rasmont (Anthophorae), M. Terzo (Ceratina, Megachiles), A. Pauly (Halictidae), S. Patiny (Andrenidae). The species collected are distributed as follows:

Family: COLLETIDAE

Subfamily : Hylaeinae

The bees of the genus *Hylaeus* drawings have bright yellow on the chest and legs (Fig.1a). The female has two yellow triangles on the front of the head (Fig.1b). It has no external structure for pollen collection. The yellow or white visible on the face of the male are common features of the subfamily species (Fig.1b).

Fig. 1. Original photos of *Hylaeus meridionalis* a: female 6,5mm, b: Head frontal view, (1,8mm wide and long)

***Hylaeus (Prosopis) meridionalis* Förster, 1871**

We met this species during the months of June and July. More than ten individuals were observed at all study localities. This bee seems to be subservient to two plant species in this case *Rosa canina* L. (Rosaceae.) and *Daucus Carotta* L. (Umbelliferae)

Hylaeus meridionalis is found in France and Switzerland.

Family: ANDRENIDAE

Subfamily : Andreninae

***Andrena (Chlorandrena) rhyssonota flava* Warncke, 1967**

This is a very rare species (Fig.1), only one specimen was found in mid-May at high altitude at the locality of Beni Douala. at flowers *Andryala integrifolia* L. (Asteraceae). *Andrena rhyssonota flava* has been reported only in Spain (Rasmont, 1995).

***Andrena (Melandrena) assimilis barnei* Radoszkowski, 1876**

This species was as rare as the previous one. One individual was captured in mid-February, at Fréha at *Sinapis arvensis* L. (Brassicaceae). The distribution of subspecies *Andrena assimilis barnei* is poorly known. It has been reported in Spain and seems to be endemic to Morocco and Algeria.

***Andrena (Chrysandrena) fulvago* Christ, 1791**

It is well represented in our study area. Late species, it appears in June foraging flowers *A. integrifolia* and *Hieracium sp*. (Asteraceae) at Beni-Douala and Fréha (Fig. 2). *A.fulvago*t has been reported in France, Belgium and Switzerland.

Fig. 2. Original photo of *Chryandrena fulvago* female, 8,8 mm

Family: HALICTIDAE

Subfamily : Halictinae

***Nomioides facilis* Smith, 1853**

A very small bee, of 3mm long (Fig. 3). It is very localized and infrequent; we have collected it from a single locality (Fréha). It seems to be subservient to a plant species, like *Mentha rotundifolia* L. (Lamiaceae). The repartition area of *Nomioides facilis* seems to be limited; it is found only in France.

Fig. 3. Original photos of *Nomioides facilis* a: female 3,5 mm. b: male 3,3mm

Subfamily : Dufoureinae

***Dufourea halictula* Nylander, 1852**

D. halictula is a very rare species (Fig. 4). The only one exemplar met throughout our study at the locality of Boukhalfa in mid-May was taken at *Stachys arvensis* L. (Lamiaceae). It widespread in southern Europe, Central Europe and Belgium.

Fig. 4. Original photo of *Dufourea halictula*, 5,2 mm

Family: APIDAE

Subfamily : Anthophorinae

***Anthophora (Anthophora) subterranea* Germar, 1826**

Two specimens were collected in Beni Douala in mid-March, one foraging flowers of *Oxalis pes-caprae* L. (Oxalidaceae), the other, those of *Chrysantemum fontanesii* Quezel and Santa (Asteraceae. *Anthophora subterranea* was found in France, Switzerland, Italy and Greece

***Anthophora plumipes plumipes* Pallas, 1772**

It is particularly abundant at *Asphodelus microcarpus* Salzm. and Viv. (Liliaceae) in March, at locality of Makouda (Fig. 5). *A.plumipes plumipes* widespread in France, Belgium,Switzerland and Grand Duchy of Luxembourg.

***Eucera pannonica* Mocsary, 1878**

One specimen is enumerated at *Hedrysarum coronarium* L. (Fabaceae) and another at *Ranunculus spicatus* L. (Ranunculaceae) in early April, at Makouda locality

(Fig. 6). The geographical distribution of *Eucera pannonica* is poorly known. This is a very rare species in Tizi-Ouzou region.

Fig. 5. Original photo of *Anthophora plumipes*.

Fig. 6. Original photo of *Eucera pannonica.*

Family: MEGACHILIDAE

Subfamiy : Megachilinae

The most common genera are: *Heriades, Hoplitis, Osmia* and *Megachile*. Species of the subfamily Megachilinae have a long and slender glossus and a large head, which makes them easy to recognize (Figs.7-8). In most species, the mandibles are well developed. Unlike Megachiles, the Osmiae have a lobe adhesive between the claws of the tarsi (Fig.9).

Fig. 7. Original photos of End of the hind leg of a: *Osmia* b: *Megachile*

Fig. 8. Original photos of *Megachile centuncularis* female, 11,2 mm

Fig. 9. Original photos of *Megachile fertoni* female, 9,6 mm

***Megachile (Megachile) centuncularis* Linnaeus, 1758**

Only three specimens are observed during the months of May and June at *Rubus ulmifolius* Schott (Rosaceae) and *Scolymus hispanicus* L. (Asteraceae). *Megachile centuncularis* is reported in France, Belgium, Switzerland and the Grand Duchy of Luxembourg.

***Megachile (Neoeutricharaea) fertoni* Pérez, 1896**

Many individuals were observed from May to July at all localities, visiting flowers of the following plants: *Lotus edulis* (Fabaceae), *S. hispanicus, Borago officinalis* L. (Boraginaceae) and *Centaurea Pullata* L. (Asteraceae). (Fig.8). The period of the flight of this bee is long, it lasts more than three months. It is found in France.

***Osmia (Chalcosmia) latreillei iberoafricana* Peters, 1975**

Its flight period lasts from March to May. Two individuals were captured at *Fedia cornucopiae* L. (Valerianaceae) and *Lotus corniculatus* L. (Fabaceae). (Fig.10).

Cette sous espèce à distribution méditerranéenne est rencontrée en Espagne, dans les Iles Canaries, it is also reported in France and Corsica.

***Stelis (Stelis) punctulatissima* Kirby, 1802**

S. punctulatissima is a cuckoo bee-pubescent little developed (Fig.11).

A single specimen was collected in early June, at *C. Pullata,* at the locality Fréha.

A specie often goes unnoticed because of the low density of its population and its discreet appearance. It's a common species and very adaptable. Its wide distribution includes southern Europe, Asia Minor and North Africa.

Fig. 10. Original photos of *Osmia latreilli iberoafricana* 8,7 mm

Fig. 11. Original photos of *Stelis punctatissima* female, 7,2 mm

DISCUSSION

These new species which we listed belong to five different families: Colletidae, Andrenidae, Halictidae, Megachilidae and Apidae. The most representative is Megachilidae and Apidae. In general these species are very rare, the majority between them are small size, what makes than they are not easily locatable. Their flight period can last only one week, whereas can last more than three months. Some species were observed at flowers of the following plants like *Megachile fertoni*, other seems to be subservient to a plant species like *Nomioides facilis* and *Hylaeus meridionalis*.

The family of Colletidae is the least diverse among wild bees identified in our region. The subfamily contains small bees Hylaeinae measuring 3.5 to 9mm (Payette, 1996). They are recognizable by their body rather glabrous, shiny and look like small wasps.

This summer species has a very short flight period, indeed, it is encountered only in mid-August.

The Megachilidae often called leafcutter have a long and slender glossus. The species of this family are easily recognized for their pollen collection device: a brush of hairs on the ventral (scopa). This consists of stiff hair, tilted backwards, but a representative parasite of this family (*Coelioxys, Stelis*) does not meet this description.

Some species are dominant and polylectic visiting flowers of the following plants. The period of the flight of their bees is long; it lasts more than three months, in the case of *Megachile fertoni* which is dominant and polylectic visiting flowers of the following plants. The period of the flight of this bee is long; it lasts more than three months. Moreover, we observed cleptoparasitic species, such as Megachile *Stelis punctulatissima*. This species parasite various Megachilidae such that Osmiae and *Anthidium manicatum* L. Moreover, it was collected at the locality where its host *A. manicatum* is most frequently observed.

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