Syrphidae (Diptera) of *Pinus uncinata* forest and other habitats in the Val de Galbe (Pyrénées-Orientales, France)

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A list of 80 species of Syrphidae (Diptera) is presented for *Pinus uncinata* forest and associated habitats in the Val de Galbe (Pyrénées-Orientales, France). *Didea alneti*, *Eupeodes nielseni*, *Melangyna ericarum* and *Sphaerophoria virgata* are recorded from the Pyrenees apparently for the first time.

Zusammenfassung

80 Schwebfliegenarten wurden in *Pinus uncinata*-Wäldern und ähnlichen Habitaten im Val de Galbe (Pyrénées-orientales, Frankreich) beobachtet. *Didea alneti*, *Eupeodes nielseni*, *Melangyna ericarum* und *Sphaerophoria virgata* wurden erstmals in den Pyrenäen nachgewiesen.

Introduction

Mountain pine forests of *Pinus uncinata*, also known as arolla, occur at altitude in both the Alps and the Pyrenees. There do not appear to be any lists published of the Syrphidae found in association with *P. uncinata* forest. Two visits to the Val de Galbe by the authors, in August 2001 and September 1999, yielded a list of nearly 80 species, many of them from *P. uncinata* forest. While this list is limited, by both the small total number of man-days of collecting involved (nine) and the restriction of the collecting effort to August/September, it does provide at least a partial overview of the syrphid fauna of this type of conifer forest and is presented here as such.

The Val de Galbe is situated close to the border between France and Spain, in the French Département of Pyrénées-Orientales. The upper valley of the river Galbe has steeply sloping sides, variously covered in forest and montane/alpine grassland. Downstream the valley floor flattens out and the river is flanked by farmland by the time it reaches the hamlet of Espousouille, the closest permanent human settlement, in the rural district of Fontrabiouse. From Espousouille there is a dirt track up the river valley that is usable by motorised vehicle. Some 5 km upstream of Espousouille the

SPECIES	locality A1	locality A2	locality B	locality C
Arctophila bombiforme (Fallen), 1810	1		1	1
Arctophila superbiens (Muller), 1776	1		1	
Chalcosyrphus piger (Fabricius), 1794	1			1
Chamaesyrphus scaevoides (Fallen), 1817	1			
Cheilosia barbata Loew, 1857		1		
Cheilosia hypena Becker, 1894			1	
Cheilosia longula (Zetterstedt), 1838	1	1	1	
Cheilosia personata Loew, 1857	1			
Cheilosia scutellata (Fallen), 1817	1		1	1
Cheilosia vernalis (Fallen), 1817			1	
Cheilosia vulpina (Meigen), 1822			1	
Chrysotoxum arcuatum (L.), 1758				1
Chrysotoxum bicinctum (L.), 1758		1	1	1
Chrysotoxum elegans Loew, 1841		1		
Chrysotoxum fasciatum (Muller), 1764	1			
Dasysyrphus albostriatus (Fallen), 1817		1	1	
Dasysyrphus friuliensis (van der Goot), 1960			1	
Dasysyrphus tricinctus (Fallen), 1817	1		1	1
Didea alneti (Fallen), 1817	1		1	1
Didea intermedia Loew, 1854	1			
Epistrophe grossulariae (Meigen), 1822			1	
Episyrphus balteatus (DeGeer), 1776	1		1	
Eriozona erratica (L.), 1758	1	1		
Eriozona syrphoides (Fallen), 1817	1		1	
Eristalis arbustorum (L.), 1758	1			
Eristalis jugorum Egger, 1858	1			1
Eristalis pertinax (Scopoli), 1763	1		1	
Eristalis rupium Fabricius, 1805	1			1
Eristalis similis (Fallen), 1817	1	1	1	
Eristalis tenax (L.), 1758	1	1	1	1
Eupeodes bucculatus (Rondani), 1857	1			
Eupeodes corollae (Fabricius), 1794	1	1	1	1
Eupeodes flaviceps (Rondani), 1857	1			
Eupeodes lapponicus (Zetterstedt), 1838	1		1	
Eupeodes lucasi (Garcia & Laska), 1983	1		1	1
Eupeodes luniger (Meigen), 1822	1	1		
Eupeodes nielseni (Dusek & Laska), 1976	1	1	1	1
Helophilus pendulus (L.), 1758	1			
Leucozona lucorum (L.), 1758	1			

SPECIES	locality A1	locality A2	locality B	locality C
Melangyna ericarum (Collin), 1946			1	
Melanostoma dubium (Zetterstedt), 1838			1	
Melanostoma mellinum (L.), 1758	1	1	1	1
Melanostoma scalare (Fabricius), 1794	1		1	1
Meliscaeva auricollis (Meigen), 1822	1			
Meliscaeva cinctella (Zetterstedt), 1843	1		1	1
Merodon equestris (Fabricius), 1794	1	1		
Myathropa florea (L.), 1758		1		
Parasyrphus vittiger (Zetterstedt), 1843	1	1	1	1
Pipizella viduata (L.), 1758		1		1
Platycheirus albimanus (Fabricius), 1781	1			1
Platycheirus angustatus (Zetterstedt), 1843	1		1	1
Platycheirus angustipes Goeldlin, 1974	1		1	
Platycheirus clypeatus (Meigen), 1822	1			
Platycheirus occultus Goeldlin, Maibach & Speight, 1990	1			
Scaeva dignota (Rondani, 1857)		1	1	1
Scaeva selenitica (Meigen), 1822	1	1	1	1
Sericomyia lappona (L.), 1758			1	
Sericomyia silentis (Harris), 1776	1	1	1	1
Sphaerophoria infuscata Goeldlin, 1974			1	
Sphaerophoria interrupta (Fabricius), 1805			1	1
Sphaerophoria scripta (L.), 1758	1			1
Sphaerophoria virgata Goeldlin, 1974	1		1	1
Sphegina clunipes (Fallen), 1816			1	1
Syritta pipiens (L.), 1758	1			
Syrphus ribesii (L.), 1758	1		1	
Syrphus torvus Osten-Sacken, 1875	1		1	1
Syrphus vitripennis Meigen, 1822	1			
Temnostoma vespiforme (L.), 1758	1			
Trichopsomyia flavitarsis (Meigen), 1822			1	1
Volucella inanis (L.), 1758			1	
Volucella pellucens (L.), 1758	1			
Xanthandrus comtus (Harris), 1780	1		1	
Xylota florum (Fabricius), 1805	1			1
Xylota jakutorum Bagatshanova, 1980	1			1
Xylota segnis (L.), 1758	1		1	
Xylota sylvarum (L.), 1758	1	1		

Tab. 1: List of Syrphidae collected in the Val de Galbe. – Unidentified females of *Eumerus* (1 specimen), *Heringia* (1 specimen), *Pipizella* (several specimens) and *Sphaerophoria* (several specimens) are not included in the Table.

track runs close to the river, the valley has narrowed and there are mixed conifer forests, admittedly much modified by man, in which *P. uncinata* becomes increasingly frequent as the altitude rises above 1600m.

The species list given here in Table 1 is derived from altitudes of 1600-1800m, along the river Galbe and the slopes above it. As the table indicates, collecting effort was concentrated at three principal localities. The lowest of these (A) comprised two sites, directly opposite each other, on either side of the river. Site A1 was at the base of the north-facing side of the river valley, immediately beside the river, where a series of wet flushes marked a spring-line. A riparian strip of small *Salix* bushes there gave way to a rich vegetation of tall herbs over each flush, the flushes making small open areas (up to 25 m across) within a general cover of mature, mixed conifer forest. The conifers included *Pinus sylvestris*, *P. uncinata*, *Picea* spec. and *Abies* spec. The syrphids collected there reflect the presence of all three major components of the local landscape, the conifer forest, the flushes and the riparian woodland. Site A2 was directly opposite site A1, upslope on the other (south-facing) side of the river valley, approximately 200m away from the river. Here there were no flushes or springs and the predominant vegetation was *Pinus sylvestris* forest, giving way to unimproved grassland used for grazing, between the river and the track. The syrphids collected from site A2 are noticeably less diverse than those from site A1, being almost entirely species with aphidiphagous larvae living on either conifer foliage or herb-layer plants.

Locality B was at somewhat higher altitude, approximately 1 km upstream from locality A, again on the north-facing side of the river valley. At this point the conifer forest was almost entirely composed of *Pinus uncinata*, with an understorey of dwarf shrubs of *Rhododendron ferrugineum* and *Vaccinium myrtillus*, but with extensive open areas where oligotrophic flushes carpeted in Careces and grasses joined up to produce peaty slope mires, with patches of *Eriophorum* sp and frequent *Parnassia palustris*, at that time in flower. With the exception of *Dasysyrphus friuliensis* and *Melangyna ericarum*, all of the conifer-associated syrphids collected from locality B were also found in the more mixed conifer forest of locality A. Conversely, *Eriozona erratica* was collected at A, but not at B.

Locality C comprised a broad tranche of the north-facing slope of the river valley (up to 100 m above the river), plus valley bottom and river margins, starting some 300 m upstream from locality B. Here the valley bottom broadened for a stretch, the river becoming braided and flowing over a small floodplain of its own creation. The valley bottom was a mosaic of unimproved grassland, with meandering streams in the open and lined by small *Salix* spp. or under the canopy of *Pinus uncinata* forest. At the upstream end of site C the valley narrowed again and its sides carried open *P. uncinata* forest with large areas of unimproved grassland. The grassland became increasingly humid down-slope towards the river, with dry torrents higher up and small, spring-fed streams issuing close to the river. Under the pines, patches of *Rhododendron ferrugineum* and *Vaccinium myrtillus* scrub were once again present. Only one species

(*Chrysotoxum arcuatum*), was added to the Val de Galbe list from locality C, though unidentifiable females of some *Pipizella* species other than *P. viduata* were also collected, suggesting that, earlier in the year, the grassland on the slopes would very probably exhibit a more differentiated fauna.

None of the syrphids so far collected from the Val de Galbe are restricted to the Pyrenees. Indeed, in terms of its species content, the list includes nothing that would be surprising to find at localities within the upper levels of the conifer belt in parts of the Alps. However, the following Val de Galbe species have not previously been found in the Pyrenees (see Marcos-García et al. 1998; Sarthou & Speight 1998): *Didea alneti, Eupeodes nielseni, Melangyna ericarum, Sphaerophoria virgata. D.alneti* was abundant. These records suggest that the Syrphidae of higher altitude conifer forests of the Pyrenees have not yet been well studied. Visits earlier in the season, in particular, might be expected to yield further records of biogeographical interest. A second feature of the Val de Galbe list is the apparently "unseasonal" occurrence of some of the species. *Merodon equestris* was extremely frequent there towards the end of August. Others that would not normally be expected to occur that late in the year include *Eristalis jugorum, Leucozona lucorum, Melanostoma dubium* and *Temnostoma vespiforme*. Working on first principles, the inference to be drawn from these occurrences would be that the altitude and orientation of the valley result in a local retardation of syrphid flight periods, to a slightly greater extent than might be anticipated.

References

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