Hoverflies (Diptera, Syrphidae) from northern Spain, with notes on *Pelecocera tricincta* Meigen, 1822

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Records are given of 73 species of syrphid flies for the Spanish provinces of Alava, Guipúzcoa and Navarra. In addition, observations made on *Pelecocera tricincta* Meigen, 1822 are presented, covering aspects such as flowers visited, feeding, mating and variation in body-size and abdominal coloration.

Zusammenfassung

Auf regelmäßigen Exkursionen in und um San Sebastián (fig. 1) konnten in den Jahren 1999 bis 2001 vom Autor 73 determinierte Schwebfliegenarten für die spanischen Provinzen Alava, Guipúzcoa und Navarra nachgewiesen werden. Ein besonderes Augenmerk galt dabei einer großen und stabilen Population von *Pelecocera tricincta* Meigen, 1822. Freilandbeobachtungen zu Blütenbesuch, Nahrungsaufnahme und Kopula, so wie Angaben zur Variabilität von Körpergröße und Abdominalfärbung werden mitgeteilt und diskutiert.

Introduction

Between 1999 and 2001, the author was able to undertake regular excursions in the surroundings of San Sebastián, northern Spain, an area which has not been the focus for syrphidological investigations in the past. Apart from gathering faunistical data, the main focus was on study of a large and stable population of *P. tricincta*.

Study Sites

The various collecting sites are situated in the Spanish provinces of Alava, Guipúzcoa and Navarra and are listed in table 2 at the end of the paper. The city of San Sebastián, where most specimens were taken, is the capital of Guipúzcoa and situated at the cantabrian coast. The climate of the area is humid and temperate with an annual average temperature of 13.7 °C and an annual average precipitation of 1334 mm (data from weather station of San Sebastián, at 8 m above sea level, cited in Gobierno Vasco 1987-1992).

Field studies were carried out on *P. tricincta* at Monte Ulía, a popular spot at the outskirts of San Sebastián (fig. 1). Monte Ulía is part of the eastern end of the tertiary coastal chain and consists mainly of Eocene sandstone formations (Ayuntamiento de Donostia-San Sebastián 1991). With its highest point being 233 m above sea level, it stands isolated between the Atlantic ocean to the north and the urbanised areas of San Sebastián and associated towns to the west and south. Eastwards it is connected to Monte Jaizkibel. Due to its use for many purposes, both in the past and the present, such as recreation activities, forest management and ongoing urbanisation, Monte Ulía has almost totally lost its natural character. Once covered by acidophilious *Quercus pyrenaica* forest (marojal), with tendencies towards a *Quercus robur* and mixed Atlantic oak forest, its vegetation nowadays consists mainly of matorral (different types of heather, *Ulex europaeus*, *U. gallii* and *Pteridium aquilinum*), plantations of *Pinus pinaster* and of juvenile or degradaded acidophilous *Quercus robur* and mixed Atlantic oak forest with herbal undergrowth, intermingeled with *Robinia pseudacacia* (Gobierno Vasco 1987-1992). In 1999 observations were only made on the northern slope of the mountain, along a small path following the coastline. In 2000 the study site was enlarged, focusing mainly on a path on the southern slope (UTM-coordinates: 30TWN854979) and along a tarred road leading towards Mendiola. The vegetation form present at that particular spot is matorral, intermingeled with *Pinus pinaster* and *Quercus robur*.

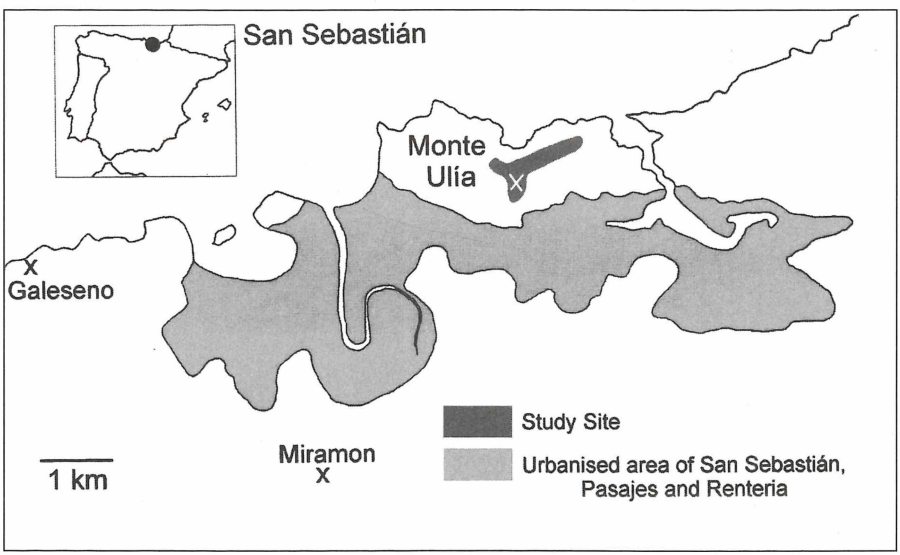

Fig. 1: **Geographical situation** of San Sebastián and of the study sites at Monte Ulía, Galeseno and Miramon.

Material and Methods

If not otherwise stated, specimens were netted by the author and are deposited in his personal collection. Concerning *P. tricincta*, the data base for all descriptive parts and calculations are the specimens observed and obtained at Monte Ulía. Observations were exclusively made in the field. From 18.VIII.1999 onwards, regular excursions were made at least once a month, sometimes weekly. An attempt to breed *P. tricincta* in the laboratory failed. The flies were taken with a net, mostly while feeding on flowers.

Body length was measured with an ocular-micrometer. In both sexes the distance between frons and tip of abdomen was measured. However, in ♀ with ovipositor extended, measurement was taken to the distal end of tergite five. The relation between abdominal colour and body size was estimated by drawing the abdomen of each specimen through a drawing tube, onto squared paper. The number of squares occupied by the yellow abdominal markings and the number of squares occupied by the entire abdomen, were then counted and compared with each other.

Results

The results for each species are arranged in a chronological order, disregarding the year of capture. Nomenclature follows Speight (2001). Distribution maps for each species in the Mediterranean region can be found in Dirickx (1994). For a more detailed distribution of the subfamilies Syrphinae and Microdontinae in the Iberian Peninsula see Marcos-García et al. (1998). In total, records for 687 specimens (322♂/365♀), representing 73 identified species, are presented.

Subfamily Syrphinae

Baccha elongata (Fabricius, 1775)
Guipúzcoa: ♀, 26.VI.1999, Monte Ulía; ♀, 3.VII.1999, Galeseno; ♂, 10.VII.2001, Monte Ulía; ♂, 17.VII.2000, Monte Ulía; ♂ ♀, 17.IX.2000, Monte Ulía.

Chrysotoxum bicinctum (Linnaeus, 1758)
Guipúzcoa: ♂, 6.VII.2000, Miramon; ♀, 9.IX.2000, Galeseno; ♀, 15.IX.1999 Monte Ulía.

Chrysotoxum intermedium Meigen, 1822
Guipúzcoa: ♂, 21.II.2000, Monte Urgull; ♂, 23.IX.2000, Miramon.
Navarra: ♂, 18.III.2000, Etxauri.

Episyrphus balteatus (De Geer, 1776)
Guipúzcoa: ♂, 12.V.1999, Parque Cristina Enea; ♂, 4.VI.1999, Santa Barbara.

Eupeodes corollae (Fabricius, 1794)
Guipúzcoa: ♂, 24.IV.2000, Galeseno; ♂, 13.V.1999, San Sebastián; 1♂ 2♀, 26.V.1999, Monte Ulía; ♀, 26.VI.1999, Monte Ulía; ♂, 10.VII.2001, Monte Ulía.

Eupeodes latifasciatus (Macquart, 1829)
Guipúzcoa: ♂, 6.VII.2000, Miramon; ♀, 10.VII.2001, Monte Ulía.

Eupeodes luniger (Meigen, 1822)
Guipúzcoa: ♀, 20.III.2000, Miramon.

Eupeodes ♀ indet.
Navarra: ♀, 9.X.2001, Finca de Artikutza.
The identity of this female specimen is rather problematic. According to Mazánek (pers. comm.), the fly might belong to either *E. luniger* or *E. flaviceps*.

Melangyna lasiophthalma (Zetterstedt, 1843)
Guipúzcoa: ♀, 30.IV.2000, Sierra de Aralar.

Melangyna umbellatarum (Fabricius, 1794)
Guipúzcoa: ♀, 11.IX.1999, Monte Ulía.

Melanostoma mellinum (Linnaeus, 1758)
Guipúzcoa: ♂, 26.V.1999, Monte Ulía; ♀, 4.VI.1999, Santa Barbara; 2♂ 1♀, 26.VI.1999, Monte Ulía; ♂ ♀, 18.VIII.1999, Monte Ulía.

Melanostoma scalare (Fabricius, 1794)
Guipúzcoa: 2♂, 20.III.2000, Miramon; ♀, 19.V.2000, Monte Ulía; 4♀, 4.VI.1999, Santa Barbara; 2♂, 10.VII.2001, Monte Ulía; ♀, 16.IX.1997, Monte Ulía.

Meliscaeva auricollis (Meigen, 1822)
Guipúzcoa: 2♀, 8.III.2000, Monte Ulía, on *Salix*; ♀, 13.V.1999, San Sebastián; ♀, 19.V.2000, Monte Ulía; ♀, 26.V.1999, Monte Ulía; 2♀, 16.IX.1007, Monte Ulía; ♀, 4.X.2001, Monte Ulía; 1♂ 2♀, 8.X.2001, Monte Ulía.
Navarra: ♂, 12.VI.1999; Larraun – Valle de Araxes.

Paragus haemorrhous Meigen, 1822
Guipúzcoa: 2♂, 24.IV.2000, Galeseno; 3♂, 26.V.2000, Monte Ulía; ♂, 4.VI.1999, Santa Barbara; ♂, 6.VI.2000, Monte Ulía; ♂, 14.VI.2000, Monte Ulía; 6♂, 26.VI.1999, Monte Ulía; ♂, 3.VII.1999, Galeseno; ♂, 10.VII.2001, Monte Ulía; 4♂, 11.VII.2001, Peine del Viento; ♂, 14.VII.2001, Monte Ulía.

Paragus majoranae Rondani, 1857
Guipúzcoa: ♂, 24.IV.2000, Galeseno; ♀, 2.V.2000, Monte Ulía (on *Taraxacum officinale* agg.); ♂, 5.V.2000, Galeseno; ♀, 13.V.1999, San Sebastián; ♂, 13.V.2000, Galeseno; ♀, 26.V.1999, Monte Ulía; ♂, 26.V.2000, Monte Ulía; ♂, 15.VI.1999, Monte Igeldo; ♂, 26.VI.2000, Monte Ulía; ♂, 11.VII.2001, Peine del Viento; 4♂, 13.VII.2001, Galeseno; ♂, 14.VII.2001, Monte Ulía; ♂, 17.VII.2000, Monte Ulía; ♂, 7.VIII.2000, Camping Txiki; ♀, 3.IX.2000, Monte Ulía; ♂, 9.IX.2000, Galeseno; ♂, 15.IX.1999, Monte Ulía; ♀, 4.X.2001, Monte Ulía; ♂ ♀, 8.X.2001, Monte Ulía, in copula.

Paragus quadrifasciatus Meigen, 1822
Guipúzcoa: ♀, 26.VI.2000, Monte Ulía; ♂, 10.VII.2001, Monte Ulía; ♀, 14.VII.2001, Monte Ulía.

Paragus tibialis (Fallén, 1817)
Guipúzcoa: ♂, 26.VI.1999, Monte Ulía; ♂, 6.VII.2000, Miramon; ♂, 11.VII.2001, Peine del Viento.
Navarra: ♂, 12.VI.1999, Betelu – Valle de Arraxes.

Paragus (Pandasyopthalmus) spec.
Guipúzcoa: ♀, 26.V.1999, Monte Ulía; ♀, 14.VI.2000, Monte Ulía; ♀, 15.VI.1999, Monte Igeldo; ♀, 26.VI.2000, Monte Ulía.

Platycheirus albimanus (Fabricius, 1781)
Guipúzcoa: ♂, 29.II.2000, Monte Ulía (on *Ranunculus ficaria*); ♀, 20.III.2000, Miramon; ♂, 23.III.2000, Miramon (on *Salix* spec.); ♀, 24.IV.2000, Galeseno; ♂, 12.V.1999, Parque Cristina Enea; ♂, 16.VI.1999, Irura; 2♀, 4.X.2001, Monte Ulía.
Navarra: ♀, 9.X.2001, Finca de Artikutza.

Platycheirus scutatus (Meigen, 1822)
Guipúzcoa: ♀, 4.X.2001, Monte Ulía; 2♀, 8.X.2001, Monte Ulía.

Scaeva dignota (Rondani, 1857)
Guipúzcoa: ♂, 17.VI.2000, Monte Ulía; 2♂ 2♀, 12.VII.2001, Miramon.

Scaeva pyrastri (Linnaeus, 1758)
Guipúzcoa: ♀, 26.VI.1999, Monte Ulía; ♀, 14.VII.2001, Monte Ulía.

Sphaerophoria rueppellii (Wiedemann, 1830)
Guipúzcoa: ♂ ♀, 8 VI 2000, Galeseno; 2♂ 1♀, 11.VII.2001, Peine del Viento.

Sphaerophoria scripta (Linnaeus, 1758)
Alava: ♀, 23.VII.2000, Narvaja.
Guipúzcoa: ♂, 29.IV.2000, Monte Ulía; ♂, 11.V.1999, Monte Igeldo; ♂ ♀, 26.V.1999, Monte Ulía, in copula; 3♂, 26.V.1999, Monte Ulía; 1♂ 3♀, 4.VI.1999, Santa Barbara; 2♀, 8.VI.2000, Galeseno; ♂, 26.VI.1999, Monte Ulía; 2♂, 8.X.2001, Monte Ulía; ♀, 8.XII.2000, Monte Ulía.

Sphaerophoria taeniata (Meigen, 1822)
Guipúzcoa: ♂, 6.VII.2000, Miramon.

Sphaerophoria spec.
Guipúzcoa: ♀, 2.V.2000, Monte Ulía.

Syrphus ribesii (Linnaeus, 1758)
Alava: 2♀, 31.VII.2000, Monte Aratz.
Guipúzcoa: ♂, 26.VI.2000, Monte Ulía; ♀, 10.VII.2001, Monte Ulía.

Syrphus vitripennis Meigen, 1822
Guipúzcoa: ♀, 12.VII.2001, Miramon; ♂, 13.VII.2001, Galeseno; ♀, 19.VIII.2000, Monte Ulía; ♀, 18.X.2000, Monte Ulía.

Xanthandrus comtus (Harris, [1780])
Guipúzcoa: ♂, 19.V.2000, Monte Ulía; ♀, 7.VI.2000, Miramon.

Xanthogramma pedissequum (Harris, [1776])
Guipúzcoa: 2♂ 1♀, 7.VI.2000, Miramon; ♂, 14.VII.2001, Monte Ulía; ♂, 8.VIII.2000, Monte Ulía; ♂, 18.VIII.1999, Monte Ulía; ♀, 16.IX.1997, Monte Ulía.

Subfamily Eristalinae

Cheilosia albitarsis agg. (Meigen, 1822)
Guipúzcoa: ♀, 8.VI.2000, Galeseno.
At present females of *Ch. albitarsis* can not be distinguished from the newly described *Cheilosia ranunculi* Doczkal, 2000.

Cheilosia bergenstammi Becker, 1894
Alava: ♀, 31.VII.2000, Araia.

Cheilosia impressa Loew, 1840
Guipúzcoa: ♂ ♀, 13.V.2000, Galeseno; ♀, 9.VI.1999, Galeseno; ♂ ♀, 10.VII.2001, Monte Ulía; ♂ ♀, 13.VII.2001, Galeseno; ♂, 18.VII.2000, Galeseno; ♀, 5.X.2001, Monte Ulía.

Cheilosia latifrons (Zetterstedt, 1843)
Guipúzcoa: ♀, 18.V.1999, Monte Ulía; ♂, 8.VII.2000, Miramon; ♂, 4.X.2001, Monte Ulía; ♂, 5.X.2001, Monte Ulía; ♀, 8.X.2001, Monte Ulía; ♀, 28.X.2000, Galeseno.

Cheilosia longula (Zetterstedt, 1838)
Alava: ♀, 31.VII.2000, Araia.
Guipúzcoa: ♀, 17.VII.2000, Monte Ulía; 4♀, 19.VII.2000, Monte Ulía; ♂, 11.IX.1999, Monte Ulía.

Cheilosia mutabilis (Fallén, 1817)
Guipúzcoa: ♂, 19.V.2000, Monte Ulía; 4♂ 1♀, 26.V.1999, Monte Ulía; 2♀, 28.V.2000, Monte Ulía; ♀, 14.VI.2000, Monte Ulía; ♂, 26.VI.1999, Monte Ulía.

Cheilosia nigripes (Meigen, 1822)
Guipúzcoa: 2♀, 5.V.2000, Galeseno; ♀, 26.V.1999, Monte Ulía; 2♀, 4.VI.1999, Santa Barbara.

Cheilosia pagana (Meigen, 1822)
Guipúzcoa: ♂, 24.IV.2000, Galeseno; ♂ ♀, 29.IV.2000, Monte Ulía; ♀, 11.V.1999, Monte Igeldo;

2♀, 13.V.2000, Galeseno; 2♂ 2♀, 4.VI.1999, Santa Barbara, on *Galium* spec.; ♀, 7.VI.2000, Miramon; ♀, 8.VI.2000, Galeseno; ♀, 9.VI.1999, Galeseno; 3♀, 28.VI.2000, Arbide; ♀, 3.VII.1999, Galeseno; ♀, 6.VII.2000, Miramon; 2♂ 3♀, 13.VII.2001, Galeseno; ♀, 5.X.2001, Monte Ulía; 6♀, 8.X.2001, Monte Ulía; ♂ ♀, 15.X.1999, Galeseno.
Navarra: ♂, 12.VI.1999, Betelu – Valle de Araxes.

Cheilosia proxima (Zetterstedt, 1843)
Guipúzcoa: ♀, 6.VII.2000, Miramon; ♀, 18.VII.2000, Oñate – Barrio de Araotz.

Cheilosia scutellata (Fallén, 1817)
Guipúzcoa: ♂ ♀, 10.VII.2001, Monte Ulía; 2♂, 17.VII.2000, Monte Ulía; ♂ ♀, 18.VII.2000, Oñate – Barrio de Araotz; ♂, 7.VIII.2000, Camping Txiki; ♂, 18.VIII.1999, Monte Ulía; ♂, 19.VIII.2000, Monte Ulía; ♂, 3.IX.2000, Monte Ulía; 2♀, 9.IX.1999, Monte Ulía.

Cheilosia soror (Zetterstedt, 1843)
Guipúzcoa: ♀, 18.VII.2000, Oñate – Barrio de Araotz.

Cheilosia vernalis agg. (Fallén, 1817)
Guipúzcoa: 2♂, 15.IX.1999, Monte Ulía; ♀, 5.X.2001, Monte Ulía; ♀, 8.X.2001, Monte Ulía. Due to the high variability in coloration in this species, discussions are being held wether *Ch. vernalis*, as it is understood today, is actually a species complex (Speight 2001).

Cheilosia vulpina (Meigen, 1822)
Guipúzcoa: ♀, 18.VII.2000, Oñate – Barrio de Araotz.

Chrysogaster solstitialis (Fallén, 1817)
Guipúzcoa: ♂, 26.V.1999, Monte Ulía.
Navarra: ♀, 12.VI.1999, Betelu – Valle de Araxes; 2♀, 18.VII.2000, Oñate – Valle de Araotz.

Criorhina ranunculi (Panzer, [1804])
Navarra: ♀, 1.V.2000, Finca de Artikutza.

Eristalinus sepulchralis (Linnaeus, 1758)
Guipúzcoa: ♂, 7.VIII.2000, Camping Txiki.

Eristalis arbustorum (Linnaeus, 1758)
Guipúzcoa: ♂, 6.V.2000, Miramon; ♀, 11.V.1999, Monte Igeldo; ♂ ♀, 26.V.1999, Monte Ulía; ♂, 7.VI.2000, Miramon; ♂ ♀, 9.VI.1999, Galeseno; 2♀, 6.VII.2000, Miramon; 2♀, 13.VII.2001, Galeseno; ♀, 21.VIII.1999, Galeseno.
Navarra: ♂ ♀, 12.VI.1999, Larraun – Valle de Araxes.

Eristalis interrupta (Poda, 1761)
Navarra: ♂, 12.VI.1999, Larraun – Valle de Araxes.

Eristalis pertinax (Scopoli, 1763)
Guipúzcoa: ♀, 22.II.2000, Monte Ulía; ♂, 1.IV.2000, Monte Ulía; ♂, 18.VII.2000, Galeseno.

Eristalis similis (Fallén, 1817)
Guipúzcoa: ♂, 1.IV.2000, Monte Ulía; ♂, 26.V.1999, Monte Ulía; ♀, 18.VII.2000, Galeseno; ♀, 16.IX.1997, Monte Ulía; ♂, 8.X.2001, Monte Ulía.

Eristalis tenax (Linnaeus, 1758)
Guipúzcoa: ♀, 11.V.1999, Monte Igeldo; ♀, 18.V.1999, Monte Ulía, ♂, 26.V.1999, Monte Ulía; ♂, 9.VI.1999, Galeseno; ♂, 17.VI.2000, Galeseno; ♀, 6.VII.2000, Miramon; ♀, 12.VII.2001, Miramon.

Eumerus amoenus Loew, 1848
Guipúzcoa: ♂, 26.VI.1999, Monte Ulía; ♂, 26.VI.2000, Monte Ulía; ♂, 28.VI.2000, Arbide; ♀, 10.VII.1999, Santa Barbara; ♂, 13.VII.2001, Galeseno; ♂, 17.VII.2000, Monte Ulía.

Eumerus flavitarsis Zetterstedt, 1843
Guipúzcoa: ♂, 7.VI.2000, Miramon; ♀, 10.X.2001, Monte Ulía.

Eumerus funeralis Meigen, 1822
Guipúzcoa: ♂, 26.VI.2000, Monte Ulía; ♀, 3.IX.2000, Monte Ulía; ♀, 9.IX.2000, Galeseno.
E. funeralis has recently been discovered to be identical with *E. tuberculatus* Rondani, 1857 by Speight et al. (1998).

Eumerus nudus Loew, 1848
Guipúzcoa: ♀, 14.VI.2000; Monte Ulía, on *Ranunculus* spec; ♂, 17.VI.2000, Monte Ulía; ♂, 3.VII.1999, Galeseno; 6♂ 1♀, 13.VII.2001, Galeseno; ♂ ♀, 18.VIII.1999, Monte Ulía, coll. Doczkal; ♀, 8.X.2001, Monte Ulía.

Eumerus pulchellus Loew, 1848
Guipúzcoa: ♂, 24.IV.2000, Galeseno; ♂, 8.VI.2000, Galeseno; 2♂, 14.VI.2000; Monte Ulía; 5♂, 13.VII.2001, Galeseno; 2♂, 18.VII.2000, Galeseno; 3♂, 9.IX.2000, Galeseno.
One specimen (♂, 14.VI.2000) was observed taking up pollen on a leaf of *Bromus*, as it is known for species of *Xylota*.

Eumerus cf. *pulchellus* Loew, 1848
Guipúzcoa: 2♀, 18.VII.2000, Galeseno.

Eumerus ♀ indet.
Guipúzcoa: ♀, 29.IV.2000, Monte Ulía; 4♀, 13.V.2000, Galeseno; ♀, 17.VI.2000, Monte Ulía; ♀, 28.VI.2000, Arbide; 3♀, 9.IX.2000, Galeseno; ♀, 30.X.2000, Monte Ulía.
According to Doczkal (pers. comm.), these female specimens are currently not distinguishable.

Ferdinandea cuprea (Scopoli, 1763)
Guipúzcoa: ♀, 20.III.2000, Miramon; ♂, 29.IV.2000, Monte Ulía; ♀, 27.VI.2000, Alto de Zorroaga; ♀, 18.VIII.1999, Monte Ulía.

Helophilus trivittatus (Fabricius 1805)
Guipúzcoa: ♂ ♀, 8.VI.2000, Galeseno; ♀, 16.IX.1997, Monte Ulía.

Merodon aeneus agg. Megerle in Meigen, 1822
Guipúzcoa: ♂, 24.IV.2000, Galeseno; 1♂ 2♀, 5.V.2000, Galeseno.
Hurkmans (1993) did not treat this species in the first part of his monograph of *Merodon*. Further studies might reveal a species complex behind the current limits of this species.

Merodon parietum Wiedemann in Meigen, 1822
Guipúzcoa: ♂ ♀, 2.V.2000, Monte Ulía; ♀, 5.V.2000, Galeseno; 2♂, 13.V.2000, Galeseno; ♀, 19.V.2000, Monte Ulía; ♂, 26.V.1999, Monte Ulía; ♀, 14.VI.2000, Monte Ulía.
Untill recently, this species has only been known to occur in Portugal, southern France and Greece (?) (Speight 2001). Marcos-García & Louis (in print) provide first data for Spain. At Monte Ulía, the species could frequently be found on the flowers of *Cistus salviifolius* L.

Merodon spec.
Guipúzcoa: 2♀, 5.V.2000, Galeseno.
These two females seem to belong to a hitherto undescribed species (Speight pers. comm.). They were found at Galeseno, flying together with *M. aeneus* agg. and *M. parietum*.

Milesia crabroniformis (Fabricius, 1775)
Guipúzcoa: ♂, 18.VII.2000, Galeseno.

Myolepta dubia (Fabricius, 1805)
Guipúzcoa: ♂, 18.VII.2000, Oñate – Barrio de Araotz.

Neoascia podagrica (Fabricius, 1775)
Guipúzcoa: ♂ ♀, 24.IV.2000, Galeseno; ♀, 29.IV.2000, Monte Ulía; ♀, 5.V.2000, Galeseno; 2♀, 11.V.1999, Monte Monte Igeldo; 3♂, 13.V.1999, San Sebastián; ♀, 6.VI.2000, Monte Ulía; ♂, 8.VI.2000, Galeseno; ♂, 9.VI.1999, Galeseno; ♀, 16.VI.1999, Irura; 2♂, 17.VI.2000, Monte Ulía; 2♂, 28.VI.2000, Miramon; 3♂, 3.VII.1999, Galeseno; ♂, 10.VII.1999, Santa Barbara; ♂, 10.VII.2001, Monte Ulía; ♂ ♀, 11.VII.2001, Peine del Viento; ♂ ♀ (in copula), 7.VIII.2000,

Camping Txiki; ♀, 9.IX.2000, Galeseno; ♀, 17.IX.2000, Monte Ulía; ♀, 23.IX.2000, Miramon; ♀, 4.X.2001, Monte Ulía; ♀, 5.X.2001, Monte Ulía; ♀, 8.X.2001, Monte Ulía.

Orthonevra nobils (Fallén, 1817)
Alava: ♂, 31.VII.2000, Araia.

Pelecocera tricincta Meigen, 1822
Guipúzcoa: 1♂ 3♀, 29.IV.2000, Monte Ulía; 4♂, 4.V.2000, Monte Ulía; 2♂ 2♀, 11.V.2000, Monte Ulía; ♀, 13.V.2000, Galeseno; 3♂ 7♀, 19.V.2000, Monte Ulía; ♂, 26.V.1999, Monte Ulía; 4♂ 1♀, 26.V.2000, Monte Ulía; 1♂ 2♀, 6.VI.2000, Monte Ulía; 4♂ 3♀, 14.VI.2000, Monte Ulía; 3♀, 17.VI.2000, Monte Ulía; 3♀, 26.VI.1999, Monte Ulía; 3♀, 26.VI.2000, Monte Ulía; ♀, 28.VI.2000, Miramon; 2♂ 1♀, 1.VII.2000, Monte Ulía; 5♂ 4♀, 10.VII.2001, Monte Ulía; 1♂ 2♀, 11.VII.2000, Monte Ulía; 1♂ 4♀, 14.VII.2001, Monte Ulía; 4♂ 9♀, 17.VII.2000, Monte Ulía; 1♂ 6♀, 8.VIII.2000, Monte Ulía; 2♂, 18.VIII.1999, Monte Ulía; 3♀, 19.VIII.2000, Monte Ulía; 6♂ 3♀, 3.IX.2000, Monte Ulía; 5♀, 9.IX.1999, Monte Ulía; 6♀, 17.IX.2000, Monte Ulía; 5♀, 27.IX.1999, Monte Ulía; 22♂ 35♀, 4.X.2001, Monte Ulía; ♂ ♀, 4.X.2001; Monte Ulía, in copula; ♂ ♀, 4.X.2001, Monte Ulía, in copula; ♀, 5.X.2001, Monte Ulía; ♂ ♀, 6.X.1999, Monte Ulía; 7♂ 5♀, 7.X.2000, Monte Ulía; 9♂ 6♀, 10.X.2001, Monte Ulía; ♀, 15.X.1999, Monte Ulía; 5♂ 1♀, 18.X.2000, Monte Ulía; 2♂ 4♀, 22.X.2000, Monte Ulía; ♀, 24.X.1999, Monte Ulía; 4♂ 8♀, 30.X.2000, Monte Ulía; ♂ ♀, 6.XI.2000, Monte Ulía; ♂ ♀, 14.XI.2000, Monte Ulía.
For a detailed discussion with ecological notes see underneath.

Pipizella cantabrica Claussen, 1991
Guipúzcoa: ♂, 29.IV.2000, Monte Ulía; 2♂, 19.V.2000, Monte Ulía; ♂, 26.V.1999, Monte Ulía; ♂, 6.VI.2000, Monte Ulía; ♂, 26.VI.2000, Monte Ulía; ♂, 3.VII.1999, Galeseno, coll. Stuke; 2♂, 7.VIII.2000, Camping Txiki; ♂, 4.X.2001, Monte Ulía; ♂, 8.X.2001, Monte Ulía; ♂, 22.X.2000, Monte Ulía.
Described from a montain region in northern Spain by Claussen (1991), Verlinden (1996) gives data from the Italian Alps. In the area around San Sebastián, *P. cantabrica* seems to be quite frequent, with two generations per year.
At Monte Ulía, the flies were caught while hovering between high ground vegetation along tracksides and while feeding on white umbellifers (also see "Study Sites"), whereas at Camping Txiki, the flies were collected in a small piece of high growing fallow surrounded by cow pasture. The single male from Galeseno was taken on a coastal path traversing slopes covered by matorral.

Pipizella spec.
Guipúzcoa: ♀, 29.IV.2000, Monte Ulía; ♀, 6.V.2000, Miramon; ♀, 19.V.2000, Monte Ulía; ♀, 8.VI.2000, Galeseno; ♀, 26.VI.2000, Monte Ulía; ♀, 19.VIII.2000, Monte Ulía; ♀, 5.X.2001, Monte Ulía; ♀, 7.X.2000, Monte Ulía.

Rhingia campestris Meigen, 1822
Guipúzcoa: ♀, 21.VIII.1999, Galeseno; ♂, 9.IX.2000, Galeseno.

Syritta pipiens (Linnaeus, 1758)
Guipúzcoa: ♂ ♀, 24.IV.2000, Galeseno; ♀, 11.V.1999, Monte Monte Igeldo; ♂, 13.V.1999, San Sebastián; 2♂ 1♀, 13.VII.2001, Galeseno.

Trichopsomyia flavitarsis (Meigen, 1822)
Guipúzcoa: ♀, 29.IV.2000, Monte Ulía.

Volucella bombylans (Linnaeus, 1758)
Guipúzcoa: ♀, 14.VI.2000, Monte Ulía; ♂, 5.-19.VI.1999, Mendaro, white pitfall trap fixed at a tree trunk, leg. A. de Castro; ♀, 3.-17.VII.1999, Arraste, white pitfall trap fixed at a tree trunk, leg. A. de Castro.

Volucella inanis (Linnaeus, 1758)
Guipúzcoa: ♂, 21.VIII.1999, Galeseno.

Volucella pellucens (Linnaeus, 1758)
Guipúzcoa: ♀, 18.VIII.1999, Monte Ulía.

Volucella zonaria (Poda, 1761)
Guipúzcoa: ♀, 18.VIII.1999, Monte Ulía.

Xylota segnis (Linnaeus, 1758)
Guipúzcoa: ♂, 6.IV.2000, Miramon, yellow pan-trap; ♂, 6.-7.IV.2000, Miramon, yellow pan-trap; ♂, 14.VI.2000, Monte Ulía; ♀, 17.VI.2000, Monte Ulía; ♂, 9.IX.1999, Monte Ulía.

Xylota sylvarum (Linnaeus, 1758)
Guipúzcoa: ♂, 18.VII.2000, Galeseno.

Notes on *Pelecocera tricincta* Meigen, 1822

Information on the biology of the three Palaearctic species of the genus *Pelecocera* Meigen, 1822 is rather scarce. So far, nothing is known about the larval habitat of the entire tribe Pelecocerinae, which comprises the genera *Chamaesyrphus* and *Pelecocera*.

Within the above mentioned observation period, 238 specimens were collected at Monte Ulía, divided into 96 ♂ and 142 ♀. However, on most collecting trips many more individuals were seen. In 1999 the last specimen was taken on October 24th, whereas in 2000 the species could be found on every excursion from 29.IV.2000 to 14.XI.2000.

Feeding: In table 1 the flowers visited by *P. tricincta* at the study site are recorded, together with additional flower visiting-records from elswhere, taken from Röder (1990) and Speight (2001). The literature records are indicated by an asterisk in the table. *Hypochoeris radicata*, *Picris hieracioides* and *Cistus salviifolius* were the most popular flowers visited by *P. tricincta* at Monte Ulía. On occasions, up to five specimens of *P. tricincta* (♂ and ♀) were recorded feeding upon one flower at the same time. In such cases, the flies do not seem to bother each other or struggle for the best position, but they tend to place themselves symmetrically on the flower, so that a maximum distance to their neighbours is achieved. This is especially striking on the wide and even *Cistus* flowers, in comparision to *Picris* for example. On the latter, walking or moving is more difficult due to the many petals. The selection of and approach to a flower by *P. tricincta* is rather cautious. The animals fly rather slowly at the upper surface of the herbal strata, compared to *Sphaerophoria* species for example, looking for possible food sources. Once a flower is spotted, the fly approaches it from the side and hovers for some seconds, some centimetres laterally/obliquely above the flower, finally settling down at the outer edge and crawling to the centre. Otherwise they fly off and carry on with their search. Feeding on a *Picris* flower, for example, normally starts with taking up nectar at the bottom of the flower. In many cases the flies (only ♀ ?) then started dotting the peduncle stalks, one after the other, up to the pistil, taking up pollen. While feeding, the flies do not seem to be frightened easily and can even be touched.

If not feeding, *P. tricincta* can be frequently found resting on leaves or stalks of herbaceous plants close to their food source. There, the animals are resting or busy cleaning themselves, normally orientated head downwards while doing so. While observed during rest, the flies sometimes see-sawed obliquely towards the front.

Tab. 1: **Flowers visited by *P. tricincta*** at Monte Ulía, including literature records not confirmed at Monte Ulía and indicated by an asterisk.

Taxon	Colour
Asteraceae	
Bellis perennis L.	white-yellow
**Cirsium palustre* (L.) Scop.	purple
Crepis capillaris (L.) Wallr.	yellow
Crepis vesicaria subsp. *taraxacifolia* (Thuill.) Thell. ex Schinz & R. Keller	yellow
**Hieracium pilosella*	yellow
Hypochoeris radicata L.	yellow
Lapsana communis L.	yellow
Leontodon taraxacoides (Vill.) Mérat	yellow
Picris hieracioides L.	yellow
Pulicaria dysentrica (L.) Bernh.	yellow
Ranunculus acris L.	yellow
Ranunculus repens L.	yellow
Ranunculus tuberosus Lapeyr.	yellow
Sonchus oleraceus L.	yellow
Solidago virgaurea L.	yellow
Taraxacum officinale Weber	yellow
Rosaceae	
Cistus salviifolius L.	white-yellow
Potentilla erecta (L.) Raeuschel	yellow
Apiaceae	
Conopodium majus (Gouan) Loret	white
Ericaceae	
Calluna vulgaris (L.) Hull	reddish-violet
Liliaceae	
**Narthecium* Huds.	
Crassulaceae	
**Sedum acre* L.	yellow

Mating: Mating or attempted mating could be observed on the following dates: 26.V.2000; 6.VI.2000; 14.VI.2000; 26.VI.2000; 17.VII.2000; 18.VIII.1999; 4.X.2001. The ♂ of *P. tricincta* do not seem to possess a strong territorial behaviour. In order to meet a partner, the flowers are very important. Several times it was observed, that flying ♂ suddenly plunged upon feeding ♀, in some cases various ♂ at a time, struggling for the ♀. On 26.V.2000 two ♂ were observed struggling for one ♀ on a flower. After one ♂ managed to connect to the ♀, the couple orientated itself in an end-to-end position with the other ♂ still trying to interfere, but finally giving up (fig. 2). After some minutes the couple flew away, on being disturbed by another insect landing on the flower. Only once, was an attempted copulation observed while a ♀ was resting on a stalk.

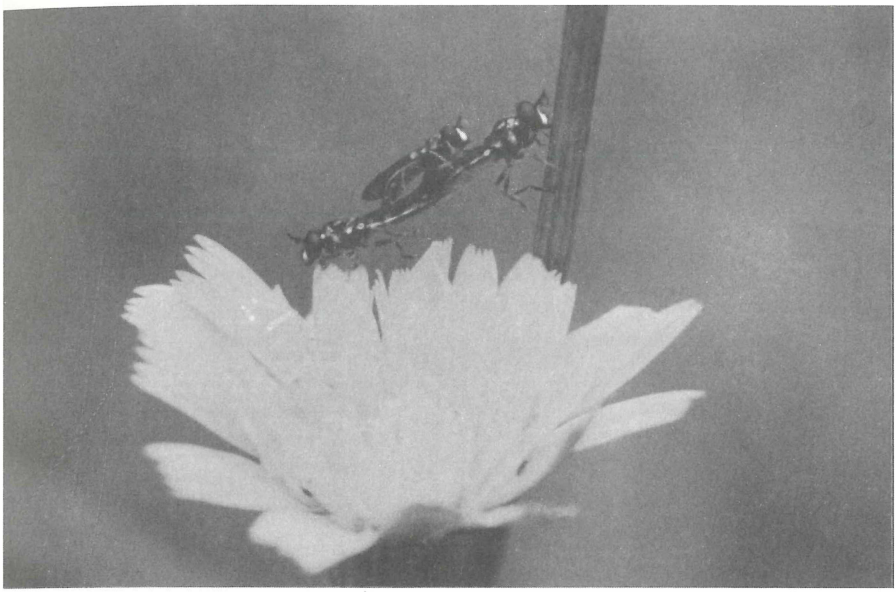

Fig. 2: *P. tricincta* in copula on a flower of *Picris hieracioides*, including a second ♂ trying to interfere. Photo: Ch. Kehlmaier, San Sebastián, 26.V.2000.

Variation in size and coloration: After examining the first obtained specimens of *P. tricincta*, it was obvious that there exists a large variability within the species, concerning body length and coloration of abdomen and legs. In ♂, the average body length is 4.9 mm (median 5.0 mm), ranging from 3.0 mm to 6.5 mm (fig. 3). The slightly larger ♀ have an average size of 5.6 mm (median 5.5 mm), ranging from 3.7 mm to 7.9 mm (fig. 4). Coloration varied in both sexes, from small and dark specimens to large and pale flies with broad yellow bands and almost entirely yellow legs. This circumstance is shown in figs. 5 and 6, where the area of abdominal markings is compared to total body length. It is of particular interest that both small dark and large pale flies do occur throughout the year.

Discussion

Knowledge of the Syrphidae of northern Spain is rather limited. Marcos-García et al. (1998) list 22 species in the subfamilies Syrphinae and Microdontinae that have been recorded from the Provinces of Guipúzcoa and Navarra in the past. From Alava, not a single species had been reported so far. With an earlier article dealing with syrphids from Navarra (Kehlmaier 2001) and the findings presented here, it becomes

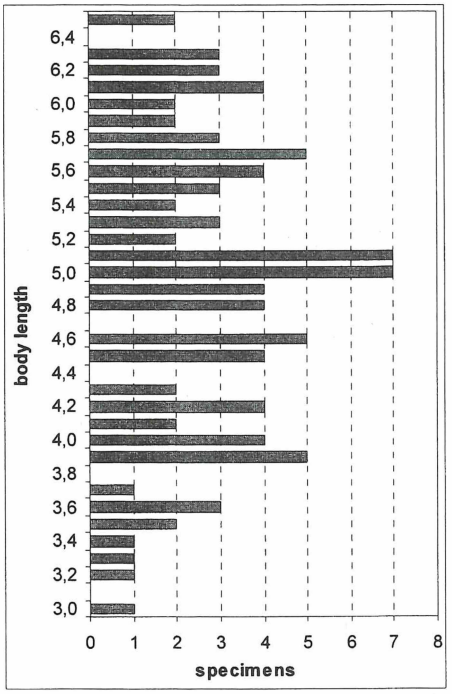

Fig. 3: Body length in ♂ (n=96). Average body length: 4.9 mm. Median: 5.0 mm.

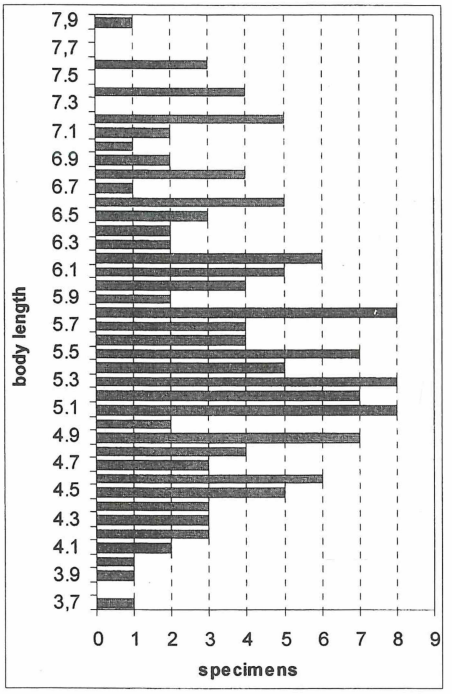

Fig. 4: Body length in ♀ (n=142). Average body length: 5.6 mm. Median: 5.5 mm.

obvious that syrphid faunistical work in the non-mediterranean part of the Iberian Peninsula is certainly worthwhile.

Pelecocera tricincta has proved to be one of the most abundant and frequent hoverflies at Monte Ulía. Flying from spring till late autumn, it can be assumed that at least two if not three overlapping generations develop during the year, as indicated by the continuous presence of specimens from April to November, and the co-existence of newly emerged ♂ with ♀ displaying fully developed eggs in their abdomen, as noted at the beginning of September. At that stage of the year, a strong rise in numbers of small ♂ feeding on flowers was noted, compared to the summer months.

Due to the high variability of abdominal coloration and body size, the question arose whether there could be two distinct species present. However, this hypothesis has to be discarded because of the following two observations:

- Two couples were taken at 4.X.2001 and measured: ♂ 5.9 mm / ♀ 6.6 mm resp. ♂ 3.9 mm / ♀ 7.2 mm.
- The genitalia of smaller and larger ♂ proved to be identical.

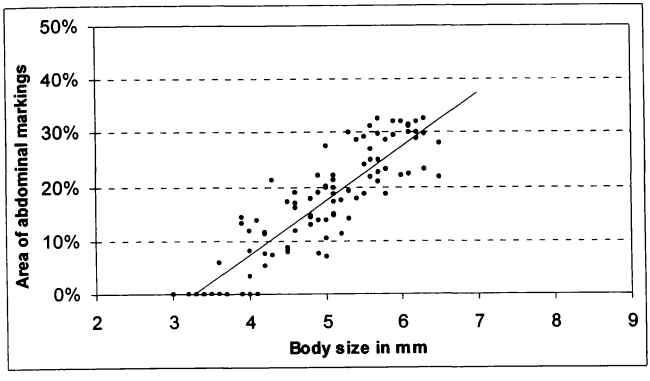

Fig. 5: Area of abdominal coloration in ♂ (n=96), including a trend-line.

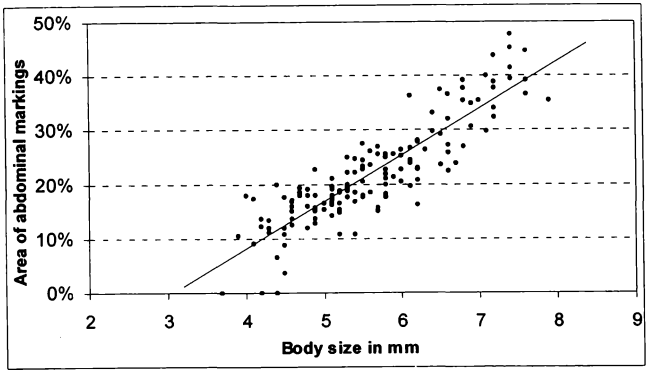

Fig. 6: Area of abdominal coloration in ♀ (n=144), including a trend-line.

Unfortunatly, no direct observations were made concerning the deposition of eggs or larval habitats. Despite of the easy observation of the flies while feeding on flowers, it turned out to be very hard to pursue them, while they were on the wing. If definite information were available on larval microhabitat and requirements, it could become possible to understand the high variability of abdominal coloration and body size. In other syrphid species, e.g. *Eupeodes corollae*, body coloration depends on the temperature range experienced by the individual during its pupal stage, resulting in the presence of darker flies in spring-time and paler specimens during the summer months (Dušek & Láska 1974). Body size, however, does not seem to be affected in this example. Unfortunatly, in the case of *P. tricincta*, varying temperature during pupal stage cannot be the only explanation, due to the co-existance of small dark and large pale specimens throughout the year.

Tab. 2: Collection sites

Province of Alava

Locality	*Altitude*	*U.T.M. coordinates*
Araia	600m	30TWN5649, 5549
Monte Aratz	1400m	30TWN5652
Narvaja	600m	30TWN4851, 4850

Province of Guipúzcoa

Locality	*Altitude*	*U.T.M. coordinates*
Alto de Zorroaga (San Sebastián)	50m	30TWN8394
Arbide (San Sebastián)	70m	30TWN8294
Arrasate	450m	30TWN4070
Camping Txiki	50m	30TWN9197
Galeseno (San Sebastián)	20-80m	30TWN7896
Irura	150m	30TWN7480
Mendaro	225m	30TWN4990
Miramon (San Sebastián)	100m	30TWN8293
Monte Igeldo (San Sebastián)	10-180m	30TWN8097
Monte Ulía (San Sebastián)	50-200m	30TWN8398, 8498, 8598, 8597
Monte Urgull (San Sebastián)	50m	30TWN8297, 8197
Oñate – Barrio de Araotz	530m	30TWN4460
Parque Cristina Enea (San Sebastián)	20m	30TWN8396
Peine del Viento (San Sebastián)	0m	30TWN8097
San Sebastián	60m	30TWN8496
Santa Barbara (Hernani)	60m	30TWN8191

Province of Navarra

Locality	*Altitude*	*U.T.M. coordinates*
Betelu - Valle de Araxes	230m	30TWN8364
Etxauri	420m	30TWN9738
Finca de Artikutza	600-700m	30TWN5947
Larraun - Valle de Araxes	310m	30TWN8464
Sierra de Aralar	800m	30TWN8455

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