

## CONTRIBUTION TO THE KNOWLEDGE OF THE AUCHENORRHYNCHA FAUNA OF CENTRAL ITALY (HEMIPTERA, FULGOROMORPHA ET CICADOMORPHA)<sup>1</sup>

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Key words: Additional species to the Italian fauna, Autecology, Biogeography, Distribution of species in Italy, Faunistics, Nomenclature, Species set of biotopes, Taxonomy, Vertical distribution.

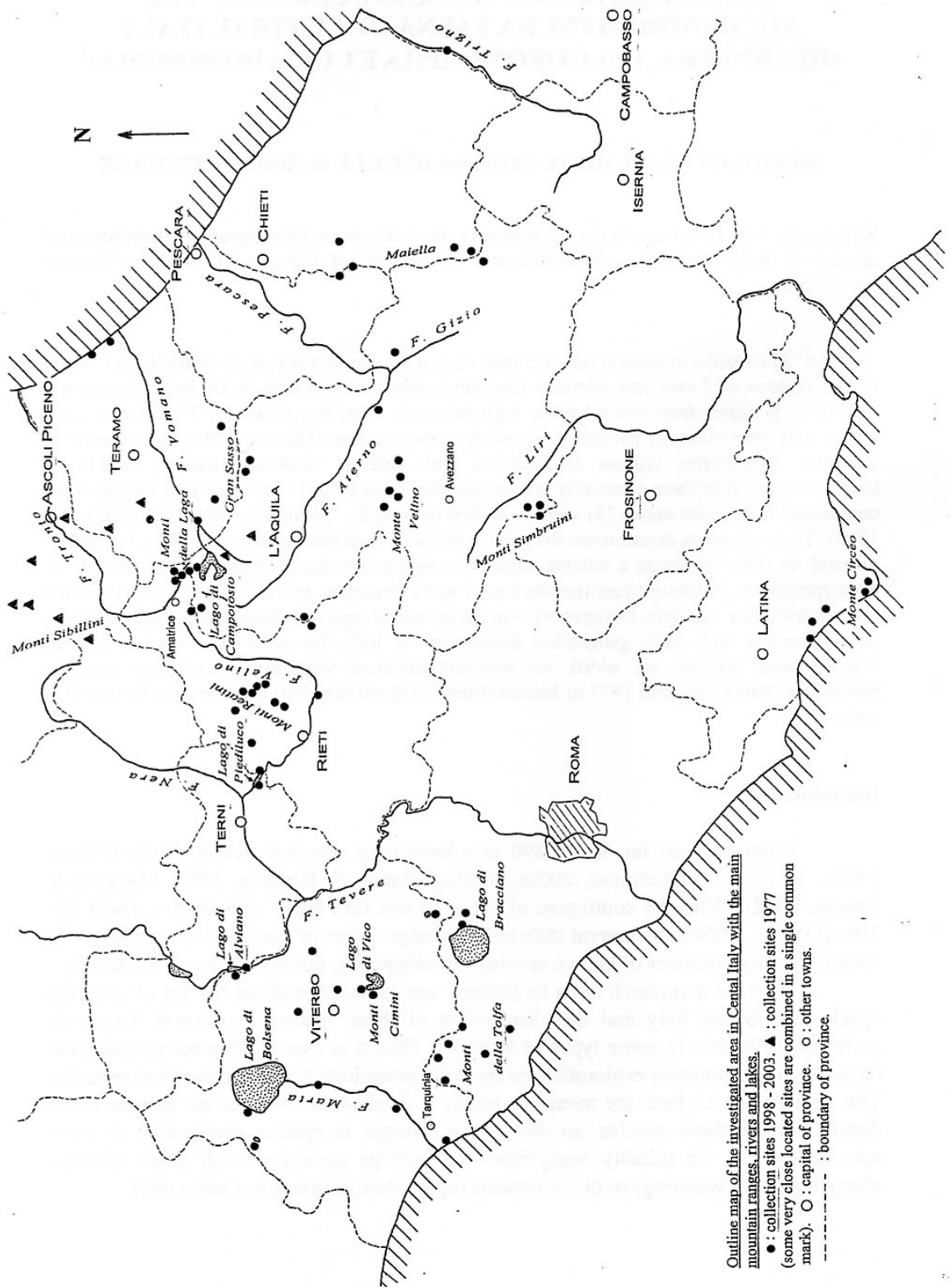
Abstract: The results of several research trips carried out during the past six years in the Central Italian regions of Lazio and Abruzzo (including only few localities in Umbria), covering a variety of biotopes from coastal up to high mountain sites, are presented: 331 species were found, 3 of them - already published separately - new to science (*Kelisia italica* Guglielmino & Remane, *Rhopalopyx cigigas* Guglielmino and *Euscelis venitala* Remane, Bückle & Guglielmino), 10 of them apparently not yet recorded from Italy, 11 probably first records from continental Italy, even more (38) seem to be first records for "peninsular" Italy ("S" of D'Urso, 1995). These numbers demonstrate the gaps in previous research as well as the need for further research in order to obtain a reliable basis to recognize the change of species distribution or even species set in future times (results e.g. of global warming, pollution etc.). For all species their distribution - altitude, biotopes etc. - in the examined region is discussed, for some of them in comparison with their geographic distribution in Italy, for some taxa taxonomical or nomenclatural remarks are added. An appendix mentions some taxa (3 of them new for peninsular Italy) collected 1977 in Marche/Umbria (Monti Sibillini) and Abruzzo by the third author.

### Introduction

From Italy so far nearly 890 taxa have been reported (Alma, 1999; D'Urso, 1995a, b, 2000; Guglielmino, 2002a, b; Guglielmino & Remane, 2002; Mazzoni & Lucchi, 2002). With the contingent of yet unknown taxa being estimated at about 20-30% (D'Urso, 2000), the current state of knowledge of this interesting insect group is, in spite of the high number of known species and subspecies, unsatisfactory on the whole.

The present research aims to increase our knowledge about the set of cicadina species inhabiting Italy and the distribution of these species in Central Italy with particular reference to some types of biotopes. Thus it is essentially a biogeographical (chorological, faunistic) exploration enlarged by autecological and taxonomical remarks. The data presented here are meant to supply a database for the current presence and distribution of these species, so that future changes in species distribution or even species set may be reliably recognized and perhaps correlated with either climatic changes (global warming) or direct impacts (agriculture, tourism, pollution etc.).

<sup>1</sup>The authors have equally contributed to this article.



## Material and Methods

The insects were collected prevalently in Abruzzo and Lazio (the few localities in Umbria are only few km distant from the border of Lazio). The principal mountain ranges (Monti Reatini, Monti della Laga, Gran Sasso, Maiella, Monti Simbruini, Monte Velino-region) were explored and, in addition, areas of low and medium altitude such as: low mountains (Monti Cimini, Monti della Tolfa) or hilly country (Monte Circeo, hinterland of Tarquinia, hills north of Monti Cimini); in particular a quite detailed research was effected in areas near lakes (Alviano, Bolsena, Bracciano, Campotosto, Mezzano, Monterosi, Piediluco, Vico), rivers (Aterno, Gizio, Marta, Tevere, Tordino, Tronto, Vomano) and the seashore (Circeo, Tarquinia, mouth of Tordino river, Roseto degli Abruzzi).

The samplings were conducted for 6 years (1998-2003) applying two collection methods: a) by entomological net and aspirator, b) directly by sight of single specimens by means of the aspirator.

In the following list of collection sites some localities were indicated repeatedly because the samplings were effected there on different dates and/or in different biotopes. In addition, for each site we indicate: toponym, altitude, collection date, vegetation type characterizing the respective area and, if available, the plants where the insects were found.

### List of collection sites

- 0) Abruzzo (L'Aquila): Gran Sasso, Campo Imperatore; ~ 1800m; 6/7/1998; pasture of high mountain.
- 1) Abruzzo (L'Aquila): Monti Simbruini, Civitella Roveto, M. Viglio; ~ 2100m; 8/8/1998; pasture of high mountain.
- 2) Abruzzo (L'Aquila): Monti Simbruini, Civitella Roveto, M. Viglio; ~ 1800m; 8/8/1998; pasture of high mountain.
- 3) Abruzzo (L'Aquila): Monti Simbruini, Civitella Roveto, M. Viglio, near Rifugio Cerasoli; ~ 1650m; 9/8/1998; beech forest.
- 4) Abruzzo (L'Aquila): Monti Simbruini, Civitella Roveto, M. Viglio; ~ 1400-1500m; 9/8/1998; beech forest.
- 5) Abruzzo (L'Aquila): Monti Simbruini, Civitella Roveto, M. Viglio; 1200m; 10/8/1998; forest with *Fagus* sp. and *Ostrya carpinifolia* Scop..
- 6) Abruzzo (L'Aquila): Monti Simbruini, Civitella Roveto, M. Viglio; ~ 1200m; 10/8/1998; mixed forest and clearings.
- 7) Abruzzo (L'Aquila): Monti Simbruini, Civitella Roveto, M. Viglio, Meta; ~ 1100m; 11/8/1998; degraded open areas.
- 8) Abruzzo (L'Aquila): Monti Simbruini, Civitella Roveto, M. Viglio, north of Meta; ~ 1000m; 11/8/1998; meadows with *Salix*, *Populus nigra* L., *Quercus*.
- 9a) Abruzzo (L'Aquila): west of Rocca di Mezzo; ~1350m; 12/8/1998; pasture.
- 9b) Abruzzo (L'Aquila): west of Rocca di Mezzo; ~1350m; 12/8/1998; on *Salix*.
- 9c) Abruzzo (L'Aquila): west of Rocca di Mezzo; ~1350m; 12/8/1998; on *Acer* and *Populus*.
- 10) Abruzzo (L'Aquila): Rocca di Mezzo, pass near Piano di Ceraso; 1577m; 13/8/1998; pasture of high mountain.
- 11) Abruzzo (L'Aquila): M. Velino, mountain ridge north of Piano di Pezza; ~ 1800m; 13/8/1998; pasture of high mountain.
- 12) Abruzzo (L'Aquila): west of Rocca di Mezzo; ~1350m; 14/8/1998; mixed forest.
- 13) Abruzzo (L'Aquila): Ovindoli; ~ 1350m; 14/8/1998; pine forest.

- 14) Abruzzo (L'Aquila): east of Ovindoli; 1350m; 14/8/1998; pasture with rare *Salix* and *Populus*.
- 15) Abruzzo (L'Aquila): between Secinaro and Molina Aterno; ~ 700m; 15/8/1998; meadows with *Acer* and *Quercus*.
- 16) Abruzzo (L'Aquila): between Secinaro and Molina Aterno; ~ 700m; 16/8/1998; meadows with *Acer* and *Quercus*.
- 17) Abruzzo (L'Aquila): Aterno river south of Molina Aterno; ~ 500m; 16/8/1998; meadow.
- 18) Abruzzo (L'Aquila): Sulmona, near Pratola; ~ 300m; 17/8/1998; vegetation near the Gizio river.
- 19) Abruzzo (Chieti): Maiella, Campo di Giove, Valico Forchetta; ~ 1300m; 17/8/1998; pasture.
- 20) Abruzzo (L'Aquila): south of Pescocostanzo; ~ 1300m; 17/8/1998; pasture with *Salix* along a brook.
- 21) Abruzzo (L'Aquila): south of Pescocostanzo; ~ 1300m; 18/8/1998; pasture and moist vegetation near a brook.
- 22) Abruzzo (Chieti): Maiella, between Palena and Valico delle Forchette; ~1000m; 19/8/1998; mixed forest.
- 23) Abruzzo (Chieti): Maiella, Pennapiedimonte, near Bocca di Valle; 650m; 20/8/1998; meadows.
- 24) Abruzzo (Pescara): Maiella, la Maielletta, 2150m; 20/8/1998; pasture of high mountain.
- 25) Abruzzo (Pescara): Maiella, la Maielletta, 1990m; 21/8/1998; pasture of high mountain.
- 26) Abruzzo (Pescara): Maiella, la Maielletta, 1970m; 21/8/1998; pasture of high mountain.
- 27) Abruzzo (Pescara): Maiella, la Maielletta, road to Roccamorice; ~ 1600m; 21/8/1998; beech forest.
- 28) Abruzzo (Teramo): mouth of Tordino river, sea level; 22/8/1998; vegetation near the seashore.
- 29) Abruzzo (Teramo): Monti della Laga, Cortino, Piano Roseto, fork to S.Giorgio; ~ 1300m; 23/8/1998; pasture.
- 30) Abruzzo (L'Aquila): Gran Sasso, Campo Imperatore; ~ 1500m; 24/8/1998; pasture.
- 31) Abruzzo (L'Aquila): Gran Sasso, Campo Imperatore; ~ 1800m; 24/8/1998; pasture of high mountain.
- 32) Lazio (Rieti): Lago di Piediluco, Madonna della Luce; ~ 400m; 20/8/1999; moist meadow.
- 33) Lazio (Rieti): Monti Reatini, M. Terminillo; 1900-2200m; 21/8/1999; pasture of high mountain.
- 34) Lazio (Rieti): Monti Reatini, M. Terminillo; 1900-2000m; 22/8/1999; pasture of high mountain.
- 35) Lazio (Rieti): Monti Reatini, M. Terminillo, S.P. 10, 4 Km from Leonessa; ~ 1200m; 22/8/1999; vegetation along a forest rivulet.
- 36) Lazio (Rieti): Monti Reatini, M. Terminillo, S.P. 10, 4 Km from Leonessa; ~ 1200m; 22/8/1999; vegetation along a brook.
- 37) Lazio (Rieti): Monti Reatini, between Leonessa and M. Terminillo (Sella di Leonessa), S.P. 10, 3 Km from the pass; ~ 1600m; 23/8/1999; clearing of a mixed forest.
- 38) Lazio (Rieti): Monti Reatini, M. Terminillo, S.P. 10, 7 Km from Leonessa; ~ 1200m; 23/8/1999; meadows on the edge of a mixed forest.
- 39) Lazio (Rieti): Monti Reatini, Leonessa; 1000m; 23/8/1999; *Salix* along the gravel of a brook.
- 40) Lazio (Rieti): Monti Reatini, M. Terminillo; 1700m; 24/8/1999; pasture of high mountain.
- 41) Lazio (Rieti): Monti Reatini, M. Terminillo, 3 Km north of Lisciano; ~ 1000m; 24/8/1999; meadow.
- 42) Lazio (Rieti): Monti Reatini, M. Terminillo, 3 Km north of Lisciano; ~ 900m; 24/8/1999; herbaceous vegetation with *Quercus*.
- 43) Lazio (Rieti): Monti Reatini, M. Terminillo, 2 Km north of Lisciano; ~ 800m; 24/8/1999; meadows.

- 44) Lazio (Rieti): Rocca di Corno, Piano di Rascino; ~ 1100m; 25/8/1999; degraded pasture around a pond.
- 45) Abruzzo (L'Aquila): slope south of Sella di Corno; ~ 1300m; 25/8/1999; dry meadows.
- 46) Abruzzo (L'Aquila): slope south of Sella di Corno; ~ 1100m; 26/8/1999; dry meadows with *Ostrya carpinifolia* Scop., *Quercus*, *Acer*.
- 47) Abruzzo (L'Aquila): slope south of Sella di Corno; ~ 1200m; 26/8/1999; meadows on the borders of a mixed forest.
- 48) Abruzzo (L'Aquila): Gran Sasso, Campo Imperatore; 1500m; 27/8/1999; pasture of high mountain.
- 49) Abruzzo (Teramo): Gran Sasso, Rigopiano; ~ 1000m; 27/8/1999; meadows with swampy areas.
- 50) Abruzzo (Teramo): Roseto degli Abruzzi; sea level; 28/8/1999; vegetation near the seashore.
- 51) Abruzzo (Teramo): Vomano river, near Poggio Umbricchio; ~ 650m; 29/8/1999; meadows near the river.
- 52) Abruzzo (Teramo): Gran Sasso, between Pietracamela and Prati di Tivo; ~ 1350m; 29/8/1999; meadows with *Fagus*.
- 53) Lazio (Viterbo): Acqua Rossa; ~ 400m; 17/5/2000; meadow.
- 54) Abruzzo (L'Aquila): Gran Sasso, between Assergi and Campo Imperatore; ~ 1400m; 22/5/2000; meadow.
- 55) Lazio (Viterbo): Torre di Chia; ~ 230m; 28/5/2000; open area with *Quercus* and *Acer* between moist areas.
- 56) Lazio (Rieti): Monti Reatini, M. Terminillo, above Campoforogna; ~ 1700m; 29/5/2000; pasture of high mountain.
- 57) Lazio (Rieti): Monti Reatini, M. Terminillo, 3 Km from Lisciano; ~ 700m; 29/5/2000; open area with rare *Fagus* and *Quercus*.
- 58) Lazio (Rieti): Monti Reatini, Leonessa, crossing Bigioni; ~ 970m; 29/5/2000; meadow.
- 59) Lazio (Rieti): Monti Reatini, 1 Km from Morro; ~ 750m; 29/5/2000; meadow.
- 60) Lazio (Viterbo): Acqua Rossa; ~ 400m; 30/5/2000; meadow.
- 61) Lazio (Viterbo): between Cura di Vetralla and Villa S. Giovanni; ~ 350m; 1/6/2000; meadow.
- 62) Lazio (Viterbo): Monti della Tolfa, road east of M. Sassicari; ~ 400m; 1/6/2000; meadow with rare *Quercus* and *Acer*.
- 63) Lazio (Viterbo): Monti della Tolfa, road between La Bianca and M. Tolfaccia; ~ 500m; 1/6/2000; meadow with *Quercus*.
- 64) Lazio (Rieti): Monti Reatini, between Morro and Leonessa, SS 521; ~ 1000m; 3/6/2000; mixed forest.
- 65) Lazio (Rieti): Monti Reatini, M. Terminillo, Sella di Leonessa; ~1900m; 3/6/2000; pasture of high mountain.
- 66) Lazio (Rieti): Monti Reatini, M. Terminillo, between Sella di Leonessa and Leonessa, ~1400-1500m; 3/6/2000; meadows between *Fagus*.
- 67) Abruzzo (L'Aquila): Gran Sasso, Campo Imperatore; 1400-1600m; 23/6/2000; pasture of high mountain.
- 68) Abruzzo (L'Aquila): Gran Sasso, Campo Imperatore; 1800m; 23/6/2000; pasture of high mountain.
- 69) Lazio (Viterbo): Marta river, between Marta and Tuscania; ~ 250m; 30/7/2000; moist low vegetation near the brook.
- 70) Lazio (Viterbo): Lago di Mezzano, west side; ~ 455m; 30/7/2000; dry meadows and moist areas near the lake.
- 71) Lazio (Viterbo): Lago di Vico, north side; ~ 500m; 1/8/2000; swampy areas near the lake.
- 72) Lazio (Viterbo): Monti Cimini, M. Fogliano, west side; ~ 750m; 1/8/2000; mixed forest with *Quercus ilex* L., *Quercus* sp., *Acer campestre* L..

- 73) Lazio (Viterbo): Lago di Bolsena, west side; ~ 300m; 2/8/2000; meadows with *Acer campestre* L..
- 74) Lazio (Viterbo): hinterland of Tarquinia, road from Montebello to the Marta river; ~ 100m; 3/8/2000; mixed forest with *Quercus ilex* L., *Quercus* sp., *Acer campestre* L..
- 75) Umbria (Terni): Lago di Alviano; ~ 100m; 12/8/2000; vegetation with *Phragmites*, *Rubus* sp., Poaceae.
- 76) Umbria (Terni): Tevere river, north of Lago di Alviano; ~ 100m; 12/8/2000; vegetation with *Phragmites*, *Rubus*, *Carpinus*, *Salix*, Poaceae.
- 77) Lazio (Terni): Lago di Alviano, west side; ~ 100m; 12/8/2000; vegetation with *Phragmites*, *Rubus*, *Salix*, *Populus alba* L., Poaceae.
- 78) Lazio (Terni): slope southwest of Lago di Alviano; ~ 128m; 12/8/2000; mixed forest with *Quercus* and *Acer*.
- 79) Lazio (Viterbo): Saline di Tarquinia; sea level; 14/8/2000; herbaceous vegetation.
- 80) Lazio (Roma): Monti della Tolfa, Mignone river near Rota; ~ 114m; 16/8/2000; low vegetation between *Acer*, *Salix*, *Tamarix*.
- 81) Lazio (Roma): Monti della Tolfa, road between La Bianca and M. Tolfaccia; ~ 400m; 16/8/2000; mixed forest (prevalently with *Quercus*, *Acer*) and open pasture areas.
- 82) Lazio (Viterbo): Lago di Monterosi; 237m; 19/8/2000; *Phragmites*, Poaceae, Lamiaceae, *Urtica*, *Populus*.
- 83) Lazio (Roma): Lago di Bracciano, shore northeast of road-fork to Martignano; 150m; 19/8/2000; *Phragmites*, Poaceae, *Salix*.
- 84) Lazio (Roma): road from Lago di Bracciano to Lago di Martignano; 200m; 19/8/2000; *Quercus*, *Ulmus*.
- 85) Umbria (Terni): Lago di Piediluco, Eco; 380m; 21/8/2000; dry meadow and mixed forest with *Quercus ilex* L., *Acer*, *Quercus* sp., *Ostrya carpinifolia* Scop..
- 86) Lazio (Rieti): east of Lago di Piediluco, SS 79 between fork Arrone and Labro; 380m; 21/8/2000; herbaceous vegetation with *Equisetum*, *Phragmites*, *Carex*, Cyperaceae, between *Ulmus*, *Salix*, *Quercus*.
- 87) Lazio (Rieti): Lago di Piediluco, Madonna della Luce; ~ 400m; 22/8/2000; moist meadow.
- 88) Lazio (Rieti): Terme di Cotilia, near Velino river; ~ 400m; 22/8/2000; herbaceous vegetation near the river.
- 89) Lazio (Viterbo): Monti Cimini, M. Fogliano, west side; ~ 750m; 3/10/2000; mixed forest with *Quercus ilex* L., *Quercus* sp., *Acer campestre* L..
- 90) Abruzzo (Chieti): SS 650 to Pescara, fork to Montemitro; ~ 100m; 7/1998; vegetation near Trigno river.
- 91) Lazio (Rieti): Monti Reatini, M. Terminillo; 1900-2200m; 21/8/1999; pasture of high mountain with *Brachypodium genuense* (DC.) Roemer et Schultes, *Carex kitaibeliana* Degen, *Carex macrolepis* DC., *Festuca dimorpha* Guss., *Koeleria splendens* Presl, *Luzula italica* Parl..
- 92) Lazio (Rieti): north of Roccapassa; 1000m; 4/8/2001; herbaceous vegetation with *Salix* and *Populus*.
- 93) Lazio (Rieti): Monti della Laga, Amatrice, Pizzo di Sevo; 1700-2400m; 5/8/2001; pasture of high mountain with *Fagus*.
- 94) Lazio (Rieti): Monti della Laga, Amatrice, above S. Angelo; ~1500m; 6/8/2001; mixed forest with *Fagus*, *Salix capraea* L. (?), *Populus tremula* L. and areas with *Agrostis* sp., *Agrostis tenuis* Sibth., *Armeria* sp., *Avenella flexuosa* (L.) Parl., *Brachypodium genuense* (DC.) Roemer et Schultes, *Brachypodium* sp., *Briza media* L., *Cynosurus cristatus* L., *Dianthus monspessulanus* L., *Festuca* sp., *Juncus monanthos* Jacq., *Luzula italica* Parl., *Luzula multiflora* (Ehrh.) Lej., *Phleum alpinum* L..
- 95) Lazio (Rieti): Monti della Laga, Amatrice, north of S. Angelo; ~1400m; 6/8/2001; mixed forest with *Betula pendula* Roth, *Ostrya carpinifolia* Scop., *Populus tremula* L., *Salix capraea* L., *Salix purpurea* L..

- 96) Lazio (Rieti): Monti della Laga, Amatrice, north of S. Angelo; ~1300m; 6/8/2001, mixed forest with *Salix* and *Populus*.
- 97) Lazio (Rieti): Monti della Laga, Amatrice, north of S. Angelo; ~1100m; 6/8/2001; meadow with *Holoschoenus australis* (L.) Rehb., *Juncus articulatus* s.l., *Juncus inflexus* L., *Populus canescens* (Ait.) SM. (?), *Salix alba* L., *Salix purpurea* L..
- 98) Lazio (Rieti): Monti della Laga, Amatrice, north of S. Angelo; ~1400m; 7/8/2001; mixed forest with *Ostrya carpinifolia* Scop., *Populus*, *Betula* and *Salix*.
- 99) Lazio (Rieti): Monti della Laga, Amatrice, Preta, Tronto river; ~1100m; 7/8/2001; meadow with *Calamagrostis varia* (Schroder) Horst, *Carex flacca* Schreber, *Carex flava*-gr., *Juncus articulatus* s.l., *Salix alba* L., *Salix elaeagnos* Scop., *Salix purpurea* L. s.l..
- 100) Lazio (Rieti): Monti della Laga, Amatrice, road between Cornillo Nuovo and Poggio Cancelli; ~1300m; 7/8/2001; meadow with rare *Pinus*, *Quercus* and *Juniperus*.
- 101) Lazio (Rieti): Monti della Laga, Amatrice, 3 km north of Poggio Cancelli; ~1300m; 7/8/2001; mowed meadow with *Filipendula ulmaria* (L.) Maxim, *Juncus articulatus* s.l., *J. effusus* L. s.l., *J. inflexus* L., *Populus tremula* L., *Salix alba* L., *Salix apennina* Skvortsov, *Salix purpurea* L. s.l..
- 102) Abruzzo (L'Aquila): Monti della Laga, Lago di Campotosto about 4 Km northwest of Campotosto; ~1350m; 8/8/2001; vegetation near the lake with *Agropyrum repens*, *Carex acutiformis* HRH., *C. flacca* Schreber, *C. punctata* Gaudin, *Juncus longicornis* Bastard, *Populus tremula* L., *Salix apennina* Skvortsov, *Salix capraea* L., *Salix purpurea* L. s.l..
- 103) Abruzzo (Pescara): Maiella, la Maielletta, 2150m; 9/8/2001; meadow of high altitude with *Carex kitaibeliana* Degen and *Stachys alopecuroides* (L.) Benth..
- 104) Abruzzo (L'Aquila): Aringo, fork S. Lucia; ~ 1000m; 10/8/2001; mixed forest with *Salix*, *Populus*, *Ostrya carpinifolia* Scop., *Corylus*, *Quercus*, *Equisetum*.
- 105) Lazio (Latina): M. Circeo, near Terme Romane; ~ 50-100m; 14/8/2001; mixed forest with *Quercus ilex* L., *Pistacia lentiscus* L., *Tamarix*, *Crataegus*, etc..
- 106) Lazio (Latina): M. Circeo, above S. Felice al Circeo; ~ 50-300m; 14/8/2001; herbaceous vegetation with *Dittrichia* (= *Inula*) *viscosa* (L.) Ait. and *Inula conyza* DC..
- 107) Lazio (Latina): M. Circeo, Selva Piana; sea level; 14/8/2001; vegetation near Lago Paola with *Phragmites*, *Lycopus europaeus* L. and *Teucrium scordium* L. subsp. *scordioides* (Schreber) Arcangeli.
- 108) Lazio (Latina): M. Circeo, near Lago dei Monaci; sea level; 15/8/2001; vegetation of the dunes.
- 109) Lazio (Latina): M. Circeo, near Canale Papale; sea level; 15/8/2001; vegetation with *Phragmites*, *Cynodon dactylon* (L.) Pers., *Digitaria sanguinalis* (L.) Scop., *Echinocloa crus-galli* (L.) Beauv., *Setaria verticillata* (L.) Beauv..
- 110) Lazio (Latina): M. Circeo, near Lago di Caprolace; sea level; 15/8/2001; degraded pasture near a lake with *Amaranthus retroflexus* L., *Artemisia verlotiorum* Lamotte, *Cyperus longus* L. subsp. *longus*, *Elytrigia atherica* (Link) Kerguelen, *Persicaria lapathifolia* (L.) S. F. Gray, *Pulicaria dysenterica* (L.) Bernh..
- 111) Lazio (Viterbo): Villa Lante; ~ 450m; 25/6/2001; meadow.
- 112) Lazio (Viterbo): Monti Cimini, M. Fogliano, west side; ~ 750m; 31/7/2001; mixed forest with *Quercus ilex* L., *Quercus* sp., *Acer campestre* L..
- 113) Lazio (Roma): Monti della Tolfa, Mignone river near Rota; ~ 114m; 5/4/2002; low vegetation between *Acer*, *Salix*, *Tamarix*.
- 114) Lazio (Roma): Monti della Tolfa, between La Farnesiana and Case Le Centocelle; ~ 150m; 6/4/2002; meadow.
- 115) Lazio (Roma): Monti della Tolfa, north of M. Sassicari; 200m; 6/4/2002; mixed forest and meadows with Poaceae and shrubs of *Crataegus* and *Prunus spinosa* L..
- 116) Lazio (Roma): Monti della Tolfa, M. Sassicari, località Piscina; ~ 400m; 7/4/2002; mixed forest and meadows with Poaceae and shrubs of *Crataegus* and *Prunus spinosa* L..

- 117) Lazio (Roma): Monti della Tolfa, between Tolfa and S. Severa; 120m; 7/4/2002; open area with *Pistacia lentiscus* L. and *Acer*.  
118) Lazio (Viterbo): Saline di Tarquinia; sea level; 4/2002; herbaceous vegetation.  
119) Lazio (Viterbo): Saline di Tarquinia; sea level; 5/2002; herbaceous vegetation.  
120) Lazio (Viterbo): Saline di Tarquinia; sea level; 6/2002; herbaceous vegetation.  
121) Abruzzo (L'Aquila): Gran Sasso, Campo Imperatore; 1500-1800m; 17/8/2002; pasture of high mountain.  
122) Lazio (Viterbo): Saline di Tarquinia; sea level; 8/2002; herbaceous vegetation.  
123) Lazio (Viterbo): Saline di Tarquinia; sea level; 10/2002; herbaceous vegetation.  
124) Lazio (Viterbo): slope west of Lago di Vico; ~ 650m; 1/5/1997; herbaceous vegetation.  
125) Lazio (Viterbo): Monti Cimini, M. Fogliano, west side; ~ 750m; 21/5/2003; mixed forest with *Quercus ilex* L., *Quercus* sp., *Acer campestre* L..  
126) Lazio (Viterbo): Saline di Tarquinia; sea level; 5/2003; herbaceous vegetation.  
127) Lazio (Viterbo): Lago di Bolsena, Gradoli; 315m; 31/5/2003; on *Populus nigra* L..  
128) Lazio (Viterbo): Bagnaia; ~ 400m; 27/5/2003; on *Lonicera*.

## Results

### I. Faunistic analysis

In all 331 taxa were found, but for some of them it was impossible to attain to a safe specific attribution. Among the collected taxa, 10 (*Ribautodelphax fanari* Ashe, Drosopoulos, Hoch, *Dictyophara* cfr. *hispanica* Linnavuori, *Macropsis scotti* Edwards, *M. vicina* Horváth, *Dryodurgades* cfr. *ribauti* Wagner, *Alebra viridis* Rey, *Edwardsiana plurispinosa* (Wagner), *Eupteryx* cfr. *origani* Zachvatkin, *Iassus mirabilis* Orosz, *Athysanus quadrum* Boheman) are new for the fauna of Italy, 11 for continental Italy and 38 for peninsular Italy.

In table 1 are listed the collected species and for each of them the numbers relating to the collection sites (see list above) and, in brackets, the number of collected male and female specimens. The taxa marked by \*\*\* are new records for Italy, those by \*\* are new for continental Italy and those by \* are new for peninsular Italy. In some cases we have deviated from a strictly alphabetical order of the species names in order to unite groups of closely related species.

In many Auchenorrhyncha genera (for example *Chloriona*, *Ribautodelphax*, *Aphrodes*, *Anaceratagallia*, many species of *Macrosteles*, *Euscelis*, *Psammotettix* etc.) an identification of females up to species level is quite difficult or even impossible. We have assigned the females of those genera to the males we had found at the same collection site respectively (of course, such attribution is not absolutely reliable). In the case we found males of more than one taxon of that type together in the same collection site (above all a problem within the genus *Psammotettix*) we had to look for another solution: All the females are inserted into that taxon, which was prevalently collected in a given site, but the respective number is marked by an exclamation mark (!) in order to indicate that probably there are included some females of other species as well. For the females of the less numerously collected taxa we indicate with a dash (-) that females probably not were lacking, but are subsumed under those of the prevailing taxon.

Table 1. List of Auchenorrhyncha taxa and respective collection sites; in brackets number of collected males and females



Taxa	Locality
<b>Cixiidae</b>	
<i>Cixius dubius</i> Wagn.	115 (7;6); 116 (1;1)
<i>Cixius nervosus</i> (L.)	8 (0;1); 21 (0;1); 36 (1;0); 80 (1;1); 82 (1;0); 86 (0;1); 87 (0;1); 88 (1;1); 95 (0;1)
<i>Cixius simplex</i> (H.-S.)	20 (1;0); 21 (1;0)
<i>Cixius</i> gr. <i>sticticus</i> R.	3 (0;2); 4 (2;0); 5 (1;0); 6 (1;0)
<i>Tachycixius pilosus</i> (Ol.)	20 (2;0); 40 (2;0); 115 (2;0); 119 (1;0)
<i>Tachycixius remanei</i> D'Urso**	20 (6;5); 21 (1;1)
<i>Pentastiridius leporinus</i> (L.)	79 (1;1); 110 (33;21); 119 (9;2)
<i>Reptalus cuspidatus</i> (Fieb.)	120 (4;0)
<i>Reptalus melanochaetus</i> (Fieb.)	80 (1;0)
<i>Reptalus panzeri</i> (Löw)	120 (1;0)
<i>Hyalesthes luteipes</i> Fieb.	70 (1;0); 76 (6;6); 78 (1;0); 80 (3;6); 122 (4;0)
<i>Hyalesthes obsoletus</i> Sign.	69 (36;31); 70 (6;30); 73 (7;2); 82 (3;1); 84 (1;3)
<b>Delphacidae</b>	
<i>Asiraca clavicornis</i> (F.)	16 (1;1); 70 (1;2); 88 (1;0); 115 (0;4)
<i>Kelisia brucki</i> Fieb.	76 (0;1)
<i>Kelisia guttula</i> (Germ.)	9a (1;0)
<i>Kelisia guttulifera</i> (Kbm.)*	28 (1;0)
<i>Kelisia italica</i> Gugl. & Rem.	11 (0;1); 33 (7;9); 93 (3;0)
<i>Kelisia melanops</i> Fieb.	102 (8;16)
<i>Kelisia monoceros</i> Rib.*	1 (2;0); 2 (16;21); 11 (1;0); 24 (3;3); 31 (1;0); 33 (46;40); 34 (47;45); 36 (2;2); 44 (1;0); 93 (6;2); 103 (2;14); 121 (5;8)
<i>Kelisia</i> gr. <i>ribauti</i> Wagn.**	70 (3;1); 79 (1;2); 82 (4;1); 86 (2;1); 88 (1;0); 119 (8;9)
<i>Anakelisia perspicillata</i> (Boh.)*	9a (1;0); 19 (6;2); 38 (7;8); 41 (1;0); 92 (0;1); 121 (0;1)
<i>Stenocranus major</i> (Kbm.)*	88 (4;7); 110 (1;0)
<i>Stenocranus minutus</i> (F.)	8 (2;1); 9a (1;0); 15 (0;1); 43 (2;0); 52 (1;0); 57 (0;1)
<i>Jassidaeus lugubris</i> (Sign.)	49 (1;0)
<i>Eurysa lineata</i> (Perr.)	63 (0;1)
<i>Eurysa rubripes</i> (Mats.)	115 (1;0)
<i>Eurybregma nigrolineata</i> Scott	53 (1;5)
<i>Stiroma</i> sp.*	101 (0;1)
<i>Metropis latinus</i> (Kbm.)	54 (7;16)
<i>Iubsoda stigmatica</i> (Mel.)**	20 (0;1)
<i>Euconomelus lepidus</i> (Boh.)	102 (1;0)
<i>Conomelus lorifer dehneli</i> Nast	20 (3;3); 21 (5;5); 44 (1;1); 49 (12;14); 71 (21;23); 79 (0;2); 97 (1;0); 99 (0;1); 101 (32;19); 102 (4;5); 104 (1;1)
<i>Delphax ribautianus</i> Asche & Dros.	87 (2;0)
<i>Chloriona sicula</i> Mats.**	79 (6;14!); 82 (1;0); 83 (15;4); 107 (1;1); 108 (1;0); 109 (6;0); 110 (1;0)
<i>Chloriona unicolor</i> (H.-S.)*	79 (1;-); 109 (2;0)
<i>Chloriona vasconica</i> Rib.	71 (2;0)
<i>Megamelus notula</i> (Germ.)*	21 (8;10); 102 (0;1)
<i>Laodelphax striatellus</i> (Fall.)	1 (1;0); 8 (1;0); 9a (0;3); 17 (9;20); 22 (0;2); 24 (1;0); 26 (7;6); 28 (3;1); 32 (34;42); 33 (6;5); 36 (2;0); 38 (1;3); 39 (0;1); 40 (0;1); 41 (4;1); 44 (1;2); 47 (0;1); 49 (18;5); 50 (5;6); 51 (5;4); 70 (12;7); 71 (1;3); 73 (16;18); 75 (3;3); 76 (0;5); 77 (1;1); 79 (2;2); 80 (9;5); 82 (11;14); 83 (4;7); 85 (0;1); 86 (3;1); 87 (15;21); 88 (1,1); 97 (0;1); 101 (1;0); 103 (0;1); 107 (3;0); 109 (4;2); 110 (7;3); 113

	(1;0); 115 (0;1); 116 (0;1); 120 (0;1)
<i>Sogatella vibix</i> (Hpt.)**	110 (1;0)
<i>Muellerianella brevipennis</i> (Boh.)*	21 (5;0)
<i>Muellerianella fairmairei</i> (Perr.)	9a (1;0)
<i>Muirodelphax aubei</i> (Perr.)	50 (2;0); 60 (2;0); 87 (1;0); 118 (4;2); 119 (19;15)
<i>Dicranotropis divergens</i> (Kbm.)	1 (2;5); 93 (1;17)
<i>Dicranotropis gr. hamata</i> (Boh.)	22 (1;0); 36 (6;15); 37 (1;0); 46 (7;1); 47 (8;23); 49 (4;4); 51 (0;1); 70 (0;1); 73 (1;0); 85 (2;2); 86 (8;5); 88 (0;12); 97 (1;1); 99 (0;1); 101 (0;1); 102 (0;1)
<i>Florodelphax leptosoma</i> (Fl.)	49 (2;0); 71 (0;2); 87 (0;1); 97 (2;1)
<i>Scottianella dalei</i> (Scott)	83 (0;1); 113 (1;0)
<i>Xanthodelphax flaveolus</i> (Fl.)	93 (1;0)
<i>Xanthodelphax stramineus</i> (Stål)	32 (2;3); 49 (1;0); 97 (1;1); 99 (1;1); 101 (2;0)
<i>Toya propinqua</i> (Fieb.)	20 (1;0); 28 (74;99); 31 (1;0); 32 (2;10); 33 (3;1); 36 (1;0); 38 (3;4); 43 (1;1); 44 (1;0); 50 (5;0); 51 (59;30); 52 (1;0); 63 (2;2); 66 (1;0); 70 (12;3); 71 (2;2); 75 (4;6); 76 (1;1); 79 (12;12); 80 (4;0); 82 (10;6); 83 (3;4); 85 (1;2); 86 (1;12); 88 (2;1); 97 (1;0); 103 (0;3); 106 (0;1); 107 (4;2); 108 (1;1); 109 (10;3); 110 (4;7); 118 (1;2)
<i>Falcotoya minuscula</i> (Horv.)*	50 (0;1)
<i>Javesella dubia</i> (Kbm.)	49 (18;12); 70 (1;1); 80 (1;0); 82 (2;2); 97 (5;8); 101 (1;0); 104 (12;12); 113 (31;37)
<i>Ribautodelphax albostriatus</i> (Fieb.)	9a (4;0); 49 (2;0)
<i>Ribautodelphax fanari</i> Asche et al. ***	50 (1;0); 118 (1;5); 119 (2;0)
<i>Ribautodelphax imitans</i> (Rib.)*	86 (2;0); 97 (1;0); 110 (1;0)
<i>Ribautodelphax pungens</i> (Rib.)	9a (1;0); 99 (1;4); 121 (1;0)
<i>Flastena fumipennis</i> (Fieb.)*	70 (1;0); 80 (1;0); 86 (4;0); 87 (2;0); 88 (1;0); 107 (1;0); 113 (1;0)
<b>Achilidae</b>	
<i>Cixidia advena</i> (Spin.)	85 (0;1)
<i>Cixidia pilatoi</i> D'Urso & Gugl.	53 (0;1); 112 (0;1)
<b>Dictyopharidae</b>	
<i>Dictyophara europea</i> (L.)	5 (1;3); 8 (1;0); 16 (2;2); 17 (1;2); 32 (1;1); 70 (1;0); 76 (0;1)
<i>Dictyophara cfr. hispanica</i> Lnv. ***	5 (0;1)
<i>Dictyophara multireticulata</i> M., R.	16 (1;1); 46 (0;1); 74 (0;1)
<i>Bursinia hemiptera</i> (O. Costa)	5 (2;1); 16 (2;1); 42 (2;0); 45 (1;0); 46 (0;1); 121 (3;4)
<b>Tropiduchidae</b>	
<i>Trypetimorpha occidentalis</i> Hng. & Bourg.	5 (2;1); 7 (2;0); 8 (92;103); 15 (18;26); 18 (7;59); 22 (0;1); 23 (1;10); 28 (2;0); 32 (3;3); 43 (2;5); 49 (1;0); 50 (0;1); 76 (2;1); 80 (1;3); 106 (3;5)
<b>Tettigometridae</b>	
<i>Tettigometra impressifrons</i> M., R.	118 (0;1); 120 (1;0)
<i>Tettigometra gr. impressopunctata</i> Duf.	8 (0;4)
<i>Tettigometra (Brachyiceps) gr. laeta</i> (H.-S.)	46 (4;8); 118 (1;0)
<i>Tettigometra gr. obliqua</i> (Panz.)	16 (7;4); 74 (1;0); 85 (1;0)
<i>Tettigometra sordida</i> Fieb.	112 (1;1)
<i>Micrometrina baranii</i> (Sign.)	120 (1;0)
<b>Caliscelidae</b>	
<i>Caliscelis bonellii</i> (Latr.)	5 (1;1); 6 (1;0); 7 (7;2); 8 (1;0); 28 (1;1); 43 (1;0); 55 (1;0); 69 (1;0); 76 (1;0); 81 (1;0); 84 (1;0); 90 (2;0); 120 (2;0)
<i>Homocnemia albovittata</i> A. Costa	90 (1;0)
<i>Peltonellus (=Aphelonema) quadrivittatus</i>	11 (2;1); 33 (4;1); 91 (4;2); 103 (1;0); 121 (1;4)

(Fieb.)	
Ommatidiotus dissimilis (Fall.)	11 (12;25); 79 (7;6); 120 (3;1)
<b>Issidae</b>	
Hysteropterum sp.	57 (2;0)
Hysteropterum reticulatum (H.-S.)	5 (0;1); 7 (1;3); 11 (2;0)
Agalmatium gr. flavescens (Ol.)	8 (7;0); 15 (11;5); 70 (1;1); 90 (3;0)
Laticica tunetana (Mats.)	105 (2;0)
Issus coleopratus (F.)	5 (0;1); 9a (1;0); 12 (0;1); 22 (5;2); 36 (0;1); 85 (1;0); 105 (0;1); 106 (1;0)
Issus muscaeformis (Schrk.)	22 (0;1); 27 (0;1); 81 (0;1); 89 (0;2)
Latissus dilatatus (Fourcr.)	15 (1;1); 22 (2;1); 43 (1;1); 60 (1;0); 105 (1;1)
<b>Flatidae</b>	
Metcalfa pruinosa (Say)	18 (0;4); 50 (3;0); 75 (1;2); 105 (1;0); 119 (1;0)
<b>Cicadidae</b>	
Cicada orni L.	105 (0;1)
<b>Cercopidae</b>	
Cercopis arcuata Fieb.	55 (0;2); 56 (1;0)
Cercopis sanguinolenta (Scop.)	114 (3;0)
Cercopis vulnerata Rossi	53 (1;0); 119 (5;3)
<b>Aphrophoridae</b>	
Lepyronia coleoptrata (L.)	5 (1;0); 7 (5;7); 8 (3;2); 9a (4;0); 15 (1;2); 22 (1;0); 32 (0;1); 55 (2;1); 60 (1;0); 69 (1;0); 76 (1;0); 90 (6;3); 101 (1;0); 120 (4;0)
Neophilaenus campestris (Fall.)	0 (1;0); 1 (17;18); 2 (10;8); 3 (0;1); 10 (1;2); 11 (15;14); 24 (0;1); 25 (1;3); 33 (7;5); 37 (1;0); 55 (2;0); 64 (1;0); 74 (1;0); 93 (6;7); 120 (3;0); 121 (3;4)
Neophilaenus gr. exclamationis (Thnbg.)	67 (1;0)
Neophilaenus lineatus (L.)	5 (16;8); 6 (4;3); 7 (1;0); 9a (8;3); 22 (1;1); 41 (1;0); 57 (1;0); 59 (1;0); 71 (1;0); 93 (1;1)
Aphrophora alni (Fall.)	6 (2;1); 8 (1;0); 55 (1;1); 57 (1;0); 105 (1;0); 107 (1;0)
Aphrophora pectoralis Mats. (=costalis Mats.)	9b (2;0); 20 (10;6); 39 (2;1); 80 (1;0); 101 (0;1)
Aphrophora salicina (Goeze)	80 (0;1)
Philaenus italosignus Dros. & Rem.	63 (1;0); 74 (1;1); 80 (0;1); 81 (0;1); 112 (0;1)
Philaenus spumarius (L.)	2 (1;2); 3 (0;2); 5 (1;0); 6 (1;0); 7 (2;2); 8 (2;1); 9a (9;10); 9b (1;0); 20 (2;0); 32 (80;1); 41 (0;1); 47 (1;0); 49 (0;1); 55 (2;0); 60 (6;2); 61 (0;1); 63 (1;0); 64 (1;2); 69 (1;3); 74 (2;5); 76 (2;2); 78 (4;1); 80 (0;2); 81 (0;1); 82 (1;0); 84 (1;1); 86 (0;1); 89 (3;2); 92 (4;1); 96 (1;0); 99 (1;0); 100 (0;1); 101 (1;4); 102 (0;1); 105 (2;2); 108 (2;0); 119 (2;4)
<b>Membracidae</b>	
Centrotus cornutus (L.)	53 (0;2); 57 (0;1); 64 (1;0)
Gargara genistae (F.)	6 (0;1); 7 (2;0); 8 (0;1); 16 (0;1); 17 (0;1); 78 (0;1); 95 (5;3); 96 (1;0)
Stictocephala bisonia Kopp & Yonke	8 (0;1); 17 (0;1); 18 (0;1); 21 (0;1); 32 (2;2); 80 (1;1); 86 (0;1); 122 (0,1)
<b>Cicadellidae</b>	
Utecha gr. trivia Germ.	25 (2;0); 38 (1;0); 92 (1;0); 93 (1;0); 121 (4;4)
Megophthalmus scanicus (Fall.)	47 (0;2); 53 (1;0); 60 (0;1); 61 (1;0)
Ledra aurita (L.)	95 (0;1)
Oncopsis gr. flavicollis (L.)	95 (0;2)
Oncopsis tristis (Zett.)*	95 (0;1)
Macropsis albae Wagn.*	92 (0;6)

<i>Macropsis cerea</i> (Germ.)	20 (4;8); 21 (14;92); 36 (2;9); 39 (1;2); 101 (0;1)
<i>Macropsis fuscinervis</i> (Boh.)	92 (0;1); 101 (0;1); 104 (0;1)
<i>Macropsis fuscula</i> (Zett.)	7 (0;1); 8 (0;3)
<i>Macropsis glandacea</i> (Fieb.)	120 (1;16)
<i>Macropsis graminea</i> (F.)	127 (9;3)
<i>Macropsis haupti</i> Wagn.	9b (0;1); 20 (1;7); 92 (2;6); 97 (0;2); 99 (3;3); 101 (1;19); 104 (0;1)
<i>Macropsis infusata</i> (J. Shlb.)	92 (1;3)
<i>Macropsis marginata</i> (H.-S.)	9b (0;4); 20 (0;15); 21 (4;21); 80 (1;0); 99 (1;0); 101 (1;9); 102 (1;0)
<i>Macropsis notata</i> (Proh.)	92 (0;4)
<i>Macropsis scotti</i> Edw.***	4 (1;0)
<i>Macropsis scutellata</i> (Boh.)	104 (1;1)
<i>Macropsis vicina</i> Horv.***	39 (1;2); 77 (0;1); 87 (0;1); 97 (1;2)
<i>Macropsidius</i> cfr. <i>dispar</i> (Fieb.)	90 (0;7)
<i>Hephathus nanus</i> (H.-S.)	43 (8;1)
<i>Agallia brachyptera</i> (Boh.)	121 (1;0)
<i>Agallia</i> cfr. <i>consobrina</i> Curt.	35 (1;0)
<i>Anaceratagallia laevis</i> (Rib.)	23 (1;2); 28 (2;6); 32 (5;5); 41 (1;0); 44 (2;0); 50 (1;1); 51 (3; 1!); 55 (1;0); 61 (1;5); 63 (1;2); 69 (2;2); 70 (11;0); 71 (3;0); 77 (2;2); 79 (1;0); 80 (1;0); 82 (3;5); 83 (3;0); 85 (1;1); 86 (3;5); 87 (4;2); 88 (2;2); 110 (2;4); 119 (4;0)
<i>Anaceratagallia ribauti</i> (Oss.)	43 (1;0); 46 (1;0); 47 (1;0); 51 (1;-); 70 (2;0); 75 (1;3); 92 (1;0); 97 (1;0); 99 (1;0); 104 (2;0)
<i>Anaceratagallia venosa</i> (Fourcr.)	1 (7;6); 2 (10;0); 9a (0;2); 10 (42;31); 11 (6;0); 16 (3;5); 17 (1;0); 19 (32;8); 22 (4;0); 24 (5;0); 27 (12;0); 31 (1;1); 33 (34;28); 36 (1;0); 37 (25;6); 38 (7;5); 40 (1;0); 41 (1;0); 43 (4;1); 45 (1;0); 46 (6;3); 47 (5;0); 52 (1;5); 55 (1;0); 64 (1;0); 95 (2;0); 103 (7;1); 121 (5;9)
<i>Austroagallia sinuata</i> (M., R.)	8 (0;1); 15 (2;4); 20 (0;1); 28 (1;1); 61 (0;1); 69 (1;0); 79 (1;0); 82 (2;0); 86 (3;3); 87 (3;0); 88 (0;1); 103 (0;3); 106 (0;1); 108 (0;4); 109 (0;1); 110 (1;2); 120 (2;0)
<i>Dryodurgades dlabolai</i> Wagn.*	15 (2;0); 124 (1;0)
<i>Dryodurgades</i> cfr. <i>ribauti</i> Wagn.***	6 (2;1); 43 (3;2); 99 (1;0)
<i>Rhytidodus decimusquartus</i> (Schrk.)	82 (5;3)
<i>Idiocerus herrichii</i> (Kbm.)	8 (2;1); 21 (10;18); 77 (1;2); 97 (1;1); 101 (1;1)
<i>Idiocerus stigmatalis</i> Lew.	20 (1;0); 21 (10;17); 92 (3;0); 93 (0;1); 94 (12;10); 95 (9;12); 97 (0;3); 99 (0;1); 101 (0;2); 102 (6;4)
<i>Idiocerus vicinus</i> Mel.	6 (0;6); 8 (2;1); 9b (19;16); 20 (2;5); 35 (0;1); 39 (1;4); 80 (1;0); 87 (0;1); 92 (1;3); 96 (1;0); 99 (10;13); 101 (3;3); 113 (0;10)
<i>Acericerus heydenii</i> (Kbm.)	5 (1;0); 35 (1;0); 64 (0;1); 72 (2;0)
<i>Acericerus ribauti</i> Nickel & Rem. (=rotundifrons Rib. nec Kbm.)	15 (6;6); 73 (2;0); 78 (1;1); 80 (1;1); 81 (3;0)
<i>Acericerus vittifrons</i> (Kbm.)	12 (2;0); 15 (1;0); 22 (5;0); 72 (2;2); 73 (1;0); 74 (1;0); 81 (3;0); 85 (2;2); 115 (0;1)
<i>Bugraia ocularis</i> (M., R.)	105 (13;9); 117 (1;9); 119 (0;2)
<i>Metidiocerus dimidiatus</i> (Rib.)**	77 (1;2); 97 (2;2)
<i>Metidiocerus rutilans</i> (Kbm.)*	20 (1;0); 21 (2;2); 99 (0;2)
<i>Populicerus albicans</i> (Kbm.)	77 (1;2); 97 (7;11)
<i>Populicerus confusus</i> (Fl.)	14 (10;26); 21 (10;16); 92 (3;0); 94 (1;2); 95 (7;3); 99 (1;1); 101 (5;5); 102 (7;10); 104 (0;1)
<i>Populicerus laminatus</i> (Fl.)*	9c (4;12); 12 (3;2); 64 (2;3); 94 (3;0); 95 (2;3); 101 (2;3); 102 (4;8)

<i>Populicerus populi</i> (L.)	9b (0;1); 14 (1;0); 92 (0;2); 94 (1;3); 95 (0;2); 99 (0;1); 101 (3;0); 102 (10;15)
<i>Stenidiocerus poecilus</i> (H.-S.)	20 (1;0); 97 (0;1)
<i>Tremulicerus distinguendus</i> (Kbm.)	77 (4;6); 92 (4;4)
<i>Tremulicerus fulgidus</i> (F.)	76 (1;0); 82 (2;3); 99 (0;1)
<i>Tremulicerus tremulae</i> (Estl.)	14 (2;0); 75 (1;0); 92 (0;1); 101 (1;0); 102 (1;0)
<i>Tremulicerus vitreus</i> (F.)	82 (1;0); 102 (0;1)
<i>Viridicerus ustulatus</i> (M., R.)	77 (0;1); 97 (12;15); 118 (3;12); 120 (0;2)
<i>Batracomorphus irroratus</i> Lew.	11 (1;4)
<i>Iassus mirabilis</i> Orosz***	16 (0;1); 22 (0;9); 95 (1;3)
<i>Iassus scutellaris</i> (Fieb.)	81 (0;4); 86 (0;3); 119 (5;3)
<i>Eupelix cuspidata</i> (F.)	53 (1;0); 55 (2;1); 60 (1;0); 90 (0;1); 93 (0;1); 119 (1;1)
<i>Aphrodes carinata</i> (Stål)	119 (4;0)
<i>Aphrodes</i> gr. <i>makarovi</i> Zachv.	9a (5;1); 10 (25;47); 14 (2;6); 20 (1;1); 22 (1;1); 31 (3;0); 36 (1;0); 38 (5;2); 47 (1;3); 60 (3;1); 63 (2;2); 92 (0;1); 95 (1;0); 99 (2;1); 101 (1;4); 102 (4;1); 104 (0;2); 119 (0;2); 121 (3;1)
<i>Anoscopus</i> gr. <i>albifrons</i> (L.)	126 (1;0)
<i>Anoscopus</i> cfr. <i>flavostriatus</i> (Don.)	20 (2;0); 21 (5;1); 22 (1;1); 101 (1;1); 104 (2;1)
<i>Anoscopus serratulae</i> (F.)	14 (4;0); 20 (2;0); 21 (1;0); 22 (0;1); 38 (3;1); 60 (1;0)
<i>Planaphrodes trifasciata</i> Fourcr. sensu Rib. (=laeva (Rey) ?)	1 (2;0); 2 (1;0); 33 (1;0) 34 (2;0)
<i>Stegelytra erythroneura</i> Hpt.*	72 (1;0); 89 (0;1); 105 (1;1)
<i>Evacanthus acuminatus</i> (F.)	5 (3;4); 47 (1;0); 55 (2;0); 92 (0;1); 93 (1;0); 95 (1;1); 101 (0;1); 104 (0;1)
<i>Evacanthus interruptus</i> (L.)	10 (0;1); 21 (1;0); 33 (0;1); 35 (1;6); 36 (1;0); 37 (6;4); 92 (0;3); 93 (1;0)
<i>Cicadella viridis</i> (L.)	8 (2;2); 17 (2;2); 22 (0;1); 28 (1;2); 32 (0;1); 36 (1;0); 55 (3;0); 60 (1;0); 75 (0;1); 86 (1;0); 107 (1;0)
<i>Alebra albostriella</i> (Fall.)	22 (8;22); 72 (1;1); 75 (1;3); 95 (1;5); 104 (0;1)
<i>Alebra viridis</i> Rey ***	81 (2;3); 95 (1;2); 100 (0;1)
<i>Alebra wahlbergi</i> (Boh.)	9c (5;10); 15 (1;0); 55 (1;0); 95 (8;0); 96 (4;0); 120 (4;9)
<i>Erythria aureola</i> (Fall.)*	46 (1;2)
<i>Erythria seclusa</i> Horv.	2 (5;1); 11 (4;3); 34 (3;2)
<i>Liguropia juniperi</i> (Leth.)	82 (0;1)
<i>Emelyanoviana mollicula</i> (Boh.)	5 (3;5); 10 (0;1); 19 (2;7); 20 (1;0); 22 (2;0); 23 (1;2); 24 (2;2); 27 (5;1); 36 (1;0); 37 (1;0); 38 (10;0); 41 (2;0); 46 (8;4); 47 (9;13); 49 (2;2); 52 (1;0); 53 (1;1); 54 (2;1); 57 (2;0); 64 (0;1); 66 (2;0); 70 (1;0); 86 (0;1); 97 (5;19); 101 (1;2); 102 (1;2); 103 (12;29); 104 (2;4)
<i>Micantulina stigmatipennis</i> (M., R.)	118 (0;1)
<i>Wagneriala sinuata</i> (Then)*	11 (1;5); 33 (30;50); 34 (1;3); 93 (1;1)
<i>Notus italicus</i> Wagn.	20 (3;0); 21 (12;30); 102 (0;6)
<i>Kybos rufescens</i> Mel.	9b (5;0); 92 (0;10); 94 (0;3); 95 (0;1); 97 (1;7); 99 (0;35); 101 (3;25); 102 (3;5)
<i>Kybos</i> cfr. <i>virgator</i> (Rib.)*	36 (5;31); 39 (8;11); 83 (6;2)
<i>Empoasca alsiosa</i> Rib.	52 (1;0)
<i>Empoasca decipiens</i> Paoli	36 (2;0); 38 (2;0); 41 (5;33!); 42 (1;0); 47 (1;-); 66 (1;7); 82 (8;31); 86 (1;0); 87 (1;2!); 92 (1;0); 120 (1;0)
<i>Empoasca pteridis</i> (Dhlb.)	4 (1;0); 5 (2;0); 24 (1;12); 28 (2;6); 32 (1;3); 37 (1;0); 38 (1;0); 41 (3;-); 42 (1;0); 47 (3;3!); 71 (1;0); 83 (9;6); 87 (1;-); 97 (1;1); 103 (1;6)
<i>Empoasca vitis</i> (Goethe)	41 (1;-); 42 (1;0)
<i>Asymmetrasca decedens</i> Paoli	20 (1;0); 76 (1;0)

<i>Austroasca vittata</i> (Leth.) (sensu Rib.)*	6 (0;5); 7 (5;14)
<i>Kyboasca bipunctata</i> (Osh.)*	50 (9;10)
<i>Chlorita beieri</i> Dlab.*	5 (1;0); 6 (4;0); 43 (3;3)
<i>Fagocyba cruenta</i> (H.-S.)	4 (0;5); 9b (1;0); 20 (4;0); 27 (1;5); 93 (2;3)
<i>Fagocyba douglasi</i> (Edw.)	3 (60;200); 4 (19;15); 9a (3;0); 9b (7;0); 27 (5;0); 35 (2;0); 37 (10; 58); 93 (6;16); 94 (3;7)
<i>Edwardsiana diversa</i> (Edw.)	125 (1;0)
<i>Edwardsiana flavescens</i> (F.)	4 (2;0); 19 (1;3)
<i>Edwardsiana plebeja</i> (Edw.)	120 (1;0)
<i>Edwardsiana plurispinosa</i> (Wagn.)***	119 (3;1)
<i>Edwardsiana prunicola</i> (Edw.)*	20 (1;0); 86 (1;0)
<i>Edwardsiana rosae</i> (L.)	38 (1;0)
<i>Edwardsiana salicicola</i> (Edw.)*	86 (1;0); 95 (1;0)
<i>Linnavuoriana sexmaculata</i> (Hardy)*	9b (1;0); 20 (3;0); 36 (3;0); 39 (1;0); 86 (0;3); 90 (0;1); 94 (0;1)
<i>Ficocyba ficaria</i> (Horv.)	128 (8;11)
<i>Lindbergina aurovittata</i> (Dgl.)	123 (1;0)
<i>Lindbergina</i> (Youngiada) sp.	106 (0;1)
<i>Ribautiana cruciata</i> Rib.	119 (0;1)
<i>Typhlocyba quercus</i> (F.)	3 (0;2)
<i>Eurhadina concinna</i> (Germ.)	4 (0;1)
<i>Eurhadina kirschbaumi</i> Wagn.*	22 (0;3)
<i>Eupteryx andalusiaca</i> Ferr.	106 (1;7); 114 (2;1)
<i>Eupteryx collina</i> (Fl.)	97 (2;3)
<i>Eupteryx curtisii</i> (Fl.)	5 (3;1); 36 (1;3); 55 (1;0); 92 (2;3); 104 (9;23)
<i>Eupteryx cyclops</i> Mats.	104 (3;0)
<i>Eupteryx melissae</i> Curt.	87 (2;3)
<i>Eupteryx</i> cfr. <i>origani</i> Zachv.***	24 (10;11)
<i>Eupteryx rostrata</i> Rib.	8 (12;13); 9a (8;4); 20 (1;0); 21 (6;7); 49 (6;4); 82 (1;2); 87 (3;4); 97 (6;11); 102 (4;4); 110 (16;21); 119 (1;0)
<i>Eupteryx thoulessi</i> Edw.	71 (2;13)
<i>Eupteryx urticae</i> (F.)	35 (1;0); 39 (1;0); 55 (5;0); 62 (1;0); 104 (1;0)
<i>Eupteryx zelleri</i> (Kbm.)	9a (6;5); 20 (1;0); 21 (5;8); 35 (32;29); 37 (1;2); 47 (1;0); 49 (5;1); 50 (11;20); 51 (2;3); 57 (1;0); 63 (1;0); 69 (1;1); 70 (1;0); 80 (1;1); 82 (7;14); 83 (1;0); 97 (6;8); 104 (2;2); 116 (1;1)
<i>Zyginella pulchra</i> Löw	42 (1;1); 72 (1;0); 81 (0;2); 89 (0;1)
<i>Alnetoidia alneti</i> (Dhlab.)	4 (3;0); 41 (3;0); 42 (1;0); 95 (0;1)
<i>Hauptidia provincialis</i> (Rib.)	55 (1;0); 103 (1;1); 116 (2;4)
<i>Zyginidia</i> cfr. <i>ribauti</i> Dwor.	9b (1;0); 15 (1;0); 20 (1;0); 21 (1;0); 22 (8;5); 28 (16;13); 32 (11;3); 38 (2;2); 49 (1;0); 50 (20;22); 53 (5;3); 55 (2;3); 57 (1;1); 60 (6;4); 70 (1;1); 73 (7;12); 74 (1;0); 75 (28;18); 76 (1;1); 77 (1;2); 79 (1;7); 80 (8;5); 82 (6;10); 83 (20;20); 86 (5;4); 87 (14;17); 88 (4;2); 97 (5;1); 103 (2;5); 109 (1;2); 110 (11;8); 119 (1;3)
<i>Zyginidia servadeii</i> Vid.	27 (3;20); 51 (1;1); 106 (6;6)
<i>Zygina discolor</i> Horv.	42 (0;1); 46 (0;1); 79 (0;2)
<i>Zygina</i> cfr. <i>eburnea</i> Fieb.	80 (0;1)
<i>Zygina flammigera</i> (Fourcr.)	4 (36;30)
<i>Zygina schneideri</i> (H. Günth.)	97 (0;1)
<i>Zygina</i> gr. <i>tiliae</i> (Fall.)	99 (1;0)
<i>Zygina hyperici</i> (H.-S.)	27 (1;2)
<i>Arboridia erecta</i> (Rib.)*	73 (1;0)
<i>Arboridia parvula</i> (Boh.)	4 (4;6); 9a (26;29); 9b (1;0); 10 (1;0); 24 (1;1); 32 (1;0);

	52 (1;0); 116 (1;0)
<i>Arboridia</i> cfr. <i>pusilla</i> (Rib.)*	27 (2;1); 33 (4;5); 34 (1;1); 93 (0;1); 103 (6;13)
<i>Arboridia</i> <i>ribauti</i> (Oss.)*	105 (1;0); 89 (0;3); 104 (2;1)
<i>Arboridia</i> <i>spathulata</i> (Rib.)	86 (1;0); 106 (0;1)
<i>Fruticidia</i> <i>sanguinosa</i> (R.)	80 (0;3); 105 (0;1)
<i>Tamaricella</i> cfr. <i>tamaricis</i> (Put.)	105 (2;20); 107 (0;1)
<i>Grypotes</i> <i>puncticollis</i> (H.-S.)	13 (5;18); 100 (6;13)
<i>Goniagnathus</i> <i>brevis</i> (H.-S.)	5 (7;8); 6 (1;1); 7 (0;1); 8 (4;5); 9a (1;0); 10 (4;1); 14 (2;4); 16 (2;2); 19 (1;1); 27 (0;1); 32 (4;1); 43 (1;1); 44 (2;1); 45 (0;1); 46 (3;6); 54 (0;1); 57 (0;1); 70 (1;0); 80 (0;1); 95 (1;1); 96 (1;1); 97 (3;0); 99 (0;1); 100 (1;0); 101 (2;1); 116 (0;3)
<i>Goniagnathus</i> <i>guttulinervis</i> (Kbm.)	79 (1;0); 120 (1;1)
<i>Opsius</i> <i>lethierryi</i> Wagn.	80 (5;14!); 110 (12;17!)
<i>Opsius</i> <i>stactogalus</i> Fieb.	79 (5;11); 80 (1;-); 105 (11;13); 110 (3;-)
<i>Nealiturus</i> <i>fenestratus</i> (H.-S.)	8 (0;1); 9a (0;1); 10 (1;0); 16 (1;0); 23 (1;2); 73 (1;1); 82 (0;1); 86 (6;2); 109 (0;1); 118 (1;0)
<i>Circulifer</i> <i>opacipennis</i> (Leth.)	50 (1;5); 108 (2;7); 109 (0;1); 119 (1;1)
<i>Balclutha</i> <i>nicolasi</i> (Leth.)**	32 (1;0); 80 (0;1); 86 (27;35); 87 (3;2); 88 (2;3); 107 (9;9); 108 (0;1)
<i>Balclutha</i> gr. <i>punctata</i> (F.) sensu Oss.	51 (0;1); 64 (0;2); 88 (1;0); 96 (0;1); 97 (0;4); 99 (0;4); 102 (0;1); 104 (0;1)
<i>Balclutha</i> <i>rosea</i> (Scott)	80 (0;2); 109 (3;6)
<i>Balclutha</i> <i>saltuella</i> (Kbm.)	33 (0;1); 38 (0;1); 75 (1;1)
<i>Macrosteles</i> <i>forficula</i> (Rib.)	18 (1;1); 44 (49;75)
<i>Macrosteles</i> <i>frontalis</i> (Scott)	32 (10;3); 87 (19; 28); 99 (30;26); 109 (3;6)
<i>Macrosteles</i> <i>laevis</i> (Rib.)	9a (9;16!); 22 (3;2); 32 (2;-); 36 (2;0); 44 (1;0); 46 (1;0); 71 (1;-); 80 (5;10!); 82 (5;11!); 83 (8;3); 87 (14;2!); 97 (1;1); 101 (2;1); 109 (3;3)
<i>Macrosteles</i> <i>ossiannilssoni</i> Ldb.**	86 (1;-)
<i>Macrosteles</i> <i>quadripunctulatus</i> (Kbm.)	9a (3;-); 32 (2;3!); 80 (1;-); 87 (5;-)
<i>Macrosteles</i> <i>sardus</i> Rib.	86 (1;-)
<i>Macrosteles</i> <i>septemnotatus</i> (Fall.)	96 (0;1); 101 (7;58)
<i>Macrosteles</i> <i>sexnotatus</i> (Fall.)	9a (4;-); 9b (1;0); 80 (1;-); 82 (1;-); 86 (1;2!)
<i>Macrosteles</i> <i>variatus</i> (Fall.)	104 (1;15)
<i>Macrosteles</i> <i>viridigriseus</i> (Edw.)	71 (15;6!); 80 (3;-); 87 (2;-); 107 (1;0)
<i>Sagatus</i> <i>punctifrons</i> (Fall.)	99 (0;9); 101 (0;4)
<i>Deltocephalus</i> <i>pulicaris</i> (Fall.)	1 (1;0); 14 (0;10); 9a (1;0); 37 (1;10); 38 (7;7); 41 (0;1); 44 (3;3); 49 (39;30); 70 (0;2); 71 (5;2); 93 (1;2); 94 (4;1); 97 (1;1); 101 (1;3)
<i>Nanosius</i> <i>chloroticus</i> (Mel.)*	6 (1;0); 10 (0;5); 11 (3;0); 33 (36;17); 34 (30;8)
<i>Recilia</i> <i>schmidtgeni</i> (Wagn.)	28 (2;3); 32 (1;4); 46 (5;1); 51 (4;5); 54 (1;0); 60 (1;0); 62 (1;0); 69 (1;0); 70 (3;4); 71 (1;1); 75 (1;0); 79 (1;0); 80 (1;0); 85 (1;1); 97 (1;0); 107 (3;2); 110 (2;1); 119 (1;0)
<i>Japananus</i> <i>hyalinus</i> (Osb.)	73 (7;18); 78 (0;1)
<i>Chiasmus</i> <i>conspurcatus</i> (Perr.)	28 (22;23); 32 (0;1); 51 (10;6); 70 (3;5); 71 (4;3); 80 (6;3); 82 (19;17); 83 (2;2); 85 (0;1); 87 (2;1); 119 (1;1)
<i>Doratura</i> <i>stylata</i> (Boh.)	7 (6;3); 8 (6;10); 9c (3;1); 10 (5;49); 11 (9;13); 14 (6;9); 19 (9;13); 22 (3;8); 26 (17;10); 36 (1;4); 37 (18;17); 38 (13;9); 41 (4;7); 42 (1;1); 43 (8;5); 46 (1;1); 47 (8;5); 49 (2;1); 52 (2;0); 92 (3;0); 93 (6;7); 94 (0;1); 95 (1;0); 96 (1;0); 97 (1;0); 99 (6;6); 101 (16;11); 102 (2;3); 121 (7;5)
<i>Doratura</i> <i>veneta</i> Dlab.	15 (4;0); 50 (1;2); 55 (3;1); 60 (1;0); 63 (9;4); 70 (3;4);

	90 (4;6); 120 (2;1)
<i>Aconurella prolixa</i> (Leth.)	28 (12;38); 51 (24;48); 122 (1;0)
<i>Fieberiella florii</i> (Stål)	5 (3;1); 6 (1;4); 7 (0;1); 8 (1;0); 16 (5;0); 46 (1;1); 62 (1;0); 81 (0;1); 105 (0;1)
<i>Synophropsis lauri</i> (Horv.)	74 (2;5); 81 (1;0); 85 (0;2); 105 (3;8)
<i>Placotettix taeniatifrons fieberi</i> (Ferr.)	72 (1;0); 89 (2;2); 105 (0;1)
<i>Phlogotettix cyclops</i> (M., R.)	32 (0;1)
<i>Doratulina ragusai</i> (Mel.)	75 (16;4); 76 (10;0); 90 (3;7)
<i>Exitianus taeniaticeps</i> (Kbm.)	75 (4;5); 79 (1;0); 83 (6;6); 85 (0;1); 107 (9;13); 108 (1;0); 109 (20;23); 110 (15;20); 120 (1;2)
<i>Platymetopius cebifurcatus</i> Gugl.	4 (0;1); 5 (1;2); 6 (2;4); 8 (1;1); 10 (0;1); 11 (1;0); 16 (2;2); 19 (0;1); 22 (2;2); 27 (1;1)
<i>Platymetopius major</i> (Kbm.)	78 (1;0)
<i>Platymetopius verae</i> Gugl.**	55 (1;0)
<i>Platymetopius</i> cfr. <i>guttatus</i> Fieb.	6 (0;1); 7 (2;0); 16 (2;0); 72 (0;1)
<i>Anoplotettix fuscovenosus</i> (Ferr.)	60 (1;2); 61 (5;3); 62 (3;0); 112 (0;1)
<i>Anoplotettix putoni</i> Rib.	55 (4;4)
<i>Idiodonus cruentatus</i> (Panz.)	3 (5;0); 10 (0;1); 11 (10;0); 37 (3;1); 99 (1;1); 121 (2;1)
<i>Lamprotettix nitidulus</i> (F.)	3 (3;1); 4 (3;0); 12 (0;1); 22 (1;1)
<i>Allygus mixtus</i> (F.) sensu Oss.	92 (0;1); 95 (1;0); 98 (0;1)
<i>Allygus modestus</i> Scott	111 (1;0)
<i>Allygidius abbreviatus</i> (Leth.)	5 (0;9); 6 (0;2); 8 (0;3); 9a (0;11); 10 (1;1); 11 (0;4); 25 (0;1); 27 (0;1); 32 (0;2); 43 (0;1); 51 (0;1); 52 (0;1); 55 (0;1); 59 (1;0); 61 (1;0); 86 (0;1); 92 (0;2); 93 (3;3); 95 (0;2); 100 (0;5); 102 (0;1); 103 (1;0)
<i>Allygidius detectus</i> Rib.	55 (1;0); 62 (1,1); 63 (0,1)
<i>Allygidius furcatus</i> (Ferr.)	16 (3;10); 88 (0;1)
<i>Allygidius mayri</i> (Kbm.)*	16 (3;18)
<i>Phlepsius intricatus</i> (H.-S.)	16 (2;9)
<i>Phlepsius spinulosus</i> Wagn.	43 (1;0)
<i>Selenocephalus obsoletus</i> (Germ.)	5 (15;19); 6 (2;0); 7 (2;8); 8 (7;18); 9a (3;3); 15 (2;6); 21 (1;0); 22 (2;6); 41 (1;1); 43 (1;1); 46 (0;1); 81 (0;1); 90 (0;2); 92 (1;0); 95 (2;4); 96 (1;3); 112 (0;1); 120 (1;2); 121 (2;1)
<i>Selenocephalus stenopterus</i> Sign.	81 (2;1); 105 (0;3)
<i>Graphocraerus ventralis</i> (Fall.)	9a (0;1); 10 (0;2); 14 (0;2); 21 (0;1); 24 (0,1); 53 (3;0); 60 (0;1); 101 (0;1); 102 (0;1)
<i>Rhytistylus proceps lavicus</i> D'Urso**	27 (2;0); 43 (0;1); 121 (3;0)
<i>Hardya anatolica</i> Zachv.*	15 (2;2)
<i>Eohardya fraudulenta</i> (Horv.)	5 (1;0); 16 (4;0); 45 (2;1); 46 (2;0); 115 (0;3)
<i>Sardius argus</i> (Marsh.)	16 (3;1); 90 (0;1)
<i>Rhopalopyx cigigas</i> Gugl.	11 (2;0); 25 (1;0); 33 (1;1)
<i>Rhopalopyx elongatus</i> Wagn.	33 (3;0); 53 (6;0); 60 (1;0); 93 (15;6)
<i>Rhopalopyx vitripennis</i> (Fl.)	11 (1;1); 26 (3;0)
<i>Elymana sulphurella</i> (Zett.)	41 (16;54); 88 (0;1); 93 (10;8); 94 (0,1)
<i>Cicadula lineatopunctata</i> (Mats.)*	80 (2;0); 107 (1;1)
<i>Cicadula persimilis</i> (Edw.)	37 (9;7)
<i>Cicadula quadrinotata</i> (F.)	9a (1;0); 20 (2;3); 21 (5;5); 44 (1;0); 49 (3;3); 71 (1;0); 86 (1;0); 88 (2;0); 97 (2;0); 101 (1;0); 102 (4;9); 109 (1;0)
<i>Mocydia crocea</i> (H.-S.)	5 (1;1); 8 (2;1); 16 (11;13); 23 (1;0); 43 (3,5); 53 (0;1); 80 (1;2); 113 (0;2)
<i>Mocydiopsis longicauda</i> Rem.	9a (8;0); 16 (4;1); 19 (44;37); 27 (1;2); 38 (1;4); 43 (1;0); 46 (4;4); 121 (5;2)



<i>Mocydiopsis monticola</i> Rem.**	15 (1;0); 16 (11;5); 17 (2;0); 80 (1;0); 82 (1;0); 102 (2;0); 114 (0;1)
<i>Speudotettix subfuscus</i> (Fall.)	57 (1;2); 64 (0;1); 115 (1;0); 116 (1;1)
<i>Hesium domino</i> (Reut.)	37 (0;1); 41 (0;1); 93 (0;1); 98 (0;2)
<i>Thamnotettix dilutior</i> (Kbm.)	3 (0;1); 4 (0;1); 5 (4;35); 6 (1;8); 7 (1;2); 8 (1;9); 16 (3;8); 21 (1;0); 22 (2;30); 23 (0;1); 38 (1;0); 43 (2;10); 46 (1;2); 51 (0;1); 57 (3;3); 63 (0;1); 64 (7;12); 72 (1;1); 89 (0;3); 95 (1;4); 97 (0;1); 100 (0;4)
<i>Thamnotettix exemtus</i> Mel.	2 (0;2); 5 (0;7); 6 (1;2); 19 (0;2); 27 (1;3); 45 (0;1); 57 (1;3); 93 (0;1); 111 (0;1); 112 (0;1)
<i>Thamnotettix zelleri</i> (Kbm.)	53 (3;2); 60 (2;0); 61 (2;3); 63 (1;0); 119 (1;4)
<i>Athysanus quadrum</i> Boh.***	102 (1;9)
<i>Handianus ignoscus</i> (Mel.)	7 (1;0); 10 (1;1)
<i>Handianus mediterraneus</i> Lnv.	121 (1;0)
<i>Stictocoris picturatus</i> (C. Shlb.)	10 (4;9); 14 (0;2); 19 (1;1); 95 (0;1); 102 (0;2)
<i>Ophiola decumana</i> Kontk.*	64 (1;0); 99 (3;7)
<i>Euscelidius variegatus</i> (Kbm.)	70 (1;1); 80 (1;0); 82 (0;1); 113 (10;2); 118 (1;0)
<i>Conosanus obsoletus</i> (Kbm.)	9a (16;21); 14 (6;2); 20 (4;17); 21 (4;11); 43 (0;1); 44 (0;1); 49 (1;1); 71 (2;3); 88 (1;6); 97 (0;1); 101 (3;15); 102 (0;6); 104 (0;1)
<i>Euscelis distinguendus</i> (Kbm.)	2 (7;7); 11 (3;0); 19 (5;10); 33 (1;0); 121 (1;0)
<i>Euscelis incisus</i> (Kbm.)	5 (1;1); 8 (3;2); 9a (52;35); 9b (1;0); 15 (2;0); 17 (2;7); 18 (1;6); 21 (1;-); 22 (3;3); 23 (1;5); 26 (1;0); 36 (1;3); 37 (3;0); 41 (1;2); 43 (12;11); 69 (3;-); 70 (8;8!); 73 (4;5); 76 (2;0); 77 (1;2); 80 (1;-); 82 (1;-); 85 (1;5); 86 (3;2); 88 (2;13); 92 (2;0); 93 (8;7); 95 (1;0); 97 (7;16); 100 (1;1); 101 (4;1); 102 (6;9); 108 (3;4); 120 (4;0)
<i>Euscelis lineolatus</i> Br.	15 (1;0); 21 (12;8!); 50 (1;1); 60 (1;2); 62 (2;0); 63 (4;3); 69 (4;3!); 70 (2;-); 74 (1;0); 76 (1;0); 79 (3;1); 80 (2;4!); 82 (3;1!); 109 (1;6); 110 (3;0); 119 (5;2)
<i>Euscelis venitala</i> Rem., Bückle & Gugl.	19 (8;12); 22 (2,4); 101 (23;52); 102 (6;4)
<i>Artianus manderstjernii</i> (Kbm.)	7 (3;2); 9a (3;3); 14 (6;4); 15 (6;12); 43 (2;2); 69 (1;2); 76 (2;0); 90 (2;0); 108 (0;1)
<i>Paramesus obtusifrons</i> (Stål)	79 (1;0)
<i>Paralimnus phragmitis</i> (Boh.)	32 (1;1); 87 (4;3); 120 (1;0)
<i>Arocephalus grandii</i> Serv.*	2 (6;1); 7 (1;0); 11 (17;1); 19 (4;15); 27 (2;0); 45 (10;0); 46 (39;10); 47 (1;0)
<i>Arocephalus longiceps</i> (Kbm.)	5 (4;0); 7 (1;1); 9c (2;1); 15 (10;1); 17 (2;0); 19 (2;0); 21 (1;3); 22 (9;3); 23 (4;2); 24 (4;3); 25 (4;0); 26 (2;2); 27 (5;5); 36 (2;5); 37 (1;0); 38 (5;0); 41 (5;0); 43 (4;3); 47 (4;8); 49 (3;2); 52 (3;0); 54 (3;1); 56 (1;0); 57 (1;0); 95 (1;0); 103 (2;1)
<i>Psamnotettix adriaticus</i> Wagn.	119 (8;3)
<i>Psamnotettix gr. alienus</i> (Dhlab.)	9a (5;-); 16 (1;7); 17 (16;2); 20 (1;9); 21 (1;-); 22 (5;-); 23 (1;0); 28 (24;36); 32 (2;-); 36 (1;-); 44 (2;-); 49 (1;-); 50 (31;34!); 51 (16;27!); 60 (2;2!); 63 (1;-); 69 (3;7!); 70 (14;-); 71 (9;9!); 73 (5;8); 75 (5;14); 77 (2;1); 79 (12;21); 82 (2;-); 83 (1;-); 86 (12;16!); 87 (1;-); 88 (5;-); 102 (1;-); 106 (1;0); 107 (1;8!); 108 (9;18); 109 (10;9!); 110 (36;39); 114 (5;0); 117 (1;0)
<i>Psamnotettix confinis</i> (Dhlab.)	1 (9;0); 9a (5;-); 14 (10;-); 22 (11;21!); 32 (9;13!); 36

	(3;-); 38 (3;-); 41 (4;-); 43 (12;19!); 44 (21;23!); 47 (29;39!); 49 (16;26!); 50 (2;-); 51 (3;-); 55 (1;5); 60 (2;-); 61 (1;3!); 63 (4;11!); 66 (5;-); 68 (1;-); 70 (21;52!); 71 (4;-); 76 (1;1); 80 (18;21); 81 (2;0); 82 (3;8!); 83 (2;5!); 85 (2;2); 86 (3;-); 87 (26;18!); 88 (26;27!); 93 (4;-); 95 (1;3); 97 (10;17!); 99 (1;2); 100 (1;0); 101 (21;-); 102 (2;4!); 104 (2;2); 107 (1;-); 109 (2;-); 113 (9;0); 117 (1;0); 118 (1;0)
<i>Psammotettix gr. helvolus</i> (Kbm.)	0 (14;8); 1 (91;197!); 2 (9;0); 3 (1;0); 9a (70;60!); 9c (1;0); 10 (36;30); 11 (13;19); 14 (43;63!); 19 (57;44); 21 (9;14!); 24 (24;41); 25 (12;9); 26 (4;55); 27 (5;0); 31 (19;21!); 33 (19;20!); 34 (14;25!); 36 (16;14!); 37 (29;34); 38 (22;27!); 40 (6;6); 41 (40;28!); 43 (1;-); 44 (7;-); 45 (2;0); 46 (1;0); 47 (14;-); 49 (16;-); 54 (37;37!); 56 (1;0); 65 (18;24); 66 (8;27!); 67 (27;30); 68 (7;7!); 69 (1;-); 93 (78;105!); 97 (2;-); 101 (50;62!); 102 (1;-); 103 (13;18); 121 (5;0)
<i>Psammotettix gr. nodosus</i> (Rib.)	33 (2;-); 34 (2;-); 42 (4;0); 93 (2;-)
<i>Ebarrius cognatus</i> (Fieb.)	5 (1;0); 8 (1;0); 10 (2;2); 19 (3;0); 102 (1;0)
<i>Ebarrius interstinctus</i> (Fieb.)*	54 (1;5)
<i>Adarrus exornatus</i> Rib.	2 (1;4); 5 (9;7); 6 (9;4); 7 (4;5); 8 (19;22); 9a (6;3); 10 (1;3); 11 (10;18); 15 (19;12); 22 (8;4); 23 (1;7); 24 (2;5); 25 (2;5); 26 (6;17); 27 (9;4); 32 (1;0); 33 (4;10); 34 (4;5); 38 (7;5); 41 (7;8); 43 (8;2); 44 (1;0); 46 (6;8); 49 (1;0); 51 (4;2); 52 (7;19); 53 (5;3); 55 (1;1); 57 (3;2); 59 (1;0); 64 (1;0); 92 (2;2); 93 (22;14); 95 (2;1); 97 (0;1); 99 (1;2); 100 (3;2); 101 (4;1); 102 (0;1); 103 (1;3); 120 (2;2); 121 (1;1)
<i>Adarrus multinotatus</i> (Boh.)	111 (1;0)
<i>Jassargus bisubulatus</i> (Then)	8 (1;0); 19 (3;9); 32 (15;4); 43 (20;18); 51 (1;3); 55 (7;11); 57 (6;4); 60 (1;0); 64 (4;4); 76 (6;5); 85 (1;0); 87 (1;2); 88 (9;6); 94 (1;0); 95 (1;3); 97 (1;0); 99 (3;4); 102 (1;3); 104 (0;1); 111 (1;0)
<i>Jassargus latinus</i> (Wagn.)	7 (12;9); 8 (12;0); 9a (7;0); 9b (1;0); 15 (21;10); 19 (15;17); 22 (3;2); 26 (1;0); 45 (10;5); 46 (8;2); 50 (4;0); 51 (1;1); 52 (1;0); 53 (11;6); 60 (5;2); 76 (1;0); 96 (3;0); 97 (4;1); 99 (1;4); 103 (1;0); 121 (3;0)
<i>Jassargus repletus</i> (Fieb.)	11 (1;0); 38 (1;2)
<i>Diplocolenus bohemani</i> (Zett.)	0 (10;3); 11 (5;16); 33 (6;14); 34 (2;4); 67 (13;9); 93 (2;0); 121 (0;1)
<i>Diplocolenus frauenfeldi</i> (Fieb.)*	1 (0;2); 2 (11;26); 11 (1;0); 54 (10;4); 121 (0;1)
<i>Verdanus monticola</i> (Lnv.)	10 (3;4); 14 (5;5); 21 (2;7); 92 (1;1); 93 (6;22); 99 (0;2); 101 (2;11); 102 (1;1)
<i>Verdanus nigrifrons</i> (Kbm.)	0 (17;8); 11 (0;1); 67 (3;5)
<i>Arthaldeus striifrons</i> (Kbm.)	8 (1;1); 9a (2;6); 18 (1;0); 32 (2;1); 43 (1;0); 85 (1;1); 86 (2;1); 88 (1;0); 101 (3;0); 102 (1;2); 107 (3;2); 110 (2;2); 119 (1;0)

## II. Taxonomic and biogeographic remarks

In this chapter we discuss not only those taxa which are new records for Italy, for continental or at least peninsular Italy but also those taxa which have a restricted distribution in Italy. Remarks on the general distribution (or at least their distribution in Italy) of some of these taxa are added. In addition, we discuss those taxa for which a safe identification was not yet possible for us due to dubious taxonomic situation. In our

opinion further research is needed to clear up their taxonomic situation. The literature on distribution in Italy is taken from Servadei 1967, publications later than 1967 are indicated separately in our list of references.

### **Cixiidae**

*Cixius* gr. *sticticus* Rey, 1891

The species group contains *C. carniolicus* Wagner, *C. alpestris* Wagner and *C. vindobonensis* Wagner. Our specimens probably correspond to those recorded for peninsular Italy ("S") by D'Urso (1995a) as *alpestris*.

*Tachycixius remanei* D'Urso, 1999\*\*

Species listed up to now only from Sicily (D'Urso, 1999).

*Reptalus cuspidatus* (Fieber, 1876)

In D'Urso (1995a) recorded as *Setapius cuspidatus*.

### **Delphacidae**

*Kelisia guttulifera* (Kirschbaum, 1868)\*

Records from Veneto and Friuli-Venezia Giulia (Servadei, 1976).

*Kelisia monoceros* Ribaut, 1934\*

Record only from Trentino Alto Adige (Servadei, 1967).

*Kelisia* gr. *ribauti* Wagner, 1938\*\*

At present it is not possible for the specimens collected in Italy to attain a safe specific determination due to the doubtful taxonomic situation in this group: *K. ribauti* Wagner was given (nomenclatorically incorrect) as a "new name" to a taxon erroneously taken by Ribaut (1934) as *K. guttula* (Germ.) - the "typical" population thus lives in the Central Northern Pyrenees (the "*guttula*" - records of Ribaut l.c.). After the splitting of "*K. ribauti* Wagner, s. lat. " into a taxon living especially in Northern Germany on sandy soil on *Carex arenaria* (*K. sabulicola* W. Wagner, 1952) and another one living in moist (preferably mountainous) biotopes on *Carex flacca*, this latter taxon was taken by Wagner to be "his" *K. ribauti*. This was followed by others, for instance Ossiannilsson 1978. Le Quesne 1960 examining British specimens, united these two taxa again, for he found the differences pretended to exist by Wagner 1952 in length of aedeagus and proportions of aedeagus length to body length not clearly represented in British populations examined by him. This might be due to the fact that "mediterranean" populations of this group do not fit – neither morphologically nor ecologically – to these two "central European" taxa (see also Holzinger *et al.* 2003). The specimens recorded here belong to these "mediterranean populations" - their taxonomic rank as well as their name has to be left open until profound biosystematic and morphometric research has been made on this group.

*K. ribauti* records from Sicily (D'Urso, 1988) and Sardinia (Guglielmino *et al.*, 2000) probably will concern the "mediterranean" taxon as well.

*Anakelisia perspicillata* (Boheman, 1845)\*

Records from Trentino Alto Adige, Friuli Venezia Giulia and Emilia (Servadei, 1967).

*Stenocranus major* (Kirschbaum, 1868)\*

Records from Piemonte (Olmi, 1968) and Lombardia (Osella & Pogliano Osella, 1989).

*Eurysa rubripes* (Matsumura, 1910)

It was placed by Holzinger *et al.* 2003 into their new genus *Eurysanoides* Holzinger *et al.* 2003.

Records in Italy only from Sicily and Puglia (D'Urso, 1995a).

*Stiroma* sp.\*

The only collected specimen belonging to the *Stiroma* genus was a female and couldn't be identified up to species level. The genus is new for peninsular Italy. The Italian species of this genus, *S. affinis* Fieber and *S. bicarinata* (H.-S.) are listed, respectively, the first from Lombardia, Trentino Alto Adige and Veneto (Servadei, 1967; 1972-1973) and the second species from Friuli-Venezia Giulia (Servadei, 1967).

*Iubsoda stigmatica* (Melichar, 1897)\*\*

We collected only one macropterous female. With *I. duffelsi* Dlabola being synonym to *I. stigmatica* (see Asche, 1999), *Iubsoda stigmatica* is the only *Iubsoda* taxon occurring in Italy. The species was so far known only from Sicily (Dlabola, 1977; D'Urso, 1986).

*Euconomelus lepidus* Haupt 1929

Former records on the Appennine Peninsula only from Calabria (D'Urso, 1995a).

*Chloriona sicula* Matsumura, 1910\*\*

Record in Italy only from Sicily (Servadei, 1967), the species however is widespread in the whole Mediterranean area reaching also into southern Central Europe.

*Chloriona unicolor* (Herrich-Schäffer, 1835)\*

Records from Trentino Alto Adige, Friuli-Venezia Giulia and Sardinia (Servadei, 1967).

*Megamelus notula* (Germar, 1830)\*

Records from Trentino Alto Adige, Friuli-Venezia Giulia and Emilia (Servadei, 1967).

*Sogatella vibix* (Haupt, 1927)\*\*

Species in Italy listed together with *S. furcifera* (Horváth) only from Sicily (Servadei, 1967, respectively as *Liburnia matsumuriana* Metcalf 1943 and *L. furcifera* (Horváth, 1899)).

*Muellerianella brevipennis* (Boheman, 1847)\*

Species known from Piemonte, Trentino Alto Adige, Veneto, Liguria, Emilia, Sardinia (Servadei, 1967; 1976).

*Dicranotropis* gr. *hamata* (Boheman, 1847)

The precise attribution to a species is at present quite difficult. *Dicranotropis hamata* (Boheman) is spread from Anatolia through the Balkan Peninsula to northern Europe and perhaps to the northern slopes of the Pyrenees. On the Iberian and Appennine Peninsulas however populations are found with evidently different characters in their

genital apparatus. In addition, we have to examine what are the relations of the Italian populations to the Iberian taxa and the species described from the Caucasus by Logvinenko (1969, 1976).

*Scottianella dalei* (Scott, 1870)

In Italy up to now this species was recorded only from Isola del Giglio (Dlabola, 1971, as *Delphacodes gravesteini* Dlabola, 1971).

*Xanthodelphax flaveolus* (Flor, 1861)

Records from Piemonte, Friuli-Venezia Giulia (Servadei, 1967) and Campania (D'Urso, 1995a).

*Xanthodelphax stramineus* (Stål, 1858)

Records from Trentino Alto Adige and Campania (Servadei, 1967; 1968).

*Falcotoya minuscula* (Horváth, 1897)\*

Record from Northern Italy (Asche & Remane, 1982).

*Ribautodelphax fanari* Asche, Drosopoulos, Hoch, 1986\*\*\*

Records from northeastern Greece, southwestern Turkey, Istria, southeastern France (Asche, Drosopoulos & Hoch, 1986).

*Ribautodelphax imitans* (Ribaut, 1953)\*

Record in Italy only from Emilia (Servadei, 1967).

*Flastena fumipennis* (Fieber, 1866)\*

Records from Liguria and Sardinia (Servadei, 1967, as *Delphacodes lethierryi* Scott, 1873) and Sicily (Matsumura, 1910 as *Delphax nigricans* Matsumura, 1910).

## Dictyopharidae

*Dictyophara* cfr. *hispanica* Linnavuori, 1965\*\*\*

At present this taxon is being revised by A. Emeljanov. We await his results for a definitive identification.

## Tropiduchidae

*Trypetimorpha occidentalis* Huang & Bourgoïn, 1993

At present in Italy there are two species of the genus *Trypetimorpha* recorded: *T. fenestrata* A. Costa and *T. pilosa* Horváth. In 1907, Horváth described *T. pilosa* comparing his new taxon with another species which he thought to be *T. fenestrata* A. Costa, but which in reality never had been described. Recently, Huang & Bourgoïn (1993) have synonymized *T. pilosa* Horváth and *T. fenestrata* A. Costa and described the taxon "*T. fenestrata sensu* Horváth" as *T. occidentalis*.

The specimens collected during our research belong to *T. fenestrata auct., nec* A. Costa = *T. occidentalis* H. & B..

### **Tettigometridae**

Tettigometridae are a Monophylum within Fulgoromorpha, but their relationship to other groups of Fulgoromorpha is controversially discussed. The discrimination at species level as well as the nomenclature of many taxa is not yet satisfactorily known due to insufficiently known ranges of variation in many taxa, a rather simplified structure of male and female genitalia, and a high number of "old" variety names. For this reason some of the taxa collected in Central Italy are identified only to the level of species groups.

*Tettigometra* gr. *impressopunctata* Dufour, 1896

Lindberg (1948) unites in a small group three taxa (*T. impressopunctata* Duf., *T. atrata* Fieber, 1892, and *T. depressa* Fieber, 1865) which are very similar to each other, their identification seems difficult to us and their taxonomic rank needs to be examined.

*Tettigometra* gr. *obliqua* (Panzer, 1799)

We follow Nast, 1987: 631, who thinks the older name "*Cicada leucophaea* Preyssler, 1792" dug out by Dlabola 1972 - if then it really means the same taxon - should be treated as a "nomen oblitum" due to the very few times it has been used (3 times in catalogues within 180 years), whereas *T. obliqua* (Pnz.) has frequently been used (also in publications of "Applied Entomology").

The taxonomy of *T. obliqua* (Pnz.) and related "forms" does'nt seem well worked to us - some of those "forms" might be species of its own. Also own material from Central Italy contains more than only one "form".

*Tettigometra sordida* Fieber, 1865

A well characterized taxon with a rather small range of variation, widely distributed in Mediterranean and Central European countries. The holotype in Vienna Museum has seen by one of us (Remane). According to Holzinger *et al.* 2003, *T. sordida* is a synonym of *T. griseola* Fieber, 1865.

### **Issidae**

*Hysteropterum* sp. and *Agalmatium* gr. *flavescens* (Olivier, 1791)

Awaiting the results of V. Gnezdilov's revision of these genera currently under way at St. Peterburg, which regards also the specimens collected during the present research in Central Italy, we are unable for the moment to furnish a more precise identification.

*Latilica tunetana* (Matsumura, 1910)

Recently Gnezdilov & Mazzoni (2003) have cleared the systematic position and range of distribution of the *Latilica maculipes*-group. Up to now this group includes: *L.*

*maculipes* (Melichar, 1906), *L. tunetana* and *L. oertzeni* (Matsumura, 1910). Both *L. maculipes* and *L. tunetana* are present in Italy.

The old records of *L. maculipes* (the only species of this group recorded in Italy up to 2003) are to be revised.

### **Aphrophoridae**

*Neophilaenus* gr. *exclamationis* (Thunberg, 1784)

The definition of species and subspecies within this group is extremely difficult (Wagner's paper (1955) treats only the taxa of Northern and Central Europe and those of the Alps). For the Appennines studies regarding this problem are lacking to date. For this reason we confine ourselves for the moment to attribute the only collected specimen to the *exclamationis*-group without assigning it to a subspecies.

### **Cicadellidae**

*Utecha* gr. *trivia* (Germar, 1821)

*Utecha trivia* recently was split up by Orosz (1977) into two species (*U. trivia* and *U. lugens*) which he thinks to differ in very minor characters of the male genital apparatus only. According to some researchers therefore the taxonomic status of these taxa is regarded as dubious. For this reason we consider, at present, the specimens collected in Central Italy as members of the *trivia*-group.

*Oncopsis* gr. *flavicollis* (Linnaeus, 1761)

Claridge & Nixon (1986) discovered that in Britain *Oncopsis flavicollis* consists of three bio-species. The continental populations have not yet been revised but consist certainly of more than one species.

*Oncopsis tristis* (Zetterstedt, 1840)\*

Records up to now from Trentino Alto Adige, Lombardia, Emilia Romagna (Servadei 1967, 1972-73) and Sicily (D'Urso, 1981)

*Macropsis albae* Wagner, 1950\*

Record from Piemonte (Servadei, 1967). In D'Urso (1995a) this taxon is considered synonymous to *M. ocellata* Provancher. We keep the name *albae*, for we think that Hamiltons (1980, 1983) idea, that *albae* Wagner might be identical with *M. ocellata* Provancher 1872, has by no means been proved: Hamilton (1976) states that the (only ?) specimen after which Provancher (i.e.) described this taxon, has been lost and - based only on Provancher's description - synonymized *M. ocellata* Provancher with *Jassus prasinus* Boheman, 1852 - a decision we consider to be hazardous due to the quality of the Provancher description on the one and the similarity of this group of *Salix*-inhabiting European *Macropsis*-taxa on the other hand. In 1980 Hamilton changed his mind and now synonymized *M. albae* Wagner, 1950 with *M. ocellata* Provancher with certainly no better reasons than for his former synonymization of *M. ocellata* Provancher with *M. prasina* (Boh.). In 1983 Hamilton designated a "Neotype" for *Macropsis ocellata* Provancher in spite of the fact, that Provancher's description does not allow a decision concerning the identity of *M. ocellata* and *M. albae*, and that there is no locality (and thus no locus typicus) given by Provancher, and that there is no proof

that the European *M. albae* Wagner at that time had already been introduced into North America. We thus consider this "neotype"-fixation as invalid.

In addition Hamilton (1980) synonymized *Macropsis virescens* var. *latifasciata* Breakey, 1932 (described after 3 females from different localities, no host plant given) with *M. ocellata* Provancher - but indicates (Hamilton, 1983) that he did not examine the type specimen (only 3 females of the DeLong-collection "associated" with the holotype, but no paratype): in our opinion the decision about the synonymy *M. latifasciata* Breakey, 1932 - *M. albae* Wagner, 1950 should be postponed until an examination of the *latifasciata* holotype has been made.

*Macropsis haupti* Wagner, 1941

With regard to this taxon, D'Urso (1995a) writes: "general and unreliable record; this species could be recorded erroneously as *M. planicollis*, presently synonymous to *M. cerea*".

The distribution of this species in Italy is to be revised.

*Macropsis notata* (Prohaska, 1923)

For this taxon exists to date only a general record from Italy (D'Urso, 1995a).

*Macropsis scotti* Edwards, 1920\*\*\*

Taxon recorded only from the western border of Palaearctic Region: Ireland, Great Britain, Netherlands, France, Switzerland, Portugal, Morocco (Nast 1972, 1987).

*Macropsis vicina* Horváth, 1897\*\*\*

Mediterranean species living on *Populus alba* and *P. canescens*, known from Austria, Germany, France, Hungary, Czechoslovakia, Poland, Kazakhstan, southern Russia, Ukraine, ex Yugoslavia (Nast, 1972; 1987; Remane & Fröhlich 1994). Probably widespread in Italy with its hostplants.

*Macropsidius* cfr. *dispar* (Fieber, 1868)

With only females available a specific determination was impossible.

*Agallia brachyptera* (Boheman, 1847)

For this species exists up to now in Italy one very old record only (Ferrari, 1885: Campania, see Servadei, 1967).

*Agallia* cfr. *consobrina* Curtis, 1833

On the basis of the tympanal apparatus we can distinguish different populations, which with regard to coloration and genital apparatus seem identical. The possibility of the existence of new species in Italy induced us to attribute our only collected specimen to the "*consobrina* group".

*Dryodurgades dlabolai* Wagner, 1963\*

In Italy records from Piemonte and Emilia (Servadei, 1967).

*Dryodurgades* cfr. *ribauti* Wagner, 1963\*\*\*

We have to mention that all the specimens collected during our research present equally certain differences in the genital apparatus compared with those figured in the literature



as *D. ribauti* (Della Giustina, 1989). We renounce for the moment an interpretation of the phenomenon awaiting further material.

Records from France and Portugal (Nast, 1972; 1987).

*Metidiocerus dimidiatus* (Ribaut, 1952)\*\*

In D'Urso (1995a), this species is included in the genus *Tremulicerus*, following the erroneous placement in Nast 1987.

Record only from Sardinia (Servadei, 1967 as *Idiocerus dimidiatus* Ribaut, 1952).

*Metidiocerus rutilans* (Kirschbaum, 1868)\*

In D'Urso (1995a), this species is included into the genus *Tremulicerus*, following the erroneous placement in Nast 1987.

Record only from Trentino Alto Adige (Servadei, 1967 as *Idiocerus rutilans* Kirschbaum, 1868).

*Populicerus laminatus* (Flor, 1861)\*

Records from Trentino Alto Adige (Servadei, 1967) and Sicily (Guglielmino, 1989a).

*Tremulicerus fulgidus* (Fabricius, 1775)

*T. fulgidus* and *T. mesopyrrhus* Kirschbaum recently are synonymized by Nickel & Remane (2002). However, we hold that this question remains unclear and mention that among the specimens collected during our research were found coloration forms both of the *mesopyrrhus* and the *fulgidus* (s. str.) type. In particular, the populations collected in site 82 present specimens with the coloration of *fulgidus* (s.str.) (1 male, 1 female), and others with that of *mesopyrrhus* Kirschbaum (1 male, 2 female).

*Cicada fulgida* Fabricius, 1775 was, according to Wagner, 1961, for a long time misinterpreted by homopterologists (e.g. Ribaut 1952): the name was used for a species of the *Idiocerus populi*-group (now *Populicerus*). In fact, the type of *C. fulgida* F. is the species of the *I. tremulae*-group known up to then as *I. cupreus* Kbm., 1868. Due to this the name *cupreus* Kbm. is a junior synonym of *I. fulgidus* F., for *I. fulgidus* auct. nec F. the name *Bythoscopus nitidissimus* H.-S., 1835 is applied (see already Ossiannilsson 1981, Della Giustina 1989). D'Urso (1995a), however, still uses "*fulgidus*" for the *Populicerus*-taxon, she mentions in addition *P. nitidissimus* H.-S., but doubts its presence in Italy.

*Iassus mirabilis* Orosz, 1979\*\*\*

Records from Hungary, Albania, and Czechoslovakia (Nast 1987).

*Aphrodes* gr. *makarovi* Zachvatkin, 1948

The group of taxa around *Aphrodes bicinctus* Schrank has been the object of (often controversial) discussions concerning species number, species discrimination and nomenclature (e.g. Ribaut 1952, Le Quesne 1965, Nast 1976). Recently Tishechkin (1998) examined the vibratory signals of populations from the Moscow region and was able to distinguish no less than three species there. Unfortunately he used the name *bicinctus* Schrank in a sense differing from that used by Nast 1976 and Ossiannilsson 1981, by this enlarging considerably the nomenclatorial uncertainties.

In the Mediterranean areas the delimitation of the species of this group is at present quite difficult. For the moment we unite all the specimens as "*makarovi* group" deferring the definitive solution of this question to future research.

*Anoscopus* gr. *albifrons* (L., 1758)

To this group belong *A. albifrons*, *A. limicola* (Edwards) and probably a third species, *A. arcuatus* Kirschbaum (at present a synonym to *A. albifrons*) described by Kirschbaum from South France. The problem is to understand if they are closely related species or geographic forms of the same species. The specimens collected in Central Italy differ slightly from *A. albifrons* in the coloration and in the morphology of the aedeagus. The significance of these differences is, at present, not definable. The specimens we found in Italy coincide in size, coloration and male genital apparatus with the taxon described by Wagner (1937) as *A. arcuatus* Kirschbaum and differ distinctly from the *A. albifrons* forms occurring in Middle Europe.

*Anoscopus* cfr. *flavostriatus* (Donovan, 1799)

The aedeagi of the collected males are shaped slightly differently from the specimens figured by Ossiannilsson (1981: 378). We don't dispose of sufficient material for an interpretation of this phenomenon.

*Stegelytra erythroneura* Haupt, 1924\*

Records from Piemonte and Sicily (Servadei, 1967) and Sardinia (Guglielmino *et al.*, 2000). The Servadei's records (1967) are to be revised because he considered *S. erythroneura* Haupt, 1924 as synonymous to *S. putoni* M. & R. 1875. This applies in particular for the records from Piemonte as recently *Stegelytra putoni* has been found (as first record in Italy) in Liguria (Province of Imperia, road between Badalucco and Vignai, fork Madonna della Neve, 400m, 28/8/2000; mediterranean forest with *Quercus ilex*; 3 males, 10 females; Guglielmino & Bückle leg.).

*Alebra viridis* Rey, 1894\*\*\*

Records from UK, France, Switzerland, Germany, presumably widespread in a great part of Europe.

*Erythria aureola* (Fallén, 1806)\*

Records from Trentino Alto Adige, Friuli-Venezia Giulia and Veneto (Servadei, 1967; 1968; 1976).

*Wagneriala sinuata* (Then, 1897)\*

Records from Liguria and Friuli-Venezia Giulia (Servadei, 1967 as *Dikraneura situata* Then, 1897).

*Kybos* cfr. *virgator* (Ribaut, 1933)\*

The specimens collected in Central Italy present constantly a tympanal apparatus clearly different from that which is figured by Ossiannilsson (1983) for *K. virgator*. We await the collection of more abundant material also from further localities for the solution of the problem.

Records of *K. virgator* (Ribaut) only from Veneto and Sardinia (Servadei, 1967).

*Austroasca vittata* (Lethierry, 1884) (sensu Ribaut)\*

Records from Piemonte, Friuli-Venezia Giulia and Sicily (Servadei, 1967 as *Kyboasca vittata* Lethierry, 1884).

*Kyboasca bipunctata* (Oshanin, 1871)\*

Records from Veneto and Emilia (Servadei, 1967).

*Chlorita beieri* Dlabola, 1959\*

Species of the Balkan peninsula, in Italy recorded only from Friuli Venezia Giulia (Servadei, 1967).

*Edwardsiana diversa* (Edwards, 1914)

Records from northern Italy (Vidano & Arzone, 1981), Toscana (Mazzoni & Lucchi, 2002) and Sicily (D'Urso, 1988).

*Edwardsiana plurispinosa* (Wagner, 1935)\*\*\*

Taxon described by Wagner (1935) as a variety of *Typhlocyba lethierryi* Edw., but considered a valid species by Wilson & Claridge, 1999. For this reason the Italian distribution of *E. plurispinosa* and *E. lethierryi* is to be controlled.

Records from UK, Germany, France (Wilson & Claridge, 1999).

*Edwardsiana prunicola* (Edwards, 1914)\*

Record from northern Italy (Vidano & Arzone, 1981).

*Edwardsiana salicicola* (Edwards, 1885)\*

Record only from Piemonte (Alma, 1999). The species reaches in Central Italy probably the southern border of its distribution.

*Linnavuoriana sexmaculata* (Hardy, 1850)\*

Records from Piemonte, Lombardia, Trentino Alto Adige, Friuli-Venezia Giulia, Sardinia (Servadei, 1967 and 1972-73, as *L. sexpunctata* Fallén, 1826) and Sicily (D'Urso, 1995b).

*Eurhadina kirschbaumi* Wagner, 1937\*

Records from northern Italy (Vidano & Arzone 1987) and Sicily (Guglielmino, 1989a).

*Eupteryx collina* (Flor, 1861)

This name has been transferred from one species to another after the examination of Flor's type material - so records of "*E. collina*" refer to two different species: in Ribaut (1936) a species is described and figured under this name which differs from the type material of *E. collina* Flor (see Vilbaste 1973). Flor's taxon is very near or even identical with *E. alticola* Ribaut 1936. This makes necessary the use of another name for *E. collina* Ribaut nec Flor: the name of a variety, var. *florida* Ribaut, 1936, has to be used for it. The "*Eupteryx collina*" records given by Servadei (1967) for Italy will - if correctly identified - concern *E. florida* Ribaut.

The species *E. collina* (Flor) was already reliably recorded from Northern Italy by Remane & Hellrigl (1996).

*Eupteryx curtisii* (Flor, 1861)

In D'Urso (1995a) this species was obviously recorded as *E. stachydearum* (Hardy). *E. curtisii* was considered formerly (Ossiannilsson 1981) as a synonym to *E. stachydearum*, but recently the two taxa were distinguished besides by differences in the aedeagus morphology also by a different ecology, with *E. curtisii* preferring rather dry and open sunny places. Our specimens collected in Central Italy all belong to *E. curtisii* and we have to clarify, whether *E. stachydearum* s.str. is distributed there as well, or whether all the records up to now have to be referred to *E. curtisii*.

*Eupteryx* cfr. *origani* Zachvatkin, 1948\*\*\*

The specimens from Central Italy compared with others from Germany differ slightly in the anterior wing colour and in the host-plant (*Stachys alopecuros* and not *Origanum vulgare*, the only host-plant cited in literature for *E. origani*). The significance of these differences are, at present, not definable.

Species described from Russia, subsequently recorded from Sweden, Finland, Estonia, Latvia, Lithuania, Great Britain, Netherlands, Germany, Poland, Czechoslovakia, Switzerland, Austria, Ukraine, Bulgaria (Nast, 1972; 1987) and France (Della Giustina & Remane, 2001).

*Zyginella pulchra* Löw, 1885

Records from Friuli-Venezia Giulia, Emilia, Sardinia (Servadei 1967), Toscana (Mazzoni & Lucchi, 2002) and Sicily (D'Urso *et. al.*, 1984).

*Zyginidia* cfr. *ribauti* Dworakowska, 1970

This group includes several taxa (as for example *Z. ribauti*, *Z. serpentina* (Matsumura), *Z. italica* (Ribaut)). In some areas these taxa apparently form hybrid belts which renders a delimitation of distinct species very difficult. The specimens collected during our research present usually the characters indicated by Dworakowska (1970a) for *Z. ribauti*.

*Zygina* gr. *eburnea* Fieber, 1884 and *Zygina* gr. *tiliae* (Fallén, 1806)

Due to the state of coloration of the only female found respectively (characteristical solely during the first period of life, subsequently ± bleaching out) only an identification on species group level was possible.

*Zygina hyperici* (Herrich-Schäffer, 1836)

Records from Piemonte (Vidano & Arzone, 1975-76), Toscana (Mazzoni & Lucchi, 2002), Sicily (D'Urso, 1995b), Sardinia (Servadei, 1967).

*Arboridia erecta* (Ribaut, 1931)\*

Record only from Veneto (Servadei, 1967 as *Erythroneura erecta* Ribaut, 1931).

*Arboridia* cfr. *pusilla* Ribaut, 1936\*

Record from Alto Adige (Remane, 1994).

The collected specimens are different in some details from those which are figured by Ribaut (1936) as *A. pusilla*. Future research may determine if this phenomenon can be found in other regions of the Appennine peninsula as well.

*Arboridia ribauti* (Ossiannilsson, 1937)\*

Records only from northern Italy (Arzone & Vidano, 1987).

*Arboridia spathulata* (Ribaut, 1931)

A synonymy of *A. spathulata* (Ribaut) with *A. versuta* (Melichar) is supposed by Dworakowska, 1970b, with the following arguments: "I have seen one female, holotype of *Zygina versuta* Mel., kept at the Moravian Museum in Brno and a male with the abdomen lost, determined by L. Melichar. After a very careful examination I found *Zygina versuta* Mel. indistinguishable externally neither from *A. velata* (Rib.), *A. alpestris* (Rib.) and *A. cantoreanica* sp. n. nor from *Erythroneura spathulata* Rib. The above synonymy is based on personal communication of Prof. Dr. J. Nast, who has studied the above mentioned male of *Zygina versuta* Mel.". Melichar (1897) described *Z. versuta* after a single female from Ragusa (=Dubrovnik) in Dalmatia. In our opinion there is neither any evidence of the specific identity of Melichar's female holotype with the male determined by the same author (who didn't consider the male genital apparatus as a specific character) nor is the identification of that male as *A. spathulata* sufficiently clear (with the abdomen lacking this problem will remain unsolvable in future either). Therefore, the identity of *A. spathulata* (Ribaut) with *A. versuta* (Melichar) is by no means proved. *A. spathulata* (Ribaut) should be maintained as valid taxon and our Italian specimens are to be attributed to it.

*Fruticidia sanguinosa* (Rey, 1891)

Records from Friuli-Venezia Giulia (Servadei, 1967), Toscana (Mazzoni & Lucchi, 2002) and Sicily (D'Urso, 1995b).

*Tamaricella* cfr. *tamaricis* (Puton, 1872)

Dworakowska (1971) has described several species within the *tamaricis*-group on the basis of small differences in the shape of aedeagus and pygofer processus. For the moment a clear attribution of our specimens to one of those doubtlessly very close related taxa was impossible for us.

*Circulifer opacipennis* (Lethierry, 1876)

D'Urso (1995a) records this taxon as *Neoliturus haematoceps* (Mulsant & Rey). Apparently there exists a group of near related taxa like *C. haematoceps*, *C. opacipennis* and some others, which differ only in slight morphological characters, but present different bioacoustic behaviours and partially also a different ecology. Therefore, *Neoliturus haematoceps* in D'Urso (1995a) has to be regarded as a species group.

*Balclutha nicolasi* (Lethierry, 1876)\*\*

Recorded in Italy only from Sardinia (Guglielmino *et al.*, 2000), but widely distributed around the Mediterranean.

*Balclutha* gr. *punctata* (Fabricius, 1775)

Maybe a group of species differing by size and proportions, host plant and life cycle, but hardly in the structure of the male genitalia. Colour and markings are highly variable (the colour even within specimen's life): Biometric examination, breeding and bioacoustic research will be necessary to solve this question.

*Balclutha rosea* (Scott, 1876)

In some recent publications (e.g. Nast 1987, D'Urso 1995a) this taxon is named *B. frontalis* Ferrari, for it was assumed that *Gnathodus roseus* Scott, 1876 is a secondary homonym to "*Balclutha rosea*" (Provancher, 1872) (see Beirne, 1956: 64; Hamilton, 1976: 41). But *B. rosea* Provancher was described as "*Typhlocyba rosea* Provancher, 1872", which is a primary homonym to *Typhlocyba rosea* Flor, 1861 and therefore not available (Provancher himself changed the name to *T. jocosa*, see Hamilton 1976).

*Macrosteles ossiannilssoni* Lindberg, 1954\*\*

Records only from Sicily (Guglielmino, 1989a) and Sardinia (Guglielmino *et al.*, 2000).

*Macrosteles septemnotatus* (Fallén, 1806)

Recorded in Italy only from Toscana (Servadei, 1967).

*Nanosius chloroticus* (Melichar, 1896)\*

Described from Slovenia, locally distributed on the Balkan Peninsula. In Italy recorded only from Trentino Alto Adige (Servadei, 1967 as *Deltocephalus chloroticus* Melichar, 1896). This record originates in a notice by Cobelli (1904, 1909), which we consider as rather dubious, so this is the first safe record from Italy.

*Japananus hyalinus* (Osborn, 1900)

Records from Piemonte (Arzone & Vidano, 1990) and Toscana (Mazzoni & Lucchi, 2002).

*Phlogotettix cyclops* (Mulsant & Rey, 1855)

Records from Piemonte, Veneto (Servadei, 1967) and Toscana (Mazzoni & Lucchi, 2002).

*Exitianus taeniaticeps* (Kirschbaum, 1868)

The synonymy with *E. capicola* (Stål) as supposed by some authors is by no means proved. See also the indications given by Ross (1968).

*Platymetopius* cfr. *guttatus* Fieber, 1869

The specimens found in Central Italy differ from the taxon figured by Ribaut (1952; p. 236) as *P. guttatus* in the form of their pygofer lobes. The taxonomic meaning of the phenomenon has to be discussed later. Further research is needed to clear up the taxonomic situation.

*Platymetopius verae* Guglielmino, 1989\*\*

Record only from Sicily (Guglielmino, 1989b).

*Idiodonus cruentatus* (Panzer, 1799)

Recorded on the Appennine Peninsula only from Calabria (D'Urso, 1995a).

*Allygidius mayri* (Kirschbaum, 1868)\*

East mediterranean species, recorded in Italy from Piemonte, Liguria and Sardinia (Servadei, 1967).

*Selenocephalus stenopterus* Signoret, 1880

*S. pallidus* was described by Kirschbaum (1868) on the basis of a female specimen which in reality was a parasitized *S. obsoletus* (Germar, 1817). The adults collected in Central Italy belong to the taxon described by Signoret (1880) as *Selenocephalus stenopterus*, which up to now was included among the synonyms of *S. pallidus* (Kbm., 1868), whereas it is a good species.

The distribution of *S. stenopterus* in Italy is to be revised.

*Rhytistylus proceps lavicus* D'Urso, 1978\*\*

Taxon described by D'Urso (1978) as a subspecies and considered endemic of Etna. Its presence in Central Italy, where on the other hand *Rhytistylus proceps proceps* (Kirschbaum) never has been found during our research, could imply that *lavicus* is a good species which perhaps substitutes *proceps* in the Appennines and in Sicily.

*Hardya anatolica* Zachvatkin, 1946\*

Records from Trentino Alto Adige (Remane & Fröhlich, 1994).

*Sardius argus* (Marshall, 1866)

Mainly west mediterranean species, recorded in Italy from Trentino Alto Adige, Emilia (Servadei, 1967), Toscana (Mazzoni & Lucchi, 2002), Sicily (Guglielmino, 1989a) and Sardinia (Guglielmino *et al.*, 2000).

*Cicadula lineatopunctata* (Matsumura, 1908)\*

Records from Trentino Alto Adige and Sardinia (Servadei, 1968 as *C. divaricata* Ribaut, 1952) and Sicily (Matsumura, 1908).

*Mocydiopsis monticola* Remane, 1961\*\*

Transmediterranean species, extending to Central Europe. In Italy records up to now only from Sicily (Guglielmino, 1989a).

*Athysanus quadrum* Boheman, 1845\*\*\*

Transpalaeartic species, lacking apparently only in the extreme Southwest. Records from Austria, Belgium, Bohemia, Moravia, Denmark, Finland, France, Germany, Great Britain, Hungary, Mongolia, Netherlands, Norway, Poland, Romania, Sweden, Altai Mts., Estonia, Kazakhstan, Latvia, Lithuania, southern Russia, Sakhalin, southern Siberia, Ukraine (Nast, 1972; 1987). In the northern mediterranean area up to now only with a very localized incidence.

*Handianus mediterraneus* Linnavuori, 1962

Only record in Italy up to now from Marche (Monti Sibillini, Type locality). The place where we found the species during our survey (Gran Sasso) is located not very distant from the type locality.

*Ophiola decumana* (Kontkanen, 1949)\*

Records from Piemonte and Trentino Alto Adige (Servadei, 1967 as *Scleroracus decumanus* Kontkanen, 1949). Collected by one of us (Remane) also in Calabria.

*Arocephalus grandii* Servadei, 1972\*

Records from Lombardia e Trentino Alto Adige (Servadei, 1972-73).

*Psammotettix* gr. *alienus* (Dahlbom, 1850)

In the exuberant material collected during our research we found a conspicuous variability both of coloration and (often not correlated) of the aedeagus morphology, also within a population. Therefore a separation of single species out of this group seems not justifiable. In this group enter all the forms with aedeagus of the type of *alienus* (Dahlbom), *provincialis* (Ribaut), *striatus* (L.) sensu Ribaut and intermediate forms.

*Psammotettix* gr. *helvolus* (Kirschbaum, 1868)

Also among the equally numerous collected specimens of this species-group we can observe a conspicuous variability without clear delimitations. We unite in the group all the forms with aedeagus type of *helvolus* and similar forms.

*Psammotettix* gr. *nodosus* (Ribaut, 1925)

The few collected specimens which we can attribute to this group don't give a clear idea whether they belong to different species or are members of one variable taxon. For the moment we unite the specimens of *Psammotettix* with aedeagus of the type *nodosus*, *erraticus* or an intermediate type as "*nodosus* group", and hope to tackle the problem again in the future as soon as we dispose of sufficient material.

*Ebarrius interstinctus* (Fieber, 1869)\*

Recorded in Italy only from Trentino Alto Adige (Servadei, 1967).

*Diplocolenus frauenfeldi* (Fieber, 1869)\*

Record only from Piemonte (Servadei, 1967).

III. Remarks about biotopes, hostplants, distribution in altitude, annual cycle etc. of the species observed during the present research

**Cixiidae**

*Cixius dubius* Wagner

Collected in 2 places at low altitude (200-400m) in a mixed mediterranean forest; on *Crataegus* and *Prunus*; in spring (6/4 - 7/4).

*Cixius nervosus* (L.)

Collected in 9 places at low and medium altitude (100-1300m), generally in moist areas with poplars and willows near lakes or brooks, often on *Salix*; in summer (6/8 - 22/8).

*Cixius simplex* (Herrich-Schäffer)

Collected twice at the same place at medium altitude (1300m); on willows (17/8 - 18/8).

*Cixius* gr. *sticticus* Rey

Collected in 4 places (all on Monte Viglio), at 1200 - 1650m, in mountain beech forests or submediterranean deciduous forests on trees or shrubs; in summer (9/8 - 10/8).



*Tachycixius pilosus* (Olivier)

Collected in 4 places at very low altitude (0-200m), medium altitude (1300m) and high altitude (1700m), on shrubs near the seashore or in dry forests, on *Salix* along a brook or in pastures; in spring (6/4 - 15/5, 0-200m) and summer (17/8 - 24/8, 1300-1700m).

*Tachycixius remanei* D'Urso\*\*

Collected twice in the same place at 1300m, on *Salix* along a brook (17/8 - 18/8).

*Reptalus cuspidatus* (Fieber)

Collected in only one place near seashore (in june).

*Reptalus melanochaetus* (Fieber)

Collected only once at 100m on shrubs near a brook (16/8).

*Reptalus panzeri* (Löw)

Collected in only one place near the seashore (in june).

*Pentastiridius leporinus* (L.)

Collected 3 times in 2 places in the dune vegetation near the seashore or meadows along lagoons, sometimes in very abundant populations; in spring (15/5) and summer (14/8 - 15/8).

*Hyalesthes luteipes* Fieber

Collected in 5 places at very low altitude (0-450m); in the low not grassy vegetation or on shrubs, often near lakes or rivers; in summer (30/7 - 16/8).

*Hyalesthes obsoletus* Signoret

Collected in 5 places at very low altitude (200-450m), sometimes in extraordinarily abundant populations; in the low not grassy vegetation or on shrubs, often near lakes or rivers; in summer (30/7 - 19/8).

## **Delphacidae**

*Asiraca clavicornis* (F.)

Collected in 4 places at low altitude (200-700m) in meadows; in spring (6/4) and summer (30/7 - 22/8).

*Kelisia brucki* Fieber

Collected only once at 100m in the grassy vegetation near a river (12/8, 1 brachypterous female).

*Kelisia guttula* (Germar)

Collected only once at 1350m in a pasture (12/8, 1 brachypterous male).

*Kelisia guttulifera* (Kirschbaum)\*

Collected only once in the grassy vegetation near the seashore (22/8, 1 brachypterous male).

*Kelisia italica* Guglielmino & Remane

Collected in 3 places at high altitude (1800-2200m), in mountain pastures on *Carex* (*C. macrolepis* DC. and/or *C. kitaibeliana* Degen); in summer (5/8 - 21/8). Collected together with *K. monoceros*, but much less common.

*Kelisia melanops* Fieber

Collected only once at 1350m in a rich, but very localized population in a moist meadow near a lake; on *Carex* (*C. flacca* or *C. punctata*) (8/8).

*Kelisia monoceros* Ribaut\*

Collected 12 times in 10 places, mainly and often in very abundant populations at high altitude (1800-2200m), rarely and in few numbers at medium altitude (2 places: 1100-1200m); in mountain pastures, on *Carex* (*C. macrolepis* DC. and/or *C. kitaibeliana* Degen); in high summer (5/8 - 25/8).

*Kelisia* gr. *ribauti* Wagner\*

Collected 6 times in 5 places at very low altitude (0-450m) in moist meadows on *Carex* (at the seashore-site on *Carex divisa* Hudson); in spring (15/5) and summer (30/7 - 22/8).

*Anakelisia perspicillata* (Boheman)\*

Collected in 6 places, generally in meadows or pastures at medium altitude (1000 - 1350m, only one specimen at 1800m); in summer (4/8 - 24/8).

*Stenocranus major* (Kirschbaum)\*

Collected in 2 places at low altitude (0 - 400m), on grasses near rivers or lake shores; on *Phalaris arundinacea* as in other regions of Europe (15/8 - 22/8).

*Stenocranus minutus* (F.)

Collected in 6 places at medium altitude (700 - 1350m), in meadows; in spring (29/5) and summer (11/8 - 29/8).

*Jassidaeus lugubris* (Signoret)

Collected only in one place at 1000m in a swampy meadow (1 macropterous male, 27/8).

*Eurysa lineata* (Perris)

Collected only once at 500m in a rather dry meadow (1 brachypterous female, 1/6).

*Eurysa rubripes* (Matsamura)

Collected only once at 200m in the grassy vegetation in a forest; 1 macropterous male, in spring (6/4).

*Eurybregma nigrolineata* Scott

Collected only once at 400m in a meadow (only brachypterous specimens, 17/5).

*Stiroma* sp.\*

Collected only once in a moderately moist meadow at 1300m (1 brachypterous female, 8/8).

*Metropis latinus* (Kirschbaum)

Collected only once in a meadow at 1400m, in spring (only brachypterous specimens, 22/5).

*Iubsoda stigmatica* (Melichar)\*\*

Collected only once at 1300m in a moist pasture near a brook (17/8, 1 macropterous female).

*Euconomelus lepidus* (Boheman)

Collected only once at 1350m; in the vegetation in a moist area near a lake shore (1 brachypterous male, 8/8).

*Conomelus lorifer dehneli* Nast

Collected 11 times in 10 places, at low altitude (2 places, 0 and 500m), but mainly at medium altitude (8 places, 1000 - 1350m). Often in very rich populations in swampy areas on *Juncus*; in summer (1/8 - 27/8).

*Delphax ribautianus* Asche & Drosopoulos

Collected only once in the grassy vegetation of a swampy area near a lake at 400m (2 macropterous males, 22/8).

*Chloriona sicula* Matsumura\*\*

Collected in 7 places at very low altitude (0-250m) in swampy areas near the seashore or lake shores, on *Phragmites*; in summer (14/8 - 19/8).

*Chloriona unicolor* (Herrich-Schäffer)\*

Collected in 2 places in swampy areas near the seashore, on *Phragmites* (14/8 - 15/8).

*Chloriona vasconica* Ribaut

Collected only once at 500m in the swampy area near a lake, on *Phragmites* (1/8).

*Megamelus notula* (Germar)\*

Collected in 2 places at medium altitude (1300-1350m) in swampy meadows with *Juncus* and *Carex* near a brook and a lake respectively (8/8 - 18/8).

*Laodelphax striatellus* (Fallén)

Extremely common and widespread, highly migratory, collected 44 times in 40 places, at low altitude (0-650m, 26 times in 23 places) and there often in very abundant populations, at medium altitude (1000-1350m, 12 places) and high altitude (1700-2150m, 6 times in 5 places); mainly in moderately moist or dry meadows, also in mountain pastures; in spring (5/4 - 7/4, 100 - 400m, 3 places) and summer (30/7 - 29/8).

*Sogatella vibix* (Haupt)\*\*

Collected only once at 100m, in a meadow bordering a lagoon (1 macropterous male, 15/8).

*Muellerianella brevipennis* (Boheman)\*

Collected only once at 1300m, in a moist meadow near a brook (only brachypterous specimens, 18/8).

*Muellerianella fairmairei* (Perris)

Collected only once at 1350m, in a pasture (1 brachypterous male, 12/8).

*Muirodelphax aubei* (Perris)

Collected 5 times in 4 places, at very low altitude (0-400m), in meadows, sometimes very common in the grassy vegetation near seashore; in spring (15/4 - 30/5) and summer (22/8 - 28/8).

*Dicranotropis divergens* (Kirschbaum)

Collected in 2 places at high altitude (2100-2200m) in mountain pastures (5/8 - 8/8).

*Dicranotropis* gr. *hamata* (Boheman)

Collected in 16 places from 300 up to 1600m in generally rather moist meadows near lakes or brooks, also in the low vegetation of clearings in open forests; in summer (30/7 - 29/8).

*Florodelphax leptosoma* (Flor)

Collected in 4 places at low altitude (400-500m) or medium altitude (1000-1100m), in swampy areas near lakes or rivulets; in summer (1/8 - 27/8).

*Scottianella dalei* (Scott)

Collected in 2 places at very low altitude (100-150m) in moist meadows near a brook and a lake respectively; in spring (1 brachypterous male, 5/4) and summer (1 macropterous female, 19/8).

*Xanthodelphax flaveolus* (Flor)

Collected only once at 2000m in a mountain pasture (1 brachypterous male, 5/8).

*Xanthodelphax stramineus* (Stål)

Collected in 5 places at low or medium altitude (400m, 1000-1300m) in moist meadows; in summer (6/8 - 27/8).

*Toya propinqua* (Fieber)

Next to *Laodelphax striatellus* the most common Delphacid species, collected 33 times in 32 places, in sometimes vast numbers at low altitude (0-650m, 22 times in 21 places), less abundant, but always common at medium altitude (800-1400m, 8 places), little common in high altitude (1800-2150m, 3 places). In all types of dry or moist meadows, rarely in mountain pastures; in spring (15/4, 1/6 - 3/6) and summer (30/7 - 29/8).

*Falcotoya minuscula* (Horváth)\*

Collected only once in the vegetation near the seashore (1 brachypterous female, 28/8).

*Javesella dubia* (Kirschbaum)

Collected 8 times in 7 places at low and medium altitude (100-1300m) in moist meadows near brooks or lakes, sometimes in very large numbers; in spring (5/4, 100m, a very rich population) and summer (30/7 - 27/8).

*Ribautodelphax albostriatus* (Fieber)

Collected in 2 places at medium altitude (1000-1350m), in pastures (12/8 - 27/8).

*Ribautodelphax fanari* Asche, Dros., Hoch\*\*\*

Collected 3 times in 2 places in the dune vegetation near the seashore, on *Ammophila litoralis* ?; in spring (10/4 - 15/4) and summer (28/8).

*Ribautodelphax imitans* (Ribaut)\*

Collected in 3 places at 0-1100m, in moist meadows; in summer (6/8 - 21/8).

*Ribautodelphax pungens* (Ribaut)

Collected in 3 places at medium altitude (1100-1500m) in meadows or in the vegetation of a dry river bed; in summer (7/8 - 17/8).

*Flastena fumipennis* (Fieber)\*

Collected 7 times in 6 places at low altitude (0-450m) in moderately moist meadows; in spring (5/4) and summer (30/7 - 22/8).

## **Achilidae**

*Cixidia advena* (Spinola)

Collected only once at 400m in a dry mediterranean forest (21/8).

*Cixidia pilatoi* D'Urso & Guglielmino

Collected in 2 places at low altitude, in a meadow in spring (17/5, 400m) and in a dry forest in summer (31/7, 750m).

## **Dictyopharidae**

*Dictyophara europaea* L.

Collected in 7 places at low and medium altitude (100-1200m), in the low vegetation of meadows or forests; in summer (30/7 - 20/8).

*Dictyophara* cfr. *hispanica* Linnavuori\*\*\*

Collected only once in the low vegetation of an open mixed deciduous forest, at 1200m (10/8).

*Dictyophara multireticulata* Mulsant & Rey

Collected in 3 places at low and medium altitude (100-1100m) in the low vegetation of open deciduous forests; in summer (3/8 - 26/8).

*Bursinia hemiptera* (O. Costa)

Collected in 6 places at medium altitude (700-1500m) in the low vegetation of open deciduous forests, but mainly in dry meadows; in summer (10/8 - 24/8).

### **Tropiduchidae**

*Trypetimorpha occidentalis* Huang & Bourgoïn

Collected in 15 places at low and medium altitude (0-1200m), in rather dry meadows and there sometimes in very abundant populations, occasionally also in the grassy vegetation in open forests; in summer (11/8 - 28/8).

### **Tettigometridae**

*Tettigometra sordida* Fieber

Collected only once at 750m, in a mediterranean mixed forest; in summer (31/7).

*Tettigometra impressifrons* Mulsant & Rey

Collected twice at the same place in the vegetation near the seashore; in spring and early summer (15/4, 15/6).

*Tettigometra* gr. *impressopunctata* Dufour

Collected only once at 1000m, in an area with moderately moist meadows and *Salix* shrubs (11/8).

*Tettigometra* gr. *obliqua* (Panzer)

Collected in 3 places at low altitude (100-700m), in dry forests with *Acer campestre*, *Quercus*; in summer (3/8 - 21/8).

*Micrometrina baranii* (Signoret)

Collected only once in the vegetation near the seashore (15/6).

*Tettigometra* (*Brachycephs*) gr. *laeta* (Herrich-Schäffer)

Collected in 2 places at very low and medium altitude (0m, 1100m), in dry meadows; in spring (15/4: 0m) or summer (26/8: 1100m).

### **Caliscelidae**

*Caliscelis bonellii* (Latreille)

Collected in 13 places at medium and high altitude (0-1200m) in the low vegetation of open deciduous forests, but mainly in meadows; in spring and summer (28/5 - 24/8).

*Homocnemia albovittata* A. Costa

Collected only once at very low altitude (100m), in a dry area near a river (10/7).

*Peltonotellus quadrivittatus* (Fieber)

Collected 5 times in 4 places only at high altitude (1800-2200m), in the grassy vegetation of mountain pastures; in summer (2/8 - 21/8).

*Ommatidiotus dissimilis* (Fallén)

Collected 3 times only, in 2 places in a moist meadow near the seashore and in a dry mountain pasture at 1800m, both rich populations, on *Carex*; in early (15/6: only at seashore) and high (13/8 - 14/8) summer.

**Issidae**

*Hysteropterum* sp.

Collected only once at moderately low altitude (700m), in a meadow between trees; in spring (29/5).

*Hysteropterum reticulatum* (Herrich-Schäffer)

Collected in 3 places at medium altitude (1100-1200m) and high altitude (1800m); in dry meadows, mountain pastures or open forests; in summer (10/8 - 13/8).

*Agalmatium* gr. *flavescens* (Olivier)

Collected in 4 places at low (100-450m) and (in quite rich populations) at medium altitude (700-1000m), in the dry vegetation near a lake or brook or on trees and shrubs in rather dry biotopes; in summer (10/7 - 15/8).

*Latilica tunetana* (Matsumura)

Collected only once at 100m in a dry forest of *Quercus ilex* and *Pistacia lentiscus* (14/8).

*Issus coleoptratus* (F.)

Collected in 8 places at low or medium altitude (100-400m, 1000-1350m), usually in rather dry forests on trees, often *Quercus* sp.; in summer (10/8 - 22/8).

*Issus muscaeformis* (Schrank)

Collected in 4 places at low, medium or moderately high altitude (400-1600m), in mediterranean and submediterranean forests, on trees; in high summer and autumn (16/8 - 3/10).

*Latissus dilatatus* (Fourcroy)

Collected in 5 places at low or medium altitude (100-1000m), generally in dry forests on trees (*Quercus*); in spring (30/5, 400m) and summer (14/8 - 24/8).

**Flatidae**

*Metcalfa pruinosa* (Say)

Collected in 5 places at very low altitude (0-300m), sometimes in very rich populations in intensely cultivated areas; in spring (15/5) and summer (12/8 - 17/8).

**Cicadidae**

*Cicada orni* L.

Collected only once in a dry forest with *Quercus ilex*, *Pistacia lentiscus* at 50m; in summer (14/8).

**Cercopidae**

*Cercopis arcuata* Fieber

Collected in only two places at low and high altitude (230 and 1700m), in meadows; in spring (28/5 - 29/5).

*Cercopis sanguinolenta* (Scopoli)

Collected only once at low altitude (100m), in meadows; in spring (6/4).

*Cercopis vulnerata* Rossi

Collected in 2 places in low altitude (0-400m), in meadows; in spring (15/5 - 17/5).

**Aphrophoridae**

*Lepyronia coleoptrata* (L.)

Collected in 14 places at low and medium altitude (0-1350m), in moderately moist or dry meadows, also in the low vegetation in open deciduous forests; in early summer (28/5 - 10/7) and high summer (30/7 - 20/8).

*Neophilaenus campestris* (Fallén)

Collected in 16 places at very low altitude (3 places, 6 specimens, 0-250m), medium altitude (1 place, 1 specimen, 1000m), but mainly and often in rich populations at high altitude (12 places, 135 specimens, 1600-2200m), where the species forms a typical element of the mountain pasture cicada fauna. Elsewhere occasionally in the grassy vegetation near the seashore or in open forests. In early summer (28/5 - 6/7) and high summer (3/8 - 23/8). Only one specimen at low altitude was found in high summer (3/8).

*Neophilaenus* gr. *exclamationis* (Thunberg)

Collected only once (1 male specimen) at 1500m, in a mountain pasture (23/6).

*Neophilaenus lineatus* (L.)

Collected in 10 places at low altitude (500-750m, 3 places), at medium altitude (1000-1350m, 6 places) and high altitude (1800m, 1 place); rich populations only at medium altitude; in normally rather dry meadows or pastures, also in the grassy vegetation in open forests; in spring (29/5) and summer (1/8 - 24/8). *N. lineatus* and *N. campestris* were never found together in mixed populations.

*Aphrophora alni* (Fallén)

Collected in 6 places at low or medium altitude (0-1200m), on different trees; in spring and summer (28/5 - 14/8).

*Aphrophora pectoralis* Matsumura (= *costalis* Matsumura)

Collected in 5 places at low and medium altitude (100-1350m), in moist areas on *Salix*; in summer (8/8 - 23/8).



*Aphrophora salicina* (Goeze)

Collected only once at 100m, on *Salix* near a brook (16/8).

*Philaenus italosignus* Drosopoulos & Remane

Collected in 5 places at low altitude (100-750m), in dry mediterranean forests with *Quercus ilex* and *Acer campestre*; on trees, obviously aestivating there; in early and high summer (1/6 - 16/8).

*Philaenus spumarius* (L.)

Extremely common and widespread, obviously with a very wide ecological range, collected 37 times in 36 places, at low altitude (0 - 750m, 17 places) and at medium altitude (1000-1350m, 17 places), much less common at high altitude (1650-1800m, 2 places). In nearly all habitats: wet or dry meadows, dry mediterranean forests, submediterranean deciduous forests, beech forests, in the low vegetation and on trees, avoiding almost completely only the highest mountain pastures. In late spring (15/5 - 1/6) and summer (30/7 - 27/8), also in autumn (3/10).

## Membracidae

*Centrotus cornutus* (L.)

Collected in 3 places at medium and low altitude (400-1000m), in the low vegetation of open forests or meadows; in spring (17/5 - 3/6).

*Gargara genistae* (F.)

Collected in 8 places at low and medium altitude (100-1400m), in low vegetation in open forests or meadows; in summer (6/8 - 16/8).

*Stictocephala bisonia* Kopp & Yonke

Collected in 8 places at low and medium altitude (0-1300m), in more or less moist meadows, also in intensely cultivated areas; in summer (11/8 - 21/8).

## Cicadellidae

*Utecha* gr. *trivia* Germar

Collected in 5 places at medium and high altitude (1000-2000m), in meadows or mountain pastures; in summer (4/8 - 23/8).

*Megophthalmus scanicus* (Fallén)

Collected 4 times in 3 places at low altitude (350-400m, in spring: 17/5 - 1/6, in open meadows) or medium altitude (1200m, in summer: 26/8, in a shadowy meadow near forest).

*Ledra aurita* (L.)

Collected only once at 1400m, in a mixed deciduous forest on trees (6/8).

*Oncopsis gr. flavicollis* (L.)

Collected only once at 1400m, in a mixed deciduous forest (*Populus tremula*, *Salix*, *Ostrya carpinifolia*) on *Betula pendula* (6/8).

*Oncopsis tristis* (Zetterstedt)\*

Collected only once at 1400m, in a mixed deciduous forest (*Populus tremula*, *Salix*, *Ostrya carpinifolia*) on *Betula pendula* (6/8). Collected together with the preceding species.

*Macropsis albae* Wagner\*

Collected only once at 1000m in a moist open forest, on *Salix alba* ? (4/8), (6) females only.

*Macropsis cerea* (Germar)

Collected 6 times in 5 places at medium altitude (1000-1300m), on *Salix* near brooks; in summer (7/8 - 23/8). We found in each place many more females than males (21 males as against 102 females).

*Macropsis fuscinervis* (Boheman)

Collected in 3 places at medium altitude (1000-1300m), in moist deciduous forests or near brooks on *Populus tremula*, only (3) females; in summer (4/8 - 10/8).

*Macropsis fuscula* (Zetterstedt)

Collected on 2 places at medium altitude (1000-1100m) in meadows with willows, on *Salix*, only (4) females (apparently stray specimens, the normal food plant being *Rubus*) (11/8).

*Macropsis glandacea* (Fieber, 1868)

Collected on *Ulmus* near the seashore, in spring and summer (may-larvae; june-adults).

*Macropsis graminea* (F.)

Collected only once in a rich population at low altitude (300m), on *Populus nigra*; in spring (31/5).

*Macropsis haupti* Wagner\*

Collected in 7 places at medium altitude (1000-1350m), on *Salix* near brooks or in moist forests; in summer (4/8 - 17/8). Many more females than males (39 : 8).

*Macropsis infuscata* (Sahlbom)

Collected only once at 1000m, on *Salix* in a moist forest (4/8).

*Macropsis marginata* (Herrich-Schäffer)

Collected 7 times in 6 places at low and medium altitude (100m, 1100-1350m), on willows near lakes or brooks; in summer (7/8 - 18/8). Prevalently females (7 males as against 50 females).

*Macropsis notata* (Prohaska)

Collected only once at 1000m in a moist forest on *Salix* (4/8), only females.

*Macropsis scotti* Edwards\*\*\*

Collected only once at 1400-1500m in a beech forest (9/8).

*Macropsis scutellata* (Boheman)

Collected only once at 1000m in a moist forest, on *Urtica* (10/8).

*Macropsis vicina* Horváth\*\*\*

Collected in 4 places at low and medium altitude (100-1100m), in moist areas near brooks or lakes, on *Populus alba* or *P. canescens*; in summer (6/8 - 23/8).

*Macropsidius* cfr. *dispar* (Fieber)

Collected only once at 100m, in the dry vegetation near a river (10/7), 7 females only.

*Hephathus nanus* (Herrich-Schäffer)

Collected only once at medium altitude (800m), in a dry meadow, on *Artemisia* (24/8).

*Agallia brachyptera* (Boheman)

Collected only once at 1800m, in a mountain pasture (17/8).

*Agallia* cfr. *consobrina* Curtis

Collected only once at 1200m, in the low vegetation near a brook (22/8).

*Anaceratagallia laevis* (Ribaut)

Collected 24 times in 22 places, very common at low altitude (112 specimens from 20 places at 0-650m), rare at medium altitude (only 3 specimens from 2 places at 1000-1100m) and never found in the higher mountain areas above 1100m; (15/5 - 29/8). Typical element of the fauna of meadows of the plains and hills at low altitude between seashore and 700m, often near rivers or lakes.

*Anaceratagallia ribauti* (Ossiannilsson)

Distinctly less common than the other two *Anaceratagallia* species found during our investigations (30/7 - 26/8). Collected only in 10 places and always only 1 or 2 specimens. Besides, the species prefers the meadows of medium altitude (6 places at 1000-1200m), avoiding however, like the preceding species, the higher mountain areas (no samples above 1200m), whereas the lowest sampling place for the species was at 100m.

*Anaceratagallia venosa* (Fourcroy)

Rare at low altitude (only 4 places beneath 1000m), quite common in medium altitude (12 places at 1000-1400m), this species represents a typical element of the mountain pasture fauna (12 times in 11 places at 1500-2200m), where it lives often in extremely abundant populations (28/5 - 29/8). At medium or low altitude this species may live together with the other two *Anaceratagallia* species. It seems, however, to prefer rather dry places and has been found only at one more or less moist place among 27 (*A. laevis*:

14 among 22, *A. ribauti*: 6 among 10). The specimen of the lowest place was collected in spring (28/5).

*Austroagallia sinuata* (Mulsant & Rey)

Collected 17 times in 16 places mainly in low altitude, often near the seashore, rarely also at medium altitude (2 places: 1000 and 1300m), in one case at 2150m; in moist or dry meadows, also in the low vegetation of dunes; in early and high summer (1/6 - 22/8).

*Dryodurgades* cfr. *ribauti* Wagner\*\*\*

Collected in 3 places at medium altitude (800-1200m), in clearings of an open deciduous forest, in meadows and in the low vegetation near a brook; in summer (7/8 - 24/8).

*Dryodurgades dlabolai* Wagner\*

Collected in 2 places at moderately low altitude (650-700m), in meadows near deciduous forests; in spring and summer (1/5, 15/8).

*Rhytidodus decimusquartus* (Schrank)

Collected only once, on *Populus nigra* near a lake, at 250m (19/8).

*Idiocerus herrichii* (Kirschbaum)

Collected in 5 places at low altitude (100m) or medium altitude (1000-1300m), only once in a rich population, on *Salix* on brook or river banks; in summer (6/8 - 18/8).

*Idiocerus stigmatalis* Lewis

Collected 10 times in 9 places at medium or moderately high altitude (1000-1700m), sometimes in rich populations, on *Salix* near brooks or lakes; in summer (4/8 - 17/8).

*Idiocerus vicinus* Melichar

Collected in 14 places, three times at very low altitude (100-400m), but usually at medium altitude (1000-1350m), sometimes in rich populations, on *Salix*, often near brooks; in summer (4/8 - 23/8), once in spring (5/4, only (10) females, perhaps after hibernating).

*Acericerus heydenii* (Kirschbaum)

Collected in 4 places at medium altitude (750-1200m) in mixed forests, (exclusively ?) on *Acer campestre* (in other countries recorded also from other *Acer* species e.g. *pseudoplatanus* and *monspessulanum*); in early and high summer (3/6 - 22/8).

*Acericerus ribauti* Nickel & Remane (=rotundifrons Ribaut nec Kirschbaum)

Collected in 5 places at low altitude (100-700m), in rather dry open forests or on edges of forests, on *Acer campestre*; in summer (2/8 - 16/8).

*Acericerus vittifrons* (Kirschbaum)

Collected in 9 places at low and medium altitude (100-1350m), in lowly situated places often together with the preceding species, but also in submediterranean deciduous

forests, (exclusively ?) on *Acer campestre* (in other countries recorded also from other *Acer* species e.g. *pseudoplatanus* and *monspessulanum*); in spring and high summer (6/4, 1/8 - 21/8).

*Bugraia ocularis* (Mulsant & Rey)

Collected in 3 places at very low altitude, in dry mediterranean forests, exclusively on *Pistacia lentiscus*; in spring and summer (7/4 - 14/8).

*Metidiocerus dimidiatus* (Ribaut)\*\*

Collected in 2 places at low or medium altitude (100m, 1100m), in moist areas near lakes or brooks, on *Populus alba* or *Populus canescens* (6/8 - 12/8).

*Metidiocerus rutilans* (Kirschbaum)\*

Collected in 3 places at medium altitude (1100-1300m), on *Salix* near brooks; in summer (7/8 - 18/8).

*Populicerus albicans* (Kirschbaum)

Collected in 2 places at low and medium altitude, in moist areas near lakes or brooks, on *Populus alba* or *Populus canescens* (6/8 - 12/8).

*Populicerus confusus* (Flor)

Collected in 9 places at medium altitude (1000-1500m), on *Salix* near brooks or lakes, often in rich populations; in summer (4/8 - 18/8).

*Populicerus laminatus* (Flor)\*

Collected in 7 places at medium altitude (1000-1500m), in moist forests or near brooks, on *Populus tremula*, sometimes in rich populations; in early (3/6) or high summer (6/8 - 14/8).

*Populicerus populi* (L.)

Collected in 8 places at medium altitude (1000-1500m), on *Populus tremula* in moist forests or near brooks or lakes, sometimes in rich populations, often together with the preceding species; in summer (4/8 - 14/8).

*Stenidiocerus poecilus* (Herrich-Schäffer)

Collected in 2 places in single specimens respectively, at medium altitude (1100-1300m), near brooks (6/8 - 17/8).

*Tremulicerus distinguendus* (Kirschbaum)

Collected in 2 places at low and medium altitude (100m, 1000m), in a moist area near a lake and in a moist forest, on *Populus alba* (4/8 - 12/8).

*Tremulicerus fulgidus* (F.)

Collected in 3 places at low and medium altitude (100-250m, 1100m), in areas near rivers or lakes, on *Populus nigra*; in summer (12/8 - 19/8).

*Tremulicerus tremulae* (Estlund)

Collected in 5 places at low altitude (100m) and medium altitude (1000-1350m), in moist areas near rivers or lakes, also in moist forests, on *Populus tremula*; in summer (4/8 - 14/8).

*Tremulicerus vitreus* (F.)

Collected in 2 places at low and medium altitude (25m, 1350m), in moist areas near lakes, on *Populus nigra*; (8/8 - 19/8).

*Viridicerus ustulatus* (Mulsant & Rey)

Collected 4 times in 3 places at low or medium altitude (0-100m, 1000m), on *Populus canescens* or *P. alba*, sometimes in rich populations; near the seashore (in spring and early summer: 15/4 - 15/6) and in moist areas near a lake or a rivulet (in high summer: 6/8 - 12/8).

*Batracomorpha irroratus* Lewis

Collected only once at 1800m, in a mountain pasture (13/8).

*Iassus mirabilis* Orosz\*\*\*

Collected in 3 places at medium altitude (700-1400m), in open deciduous forests, on *Ostrya carpinifolia* and *Quercus* sp.; in summer (6/8 - 19/8, among 14 specimens only 1 male).

*Iassus scutellaris* (Fieber)

Collected in 3 places at very low altitude (0-400m), on elms; in spring (15/5: 5 males, 3 females) and summer (16/8 - 21/8: only (7) females).

*Eupelix cuspidata* (F.)

Collected 6 times in 5 places at low altitude (0-400m, 4 places) and at high altitude (1800m, 1 place), in dry meadows or pastures; in spring (15/5 - 30/5: 0-400m), early summer (10/7: 100m) and high summer (5/8 - 17/8: 1500-1800m, only 1 female and 2 larvae).

*Aphrodes* gr. *makarovi* Zachvatkin

Collected in early summer (15/5 - 1/6) at low altitude (0-500m, 3 places), in high summer (4/8 - 26/8) at medium (1000-1400m, 13 places) and high altitude (1600-1800m, 3 places). The species (if it is really only one species !) has obviously a quite wide ecological range, we found it prevalently in open areas in more or less dry meadows, more rarely in the mountain pastures or in the low vegetation of open forests.

*Aphrodes carinata* (Stål)

Collected only once at sea level, in the grassy vegetation near the seashore; in spring (may).

*Anoscopus* gr. *albifrons* (L., 1758)

Collected only once, in the grassy vegetation near the seashore; in spring (may).

*Anoscopus* cfr. *flavostriatus* (Donovan)

Collected 5 times in 4 places at medium altitude (1000-1300m), in rather moist meadows or in the low vegetation of forests; in summer (8/8 - 19/8).

*Anoscopus serratulae* (F.)

Collected 6 times in 5 places mainly at medium altitude (1000-1350m, only one specimen at 400m); in dry or somewhat moist meadows or in the low vegetation of open forests. The specimen at 400m was collected in early summer (30/5), the other specimens in high summer (14/8 - 23/8).

*Planaphrodes trifasciata* Fourcroy sensu Ribaut (= *laeva* (Rey) ?)

Collected 4 times in 3 places at very high altitude (1800 - 2200m), in mountain pastures; in summer (8/8 - 22/8).

*Stegelytra erythroneura* Haupt\*

Collected 3 times in 2 places, at low altitude, in dry mediterranean forests, on *Quercus ilex*; in summer (1/8 - 14/8) and autumn (3/10).

*Evacanthus acuminatus* (F.)

Collected in 8 places at low altitude (1 place: 250m), high altitude (1 place: 1700m), but mainly at medium altitude (6 places: 1000-1400m); in rather moist, normally shadowy places in the low vegetation, often in forests; in late spring (28/5: 250m) and summer (6/8 - 26/8).

*Evacanthus interruptus* (L.)

Collected in 8 places at medium and high altitude (1000-2000m), in the non-grassy low vegetation, often in forests in shadowy cool places; in summer (4/8 - 23/8).

*Cicadella viridis* (L.)

Collected in 11 places at low and medium altitude (0 - 1200m), in moist meadows; in spring and summer (28/5 - 22/8).

*Alebra albostriella* (Fallén)

Collected in 5 places (100-1400m), typically in deciduous forests of medium altitude, on trees, especially oaks; in summer (1/8 - 19/8).

*Alebra viridis* Rey \*\*\*

Collected only in 3 places both at low (400m) and medium altitude (1300-1400m), in mixed forests; in summer (6/8 - 16/8).

*Alebra wahlbergi* (Boheman)

Collected in 6 places (0-1400m), at low and medium altitude, usually in forests, but also on shrubs in open areas; in spring and summer (28/5 - 15/8).

*Erythria aureola* (Fallén)

Collected only once at 1100m, in a dry meadow with some trees and shrubs (26/8).

*Erythria seclusa* Horváth

Collected in 3 places at high altitude (1800 - 2000m), in mountain pastures; in summer (8/8 - 22/8).

*Liguropia juniperi* (Lethierry)

Collected only once at 250m, in the low vegetation near a lake (19/8).

*Emelyanoviana mollicula* (Boheman)

Very widespread and common species, collected 28 times in 27 places at low, medium and high altitude (400-2150m), with the maximum at medium and moderately high altitude; mainly in meadows and pastures, sometimes in abundant populations, rarer in the low vegetation of deciduous forests; in spring and summer (17/5 - 29/8).

*Micantulina stigmatipennis* (Mulsant & Rey)

Collected only once near the seashore, probably on *Verbascum* from which host plant it is recorded in other publications; in spring (15/4).

*Wagneriala sinuata* (Then)\*

Collected 4 times in 3 places, at high altitude (1800-2200m), in mountain pastures, in one case in an extremely abundant population; in summer (5/8 - 22/8).

*Notus italicus* Wagner

Collected 3 times in 2 places at medium altitude (1300 - 1350m), in quite moist meadows near lakes or brooks, in one case in an abundant population (8/8 - 18/8).

*Kybos rufescens* Melichar

Collected at 8 places at medium altitude (1000 - 1500m: M. Velino region and, above all, Monti della Laga), on *Salix purpurea* near brooks but also in mixed deciduous forests of *Salix*, *Populus tremula*, *Fagus*, *Ostrya* and other trees; in summer (4/8 - 12/8). We found almost only females (12 in some cases parasitized males as against 86 females), probably males were lacking due to a gap between two generations.

*Kybos* cfr. *virgator* (Ribaut)\*

Collected only in 3 places at 150 - 1200m (M. Terminillo and Lago di Bracciano), on *Salix* near a lake or a brook; in summer (19/8 - 23/8). We found a somewhat more equilibrated relation between the sexes. The 2 *Kybos* species were never found together at the same place.

*Empoasca alsiosa* Ribaut

Collected only once at 1350m, probably on *Fagus* (29/8).

*Empoasca decipiens* Paoli

Collected in 11 places at low and medium altitude (0-1500m), on several shrubs and trees, on edges of forest; in early and high summer (3/6 - 26/8).

*Empoasca pteridis* (Dahlbom)

Collected 15 times in 13 places, at low, medium and high altitude (0-2150m), without any clear ecological preference; in summer (1/8 - 26/8).



*Empoasca vitis* (Goethe)

Collected only in 2 places on edges of *Quercus* forests at 900-1000m (24/8).

*Asymmetrasca decedens* Paoli

Collected in only 2 places at low (100m) or medium (1300m) altitude in moist areas (12/8 - 17/8).

*Austroasca vittata* (Lethierry)\* (sensu Ribaut)

Collected in only 2 places at medium altitude (1100-1200m) (10/8 - 11/8).

*Kyboasca bipunctata* (Oshanin)\*

Collected only once in the vegetation of dunes at the seashore (28/8).

*Chlorita beieri* Dlabola\*

Collected in 3 places at medium altitude (800 - 1200m), in deciduous forests or on edges of forest; in summer (10/8 - 24/8).

*Fagocyba cruenta* (Herrich-Schäffer)

Collected in 5 places at medium and moderately high altitude (1300-1700m), in beech forests or willow shrubs, on *Fagus* or *Salix*; normally together with the following species but far less common; in summer (5/8 - 21/8).

*Fagocyba douglasi* (Edwards)

Collected 9 times in 8 places at medium and moderately high places (1200-1700m), in beech forests or willow shrubs; on *Fagus*, sometimes in vast quantities, more rarely on *Salix*; (6/8 - 23/8).

*Edwardsiana diversa* (Edwards)

Collected only once at 750m in mixed deciduous forests (21/5).

*Edwardsiana flavescens* (F.)

Collected in 2 places at 1300-1500m, on edges of beech forests (9/8 - 17/8).

*Edwardsiana plebeja* (Edwards)

Collected only once on shrubs near the seashore, as usual on *Ulmus*; in early summer (15/6).

*Edwardsiana plurispinosa* (Wagner)\*\*\*

Collected only once on a shrub near the seashore; in spring (15/5).

*Edwardsiana prunicola* (Edwards)\*

Collected in 2 places (380m, 1300m), on *Salix* (17/8 - 21/8).

*Edwardsiana rosae* (L.)

Collected only once at 1200m in meadows between forests, on *Rosa* (23/8).

*Edwardsiana salicicola* (Edwards)\*

Collected in 2 places (380 and 1400m), on *Salix* (6/8 - 21/8).

*Linnavuoriana sexmaculata* (Hardy)\*

Collected in 7 places at low altitude (100-400m) or, more often, at medium altitude (1000-1500m), on somewhat swampy areas near rivers or brooks, on willows; in summer (10/7 - 23/8).

*Ficocyba ficaria* (Horváth)

Collected only in one place at low altitude (400m) on *Lonicera* in late spring.

*Lindbergina aurovittata* (Douglas)

Collected only once on shrubs near the seashore; in autumn (15/10).

*Lindbergina (Youngiada)* sp.

Collected only once (1 female) at 300m in a dry forest on *Quercus ilex* (14/8).

*Ribautiana cruciata* Ribaut

Collected only once on shrubs near the seashore; in spring (15/5).

*Typhlocyba quercus* (F.)

Collected only once at 1650m in a beech forest (9/8).

*Eurhadina concinna* (Germar)

Collected only once at 1450m in a beech forest (9/8).

*Eurhadina kirschbaumi* Wagner\*

Collected only once at 1000m in a mixed deciduous forest (19/8).

*Eupteryx andalusiaca* Ferrari

Collected in 2 places at low altitude (50 - 150m), in the ruderal vegetation besides a street and a railway. On *Dittrichia* (= *Inula*) *viscosa*; in spring (6/4) and summer (14/8).

*Eupteryx cyclops* Matsumura

Collected only once at 1000m, on a shadowy path, on *Urtica* (10/8).

*Eupteryx* cfr. *origani* Zachvatkin\*\*\*

Collected in one place at 2150m in an abundant population; on *Stachys alopecurus* between pines; in summer (20/8). *Eupteryx origani* is recorded so far only from *Origanum vulgare*.

*Eupteryx melissae* Curtis

Collected only once in a wet meadow at 400m (22/8).

*Eupteryx rostrata* Ribaut

Collected 11 times in 10 places, often abundant, at low and medium altitude (0-1350m), generally in moist areas, on Lamiaceae (in one place very abundant on *Pulicaria dysenterica* L.: 0m, 15/8); in spring (15/5) and summer (6/8 - 27/8)

*Eupteryx curtisii* (Flor)

Collected in 5 places at low altitude (250m, 1 specimen), but mainly at medium altitude (1000-1200m) in rather moist and shadowy areas, on Lamiaceae; in spring (28/5, 230m) and summer (4/8 - 22/8).

*Eupteryx collina* (Flor)

Collected only in one place at 1100m, in a moist spring meadow, on Lamiaceae, probably *Mentha* (6/8).

*Eupteryx thoulessi* Edwards

Collected only once at 500m, in a swampy area near a lake (1/8).

*Eupteryx urticae* (F.)

Collected in 5 places at low altitude (250-400m) and medium altitude (1000-1200m), in rather moist or shadowy areas, on *Urtica*; in early summer (28/5 - 1/6: low altitude places) or high summer (10/8 - 23/8: medium altitude places).

*Eupteryx zelleri* (Kirschbaum)

Collected 19 times in 18 places, sometimes in very rich populations, at low and medium altitude (0-1350m), in one case at 1600m; in often rather shadowy or moist areas, on Lamiaceae; in spring (7/4: 400m), early summer (29/5, 1/6: 500 - 700m) and high summer (30/7 - 29/8: 150-1350m).

*Zyginella pulchra* Löw

Collected 4 times in 3 places at 400-900m, on the trees of dry forests with *Quercus*, *Acer campestre*; in summer (1/8 - 24/8).

*Alnetoidia alneti* (Dahlbom)

Collected in 4 places at medium altitude (900-1500m), on deciduous trees; in summer (6/8 - 24/8).

*Hauptidia provincialis* (Ribaut)

Collected in 3 places at very low and very high altitude (250-400m, in spring: 7/4 and 28/5, and 2150m, in summer: 9/8 respectively); in rather moist meadows or mountain pastures.

*Zyginidia* cfr. *ribauti* Dworakowska

Very widespread and common, collected 32 times in 28 places, at low altitude (0-700m, 21 places), often in very abundant populations, less common at medium altitude (6 places: 1000-1350m), in one case also at very high altitude (2150m); very abundant in moist meadows near lakes, seashore or rivers, not rare either in rather dry meadows; in late spring (15/5 - 30/5) and summer (30/7 - 28/8).

*Zyginidia servadeii* Vidano

Collected in 3 places at low or moderately high altitude (50-650m, 1600m), in dry meadows or the low vegetation in a beech forest (there a quite rich population); in summer (14/8 - 29/8).

*Zygina* cfr. *eburnea* Fieber

Collected only once at 100m, on the shrubs (*Acer campestre*, *Salix*) near a brook (16/8).

*Zygina discolor* Horváth

Collected in 3 places at low or medium altitude (0m, 900 - 1100m), on shrubs or trees; in summer (14/8 - 26/8).

*Zygina flammigera* (Fourcroy)

Collected only once at 1450m, in a beech forest in a very rich population (9/8).

*Zygina* gr. *tiliae* (Fallén)

Collected only once at 1100m, on the shrubs near a river (7/8).

*Zygina schneideri* (Günthart)

Collected only once at 1100m, on the shrubs of a moist meadow (6/8).

*Zygina hyperici* (Herrich-Schäffer)

Collected only once at 1600m in a beech forest (21/8).

*Arboridia erecta* (Ribaut)\*

Collected only once at 300m, in a dry meadow with *Acer campestre* (2/8).

*Arboridia parvula* (Boheman)

Collected at low (400m, 2 places with only 2 specimens), medium (1350-1500m, 4 times in 3 places, one of them with a very rich population) and high altitude (1550 and 2150m, 2 places with only 3 specimens); in spring (7/4 at 400m) and summer (9/8 - 29/8, 400-2150m). This species (or group of species) furnishes a little coherent idea of its ecology: we found it in meadows, mountain pastures and in the low vegetation of beech forests.

*Arboridia* cfr. *pusilla* (Ribaut)\*

Collected 5 times in 4 places at high altitude (1600-2200m), in mountain pastures and in one case in the low vegetation in a forest of *Fagus*; in summer (5/8 - 22/8).

*Arboridia ribauti* (Ossiannilsson)\*

Collected in 3 places at low or medium altitude (50-1000m), in dry forests with *Quercus ilex* or in submediterranean deciduous forests; in summer (10/8 - 14/8) and autumn (3/10).

*Arboridia spathulata* (Ribaut)

Collected in 2 places at very low altitude (300-400m), in a dry forest, on *Quercus ilex* and on *Quercus* sp. near a lake (14/8 - 21/8).

*Fruticidia sanguinosa* (Rey)\*

Collected in 2 places at very low altitude (100m) (14/8 - 16/8).

*Tamaricella* cfr. *tamaricis* (Puton)

Collected in 2 places at very low altitude (0-100m), in areas near the seashore, on *Tamarix* (14/8).

*Grypotes puncticollis* (Herrich-Schäffer)

Collected only in 2 places at medium altitude (1300-1350m), in pine forests; on *Pinus* (7/8 - 14/8).

*Goniagnathus brevis* (Herrich-Schäffer)

Widespread and very common, collected in 26 places at low altitude (6 places: 100-700m), medium altitude (18 places: 800-1400m), rarely at moderately high altitude (2 places: 1600m); in the low vegetation of open forests and in mostly dry meadows; in spring (7/4 - 29/5) or summer (30/7 - 26/8).

*Goniagnathus guttulinervis* (Kirschbaum)

Collected twice at the same place near the seashore, in the low vegetation of the coastal dunes; in early and high summer (15/6 - 14/8).

*Opsius lethierryi* Wagner

Collected in 2 places at very low altitude, in moist areas near brooks or seashore; on *Tamarix* (14/8 - 15/8).

*Opsius stactogalus* Fieber

Collected in 3 places at very low altitude, in moist areas near brooks or seashore; on *Tamarix* (14/8 - 16/8).

*Neotalitrus fenestratus* (Herrich-Schäffer)

Collected in 10 places at low altitude (0-700m), less common at medium and moderately high altitude (1000-1600m); in spring (15/4) and summer (2/8 - 21/8); never found in rich populations.

*Circulifer opacipennis* (Lethierry)

Collected in 4 places only in the low vegetation on dunes of the seashore; in spring (15/5) and summer (15/8 - 28/8).

*Balclutha rosea* (Scott)

Collected in only 2 places at very low altitude (0-100m), in moist meadows (15/8, 16/8).

*Balclutha nicolasi* (Lethierry)\*\*

Collected 7 times in 6 places at low altitude (0-400m), in the low vegetation near lakes or rivers, on *Cyperus longus*; in summer (14/8 - 22/8).

*Balclutha* gr. *punctata* (F.)

Collected in 8 places mainly at medium altitude (1000-1350m, 6 places), but also in low altitude (400 - 650m, 2 places), in moist meadows or in the low vegetation of moist forests; in early and high summer (3/6 - 22/8).

*Balclutha saltuella* (Kirschbaum)

Collected in only 3 places at 100, 1200 and 2000m (12/8 - 23/8). No coherent ecological pattern is visible.

*Macrosteles forficula* (Ribaut)

Collected in 2 places at low or medium altitude (300, 1100m), in moderately moist meadows (17/8 - 25/8).

*Macrosteles frontalis* (Scott)

Collected 4 times in 3 places at low or medium altitude (0-400, 1100m), in moist or wet meadows with *Equisetum*; in summer (7/8 - 22/8).

*Macrosteles laevis* (Ribaut)

Collected 14 times in 13 places at low or medium altitude (0-1350m), mainly in moist meadows; in summer (1/8 - 26/8).

*Macrosteles ossiannilssoni* Lindberg\*\*

Collected only once at 400m, in a wet meadow (21/8).

*Macrosteles quadripunctulatus* (Kirschbaum) (sensu W. Wagner) (= *rammigeri* Zachvatkin)

Collected 4 times in 3 places at low or medium altitude (100-400m, 1350m), in moist meadows; in summer (12/8 - 22/8).

*Macrosteles sardus* Ribaut

Collected only once at low altitude (400m), in a wet meadow (21/8).

*Macrosteles septemnotatus* (Fallén)

Collected in 2 places at medium altitude (1300m), mainly in moist meadows, on *Filipendula*, mainly females (6/8 - 8/8).

*Macrosteles sexnotatus* (Fallén)

Collected 5 times in 4 places at low or medium altitude (100-400m, 1350m), in moderately moist meadows; in summer (12/8 - 21/8).

*Macrosteles variatus* (Fallén)

Collected only once at 1000m, in a moist forest, on *Urtica* (10/8).

*Macrosteles viridigriseus* (Edwards)

Collected in 4 places at low altitude (0-500m), in moist meadows; in summer (1/8 - 22/8).

*Sagatus punctifrons* (Fallén)

Collected in 2 places at medium altitude (1100-1300m), on shrubs near brooks, on *Salix purpurea*, only (13) females (7/8 - 8/8).

*Deltocephalus pulicaris* (Fallén)

Widespread, obviously with a wide ecological range, collected at low altitude (2 places: 450-500m), medium altitude (8 places: 1000-1350m) and high altitude (4 places: 1500-2100m). Only in one case we did find a very abundant population (1000m, 27/8). In moist and dry meadows and pastures; in summer (30/7 - 27/8).

*Nanosius chloroticus* (Melichar)\*

Collected 5 times in 4 places at medium altitude (1200-1600m, 2 places), but mainly at high altitude (1800-2200m), in meadows and mountain pastures and only there in very rich populations; in summer (10/8 - 22/8).

*Recilia schmidtgeni* (Wagner)

Collected 18 times in 17 places, mainly at low altitude (0-650m, 14 places), rarely at medium altitude (1100-1400m, 3 places), in more or less moist meadows, generally near lakes, brooks or seashore; in late spring (15/5 - 1/6) and summer (30/7 - 29/8).

*Japananus hyalinus* (Osborn)

Collected only in 2 places at low altitude (100-300m), on *Acer campestre* (2/8 - 12/8).

*Chiasmus conspurcatus* (Perris)

Collected 11 times in 10 places, at low altitude (0-650m), in the low vegetation of meadows, often near lakes or brooks; in spring 15/5 (0m) and summer (30/7 - 29/8).

*Doratura stylata* (Boheman)

Collected in 29 places; widespread and very common at medium and high altitude (800-2000m); mainly in dry meadows, mountain pastures, also in the low vegetation in open rather dry deciduous forests; in summer (4/8 - 29/8).

*Doratura veneta* Dlabola

Collected in 8 places exclusively at low altitude (0-700m), where it replaces apparently the preceding species; in dry meadows, also in the vegetation near coastal dunes; in spring and summer (28/5 - 28/8).

*Aconurella prolixa* (Lethierry)

We collected the species only in 3 places (but at least in two of them in very abundant populations) at low altitude (0-650m), in two cases near the seashore; in lawn-like meadows with low fresh grasses, on *Cynodon* ?; in summer (15/8 - 29/8).

*Fieberiella florii* (Stål)

Collected in 9 places at low and medium altitude (100-1200m), in dry mediterranean forests or submediterranean deciduous forests, on trees, often on *Quercus*; in early (1/6: 400m) and high (10/8 - 26/8) summer.

*Synophropsis lauri* (Horváth)

Collected in 4 places at very low altitude (0-400m), in dry mediterranean forests with *Quercus ilex* and *Acer campestre*, on trees; in summer (3/8 - 21/8).

*Placotettix taeniatifrons* (Kirschbaum)

Collected 3 times in 2 places at low altitude (100-750m), on trees in dry forests with *Quercus ilex* and *Acer campestre*; in summer (31/7 - 14/8).

*Phlogotettix cyclops* (Mulsant & Rey)

Collected only once at 400m, in a wet meadow with *Phragmites* (20/8).

*Doratulina ragusai* (Melichar)

Collected in 3 places at very low altitude (100m), in moist areas with *Phragmites* near rivers; in summer (10/7 - 12/8).

*Exitianus taeniaticeps* (Kirschbaum)

Collected 9 times in 8 places at very low altitude (0-400m), common near the seashore and there often in rich populations; in the grassy vegetation of meadows, often near lagoons or lakes; in summer (15/6 - 21/8).

*Platymetopius cebifurcatus* Guglielmino

Collected in 10 places at 700-1800m, in mixed deciduous forests, beech forests, meadows or mountain pastures; in low vegetation or trees; in summer (10/8 - 21/8).

*Platymetopius* cfr. *guttatus* Fieber

Collected in 4 places at medium altitude (700-1200m), in mixed deciduous forests, on trees; in summer (1/8 - 16/8).

*Platymetopius major* (Kirschbaum)

Collected only once at 150m, on the edge of a dry forest, on *Quercus* (12/8).

*Platymetopius verae* Guglielmino\*\*

Collected only once at 250m, in a meadow with some *Acer campestre* and *Quercus*; in spring (28/5).

*Anoplotettix fuscovenosus* (Ferrari)

Collected in 4 places in forests or meadows at low altitude: 350-750m; mainly in early summer (30/5 - 31/7).

*Anoplotettix putoni* Ribaut

Found in only one place at 230m; in late spring (28/5).

*Idiodonus cruentatus* (Panzer)

Collected in 6 places at medium altitude (1100m) or, more often, at moderately high altitude (1500-1800m), in the low vegetation of clearings in deciduous forests or in mountain pastures; in summer (7/8 - 23/8).

*Lamprotettix nitidulus* (F.)



Collected in 4 places at medium and moderately high altitude (1000-1650m), in mixed deciduous forests or beech forests; in summer (9/8 - 19/8).

*Allygus mixtus* (F.)

Collected only 3 times in 2 places at medium altitude (1000-1400m), in rather moist mixed deciduous forests with *Salix* and *Populus tremula* (4/8 - 7/8).

*Allygus modestus* Scott

Collected only once at 450m in a dry meadow (25/6).

*Allygidius abbreviatus* (Lethierry)

Fairly common and widespread, found in 22 places (230-2150m), obviously with a very wide ecological range: in dry meadows, rather rare in moist areas, common in the low vegetation of open forests and extending to the pastures of high mountains (28/5 - 29/8). Among 59 collected specimens we found only 7 males, which were collected either in early summer or in mountains (1577, 2000, 2150m). The specimens of august at low or medium altitude (41 specimens) were exclusively females.

*Allygidius detectus* Ribaut

Collected in 3 places at low altitude (230-500m), in meadows amid rather dry open forests with *Acer campestre* and *Quercus*; in late spring (28/5 - 1/6).

*Allygidius furcatus* (Ferrari)

Collected only in 2 places at low altitude (400, 700m), in meadows near shrubs or open forest (16/8 - 22/8).

*Allygidius mayri* (Kirschbaum)\*

Collected at 700m in meadows near open deciduous forest (16/8).

*Phlepsius intricatus* (Herrich-Schäffer)

Collected only in one place at 700m, in a dry meadow between open deciduous forests (16/8).

*Phlepsius spinulosus* Wagner

Collected only in one place at 800m, in a dry meadow near an open deciduous forest (24/8).

*Selenocephalus obsoletus* (Germar)

Quite common and widespread, collected in 19 places at low and medium altitude (0-1500m), mainly in the low vegetation in mixed forests or in rather dry meadows, sometimes on trees; very rich populations in medium altitude; in spring (15/5, 0m), early summer (10/7, 100m), and high summer (31/7 - 26/8, 400 - 1500m).

*Selenocephalus stenopterus* Signoret

Collected in 2 places at low altitude (100-400m), in dry mediterranean forests on *Quercus* (14/8 - 16/8).

*Graphocraerus ventralis* (Fallén)

Collected 9 times in 8 places at low altitude (1 place: 400m), medium altitude (5 places: 1300-1350m) and high altitude (2 places: 1600-2150m), in mostly rather dry meadows in spring (17/5 - 30/5) and summer (8/8 - 20/8). We found males only in spring (17/5, 400m, 3 specimens).

*Rhytistylus proceps lavicus* D'Urso\*\*

Collected in 3 places at medium or moderately high altitude (800m, 1500-1600m), in dry meadows or in the low vegetation of a beech forest; in summer (17/8 - 24/8).

*Hardya anatolica* Zachvatkin\*

Collected only once at moderately low altitude (700m), in a dry meadow (15/8).

*Eohardya fraudulenta* (Horváth)

Collected in 5 places at low or medium altitude (200-1300m), in more or less shaded meadows near forests or on clearings; in spring (at 200m, 3 females, 6/4) and summer (10/8 - 26/8).

*Sardius argus* (Marshall)

Collected in 2 places at low altitude (100m, 700m), in dry meadows (10/7, 16/8).

*Rhopalopyx cigigas* Guglielmino

We collected only few specimens in 3 places at high altitude (1800-2200m), in mountain pastures; in summer (13/8 - 21/8).

*Rhopalopyx elongatus* Wagner

Collected 4 times in 3 places at low altitude (400m, twice at the same place) or high altitude (1800-2200m, 2 places), in a meadow (400m, in spring: 17/5 - 30/5) or in mountain pastures (in summer: 5/8 - 21/8, in one case a quite rich population).

*Rhopalopyx vitripennis* (Flor)

Collected in 2 places at high altitude (1800-1950m), in mountain pastures (13/8 - 21/8). As shown in this region there exist 3 taxa of the *R. vitripennis*-group: an apparently endemic high altitude taxon *R. cigigas*, the mediterranean *R. elongatus* and relictary populations of the central and northern european taxon *R. vitripennis* in rather high altitudes. Whereas *R. cigigas* has been found together with *R. vitripennis* as well as with *R. elongatus*, there was up to now no common occurrence of *R. vitripennis* and *R. elongatus* - a situation corresponding with the results in other parts of the Mediterranean.

*Elymana sulphurella* (Zetterstedt)

Collected in 4 places at low altitude (only 1 specimen), medium altitude (one very abundant population) and moderately high altitude (1500-1800m), in meadows near deciduous forests; in summer (5/8 - 24/8).

*Cicadula lineatopunctata* (Matsumura)\*

Collected in 2 places at very low altitude (0-100m), in low vegetation near a coastal lake and in a meadow near a brook (14/8, 16/8).

*Cicadula persimilis* (Edwards)

Collected only once (but in a rich population) at 1600m, in the low vegetation of a clearing in a deciduous forest (23/8).

*Cicadula quadrinotata* (F.)

Collected 12 times in 11 places, at low altitude (0-500m, 4 places) and - more often and sometimes in large numbers - at medium altitude (1000-1350m, 7 places); in moist or wet meadows regularly near lakes or brooks; in summer (1/8 - 27/8).

*Mocydia crocea* (Herrich-Schäffer)

Collected 8 times in 7 places at low or medium altitude (100-1200m), mainly in more or less dry meadows, also in the grassy vegetation of open forests, in spring (5/4 - 17/5) and summer (10/8 - 24/8).

*Mocydiopsis longicauda* Remane

Collected in 8 places at medium and moderately high altitude (700-1600m), mainly in dry meadows or pastures (in one case in a very abundant population), in the low vegetation of open deciduous forests as well; in summer (12/8 - 26/8).

*Mocydiopsis monticola* Remane\*\*

Collected 7 times in 6 places at low altitude (100-700m), only in one case at medium altitude (1350m), in dry or, more often, moderately moist or shadowy meadows, in spring (6/4) and summer (8/8 - 19/8).

*Speudotettix subfuscus* (Fallén)

Collected in 4 places at low and medium altitude (200-1000m), in mixed forests on trees or shrubs, in spring (6/4 - 7/4: 200 - 400m) and late spring (29/5 - 3/6: 700-1000m).

*Hesium domino* (Reuter)

Collected in 4 places at medium or moderately high altitude (1000-1700m), in the low vegetation of deciduous forests or in shadowy meadows; in summer (5/8 - 24/8, only (5) females).

*Thamnotettix dilutior* (Kirschbaum)

Quite common species, sometimes in very rich populations, collected 22 times in 21 places at low and medium altitude (500-1400m), on trees or in the grassy vegetation in open deciduous forests, in clearings or dry meadows near edges of forest; in late spring (29/5 - 3/6), summer (1/8 - 29/8) and autumn (3/10).

We found in summer many more females than males (120: 19), only in spring was there a more equilibrated relation (14 : 10).

*Thamnotettix exemtus* Melichar

Collected in 10 places, at low altitude (450-750m), at medium altitude (1200-1300m), and moderately high altitude (1600-1800m); on trees or in the grassy vegetation in open mixed deciduous forests and beech forests, also in clearings or dry meadows near edges

of forest. Ecologically similar to the preceding species, but much less common. In early summer (29/5 - 25/6, 450-700m) and high summer (31/7 - 21/8, 750-1700m). We found among 26 specimens only 3 males. We collected in 3 places this species together with *T. dilutior*.

*Thamnotettix zelleri* (Kirschbaum)

Collected 5 times in 4 places at low altitude (0-500m), in rather dry meadows, in late spring (15/5 - 1/6).

*Athysanus quadrum* Boheman\*\*\*

Collected only once in a moist meadow at 1350m, in summer (8/8). Among 10 specimens was only one male.

*Handianus ignoscus* (Melichar)

Collected in 2 places at medium and moderately high altitude (1100m, 1600m), in meadows or pastures (11/8 - 13/8).

*Handianus mediterraneus* Linnavuori

Collected only once in high altitude (1800m), in a mountain pasture (17/8).

*Stictocoris picturatus* (C. Sahlberg)

Collected in 5 places at medium or moderately high altitude (1300-1600m), mainly in dry meadows or pastures; in summer (6/8 - 17/8).

*Ophiola decumana* Kontkanen\*

Collected in 2 places at medium altitude (1000-1100m), in the low vegetation in a deciduous forest and in the vegetation between the gravel of a river; in early and high summer (3/6, 7/8).

*Euscelidius variegatus* (Kirschbaum)

Collected 5 times in 4 places at very low altitude (0-450m), in meadows near lakes or brooks, in spring (5/4 - 15/4) or summer (30/7 - 19/8).

*Conosanus obsoletus* (Kirschbaum)

Collected 13 times in 12 places at low altitude (400-500m, 2 places), but mainly at medium altitude (800-1350m, 10 places), and there often in large numbers; in meadows with *Juncus*, often near lakes or brooks; in summer (1/8 - 27/8).

*Euscelis distinguendus* (Kirschbaum)

Collected in 5 places at medium (1 place with a rich population: 1300m) or high altitude (4 places: 1800-2200m), in mountain pastures (8/8 - 21/8).

*Euscelis incisus* (Kirschbaum)

Extremely widespread and common, collected 34 times in 33 places, at low altitude (0-700m: 16 places) and medium altitude (800-1400m: 14 places), less common in high altitude (1600-1950m: 3 places), sometimes in abundant populations; in moist or dry

meadows, mountain pastures or in the low vegetation of open forests; in spring (only once: 15/5, 0m) and summer (30/7 - 24/8).

*Euscelis lineolatus* Brullé

Collected 16 times in 15 places mainly at low altitude (0-700m), only in one case at medium altitude (one rich population: 1300m), but never found in high altitude; in moderately moist or, more often, in dry meadows; in spring (4 times: 15/5 - 1/6, 0-500m) and in summer (12 times: 30/7 - 28/7). In 7 cases collected together with *E. incisus*.

*Euscelis venitala* Remane, Bückle & Guglielmino

Collected in rich but localized populations only in 4 places at medium altitude (1000-1350m), generally in meadows, in one case in the grassy vegetation in an open deciduous forest; in summer (8/8 - 19/8). Collected always together with other *Euscelis* species (once with *E. distinguendus*, thrice with *E. incisus*).

*Artianus manderstjernii* (Kirschbaum)

Collected in 9 places at low or medium altitude (0-1350m), in meadows; in summer (10/7 - 24/8).

*Paramesus obtusifrons* (Stål)

Collected only once in a swamp near the seashore on *Juncus* (14/8). Otherwise recorded from *Bolboschoenus maritimus*.

*Paralimnus phragmitis* (Boheman)

Collected 3 times in 2 places at low altitude (0-400m), in very moist areas near lakes or seashore, on *Phragmites*; in early and high summer (15/6, 20/8 - 22/8).

*Arocephalus grandii* Servadei\*

Collected in 8 places at medium and high altitude (1100-1800m), in the grassy vegetation of meadows or mountain pastures, sometimes in abundant populations; in summer (8/8 - 26/8).

*Arocephalus longiceps* (Kirschbaum)

Very common and widespread from 500 to 2150m. Only in the lowest region from the seashore up to about 500m samples are lacking. Even knowing the species from 25 places, we never found such rich populations as we often did of *Adarrus exornatus*, *Jassargus* sp. or *Psammotettix* sp., which are frequently associated with *Arocephalus longiceps*. In meadows and mountain pastures, in the grassy vegetation of open forests as well; in spring and summer (22/5 - 29/8).

*Psammotettix adriaticus* Wagner

Collected in only one place in the low vegetation near the seashore (15/5).

*Psammotettix* gr. *alienus* (Dahlbom)

Highly migratory, collected 36 times in 34 places, very common and widespread mainly at low altitude, and there often in very abundant populations (0-700m, 27 places), much less common at medium altitude (1000-1350m, 7 places) and lacking completely in high

altitude. We found extremely abundant populations regularly in the low vegetation near the seashore, but the species is common in dry or moderately moist meadows too, frequently near brooks or lakes, and then often together with *P. confinis*. In spring (6/4 - 7/4), early summer (30/5 - 1/6) and high summer (30/7 - 29/8).

*Psammotettix confinis* (Dahlbom)

Extremely widespread and often in rich populations, collected at low altitude (0-650m, 23 times in 21 places), medium altitude (800-1450m, 18 places) and (less common) at high altitude (1800-2100m, 3 places); in rather moist meadows or in the grassy vegetation in mixed forests, less common in dry meadows or mountain pastures. Normally together with other *Psammotettix* species, but generally distinctly less common than the species of the *alienus* or *helvolus* group, only in rather moist or shadowy places *P. confinis* may be the most common *Psammotettix* species. In spring (5/4 - 15/4), early summer (28/5 - 23/6) and high summer (30/7 - 29/8).

*Psammotettix* gr. *helvolus* (Kirschbaum)

Collected 42 times in 37 places, found only in one place at low altitude (250m), this species is very common in medium altitude (800-1500m, 18 places with often very abundant populations), and extremely common in often immensely abundant populations at high altitude (1600-2400m, 18 places), where it forms a typical element of the mountain pasture cicada fauna. In moderately moist or dry meadows and, in particular, in mountain pastures. Only in 8 places we found specimens of the *alienus* group together with those of the *helvolus* group (250m, 1000-1350m). In early summer (22/5 - 3/7) and high summer (30/7 - 27/8).

*Psammotettix* gr. *nodosus* (Ribaut)

Collected 4 times in 3 places only and never in rich populations, this species group is much less common than the other *Psammotettix* species. We found it at medium altitude (900m) and high altitude (1800-2200m), in dry meadows or mountain pastures. In the high altitude places it occurred together with species of the *helvolus* group, at the 900m place without any other *Psammotettix* species. In summer (5/8 - 24/8).

*Ebarrius cognatus* (Fieber)

Collected in 5 places at medium or moderately high altitude (1000-1600m), in meadows, mountain pastures or low vegetation in open deciduous forest (1 specimen); in summer (1/8 - 17/8).

*Ebarrius interstinctus* (Fieber)\*

Collected only once at 1400m in a meadow, in spring (22/5).

*Adarrus exornatus* Ribaut

Very common and widespread species (collected 42 times in 40 places, 0-2200m). Obviously with an extremely wide ecological range: in dry and moist meadows, in the grass-vegetation in forests, in very rich populations also in the pastures of the high mountains, somewhat less common only in the lowest regions between seashore and about 500m; in spring and summer (17/5 - 29/8).

*Adarrus multinotatus* (Boheman)

Collected only once at 450m, in the low vegetation of meadows near a forest (25/6).

*Jassargus bisubulatus* (Then)

Widespread and very common species, sometimes in abundant populations, collected 20 times in 19 places at low and medium altitude (100-1500m), in moderately moist or dry meadows, also in the grassy vegetation in clearings of open forests; in spring and summer (28/5 - 29/8).

*Jassargus latinus* (Wagner)

Likewise widespread and common as the preceding species, obviously with similar ecological preferences, collected 21 times in 19 places at low, medium and high altitude (0-2150m); in spring and summer (17/5 - 29/8). In 7 places we found both species together.

*Jassargus repletus* (Fieber)

Collected only in 2 places with few specimens at 1200m and 1800m, in meadows or mountain pastures (13/8 - 23/8).

*Diplocolenus bohemani* (Zetterstedt)

Collected 7 times in 6 places at high altitude (1500-2200m), in mountain pastures, often in quite rich populations; in early and high summer (23/6 - 22/8).

*Diplocolenus frauenfeldi* (Fieber)\*

Collected in 5 places at 1400-2100m, in meadows and mountain pastures; in spring and summer (22/5, 8/8 - 17/8).

*Verdanus monticola* (Linnavuori)

Collected in 8 places at medium and high altitude (1000-2000m), in moderately moist meadows and mountain pastures, often in quite rich populations; in summer (4/8 - 18/8).

*Verdanus nigrifrons* (Kirschbaum)

Collected in 3 places at high altitude (1500-1800m), in mountain pastures; in early and high summer (23/6 - 13/8).

*Arthaldeus striifrons* (Kirschbaum)

Collected in 13 places at low or medium altitude (0-1350m), in dry or moist meadows; in spring and summer (15/5 - 24/8).

#### IV. Altitudinal distribution of the species

In table 2 we have split up the localities in altitude zones of 200m. The second line indicates the **total** number of localities within each altitudinal belt. For every species the

**percentage** of localities is given in which the species was found in the respective zone. Some localities which were explored repeatedly in order to clarify special questions, were considered only once in order to avoid a distortion of the results.



Table 2. Altitudinal distribution of the collected Auchenorrhyncha taxa

Altitudinal belt	0 199	200 390	400 590	600 790	800 990	1000 1190	1200 1390	1400 1590	1600 1790	1800 1990	2000
<b>Number of localities</b>	19	11	11	7	3	13	19	7	6	6	4
<b>Cixiidae</b>											
<i>Cixius dubius</i> Wagn.		9	9								
<i>Cixius nervosus</i> (L.)	5	18	18			8	11	14			
<i>Cixius simplex</i> (H.-S.)							11				
<i>Cixius gr. sticticus</i> R.							11	14	17		
<i>Tachycixius pilosus</i> (Ol.)	5	9					5		17		
<i>Tachycixius remanei</i> D'Urso**							11				
<i>Pentastiridius leporinus</i> (L.)	11										
<i>Reptalus cuspidatus</i> (Fieb.)	5										
<i>Reptalus melanochaetus</i> (Fieb.)	5										
<i>Reptalus panzeri</i> (Löw)	5										
<i>Hyalesthes luteipes</i> Fieb.	21		9								
<i>Hyalesthes obsoletus</i> Sign.		36	9								
<b>Delphacidae</b>											
<i>Asiraca clavicornis</i> (F.)		9	18	14							
<i>Kelisia brucki</i> Fieb.	5										
<i>Kelisia guttula</i> (Germ.)							5				
<i>Kelisia guttulifera</i> (Kbm.)*	5										
<i>Kelisia italica</i> Gugl. & Rem.										33	25
<i>Kelisia melanops</i> Fieb.							5				
<i>Kelisia monoceros</i> Rib.*						8	5			67	100
<i>Kelisia gr. ribauti</i> Wagn.**	5	18	18								
<i>Anakelisia perspicillata</i> (Boh.)*						15	16			17	
<i>Stenocranus major</i> (Kbm.)*	5		9								
<i>Stenocranus minutus</i> (F.)				29	33	8	11				
<i>Jassidaeus lugubris</i> (Sign.)						8					
<i>Eurysa lineata</i> (Perr.)			9								
<i>Eurysa rubripes</i> (Mats.)		9									
<i>Eurybregma nigrolineata</i> Scott			9								
<i>Stiroma</i> sp.*							5				
<i>Metropis latinus</i> (Kbm.)								14			
<i>Iubsoda stigmatica</i> (Mel.)**							5				
<i>Euconomelus lepidus</i> (Boh.)							5				
<i>Conomelus lorifer dehnelti</i> Nast	5		9			38	21				
<i>Delphax ribautianus</i> Asche & Dros.			9								
<i>Chloriona sicula</i> Mats.**	32	9									
<i>Chloriona unicolor</i> (H.-S.)*	11										
<i>Chloriona vasconica</i> Rib.			9								
<i>Megamelus notula</i> (Germ.)*							11				
<i>Laodelphax striatellus</i> (Fall.)	58	45	55	14		54	26		17	17	75
<i>Sogatella vibix</i> (Hpt.)**	5										
<i>Muellerianella brevipennis</i> (Boh.)*							5				
<i>Muellerianella fairmairei</i> (Perr.)							5				
<i>Muirodelphax aubei</i> (Perr.)	11		18								
<i>Dicranotropis divergens</i> (Kbm.)											50
<i>Dicranotropis gr. hamata</i> (Boh.)		27	18	14		38	21		17		
<i>Florodelphax leptosoma</i> (Fl.)			18			15					
<i>Scottianella dalei</i> (Scott)	11										
<i>Xanthodelphax flaveolus</i> (Fl.)											25
<i>Xanthodelphax stramineus</i> (Stål)			9			23	5				
<i>Toya propinqua</i> (Fieb.)	63	27	45	14	33	15	21	14		17	50
<i>Falcotoya minuscula</i> (Horv.)*	5										
<i>Javesella dubia</i> (Kbm.)	5	9	9			23	5				
<i>Ribautodelphax albostriatus</i> (Fieb.)						8	5				

<b>Altitudinal belt</b>	0 199	200 390	400 590	600 790	800 990	1000 1190	1200 1390	1400 1590	1600 1790	1800 1990	2000
<b>Number of localities</b>	19	11	11	7	3	13	19	7	6	6	4
Ribautodelphax fanari Asche et al.***	11										
Ribautodelphax imitans (Rib.)*	5	9				8					
Ribautodelphax pungens (Rib.)						8	5		17		
Flastena fumipennis (Fieb.)*	11	9	27								
<b>Achilidae</b>											
Cixidia advena (Spin.)		9									
Cixidia pilatoi D'Urso & Gugl.			9	14							
<b>Dictyopharidae</b>											
Dictyophara europea (L.)	5		27	14		8	5				
Dictyophara cfr. hispanica Lnv.***							5				
Dictyophara multireticulata M., R.	5			14		8					
Bursinia hemptera (O. Costa)				14	33	8	11	14			
<b>Tropiduchidae</b>											
Trypetimorpha occidentalis Hng. & Bourg.	26	9	9	29	33	31	5				
<b>Tettigometridae</b>											
Tettigometra impressifrons M., R.	5										
Tettigometra gr. impressopunctata Duf.						8					
Tettigometra (Brachyceph) gr. laeta (H.-S.)	5					8					
Tettigometra gr. obliqua (Panz.)	5	9		14							
Tettigometra sordida Fieb.				14							
Micrometrina baranii (Sign.)	5										
<b>Caliscelidae</b>											
Caliscelis bonellii (Latr.)	21	27	9		33	15	11				
Homocnemia albovittata A. Costa	5										
Peltonotellus quadrivittatus (Fieb.)										33	50
Ommatidiotus dissimilis (Fall.)	5									17	
<b>Issidae</b>											
Hysteropterum sp.				14							
Hysteropterum reticulatum (H.-S.)						8	5			17	
Agalmatium gr. flavescens (Ol.)	5		9	14		8					
Latilica tunetana (Mats.)	5										
Issus coleoptratus (F.)	11	9				8	21				
Issus muscaeformis (Schrk.)			9	14		8			17		
Latissus dilatatus (Fourcr.)	5		9	14	33	8					
<b>Flatidae</b>											
Metcalfa pruinosa (Say)	21	9									
<b>Cicadidae</b>											
Cicada orni L.	5										
<b>Cercopidae</b>											
Cercopis arcuata Fieb.		9							17		
Cercopis sanguinolenta (Scop.)	5										
Cercopis vulnerata Rossi	5		9								
<b>Aphrophoridae</b>											
Lepyronia coleoptrata (L.)	16	18	18	14		23	16				
Neophilaenus campestris (Fall.)	11	9				8		14	50	67	100
Neophilaenus gr. exclamationis (Thnbg.)								14			
Neophilaenus lineatus (L.)			9	29		23	16		17		
Aphrophora alni (Fall.)	11	9		14		8	5				
Aphrophora pectoralis Mats.	5					8	16				
Aphrophora salicina (Goeze)	5										
Philaenus italosignus Dros. & Rem.	11		18	14							
Philaenus spumarius (L.)	37	55	36	14		54	47		17	17	
<b>Membracidae</b>											
Centrotus cornutus (L.)			9	14		8					
Gargara genistae (F.)	5		9	14		15	11	14			
Stictocephala bisonia Kopp, Yonke	11	18	18			8	5				

<b>Altitudinal belt</b>	0 199	200 390	400 590	600 790	800 990	1000 1190	1200 1390	1400 1590	1600 1790	1800 1990	2000
<b>Number of localities</b>	19	11	11	7	3	13	19	7	6	6	4
<b>Cicadellidae</b>											
<i>Utecha</i> gr. <i>trivia</i> Germ.						8	5		17	17	25
<i>Megophthalmus scanicus</i> (Fall.)		9	9				5				
<i>Ledra aurita</i> (L.)								14			
<i>Oncopsis</i> gr. <i>flavicollis</i> (L.)								14			
<i>Oncopsis tristis</i> (Zett.)*								14			
<i>Macropsis albae</i> Wagn.*						8					
<i>Macropsis cerea</i> (Germ.)						8	16				
<i>Macropsis fuscineris</i> (Boh.)						15	5				
<i>Macropsis fuscula</i> (Zett.)						15					
<i>Macropsis graminea</i> (F.)	5										
<i>Macropsis haupti</i> Wagn.						31	16				
<i>Macropsis infuscata</i> (J. Shlb.)						8					
<i>Macropsis marginata</i> H.-S.	5					8	21				
<i>Macropsis mendax</i> (Fieb.)	5										
<i>Macropsis notata</i> (Proh.)						8					
<i>Macropsis scotti</i> Edw.***								14			
<i>Macropsis scutellata</i> (Boh.)						8					
<i>Macropsis vicina</i> Horv.***	5		9			15					
<i>Macropsidius</i> cfr. <i>dispar</i> (Fieb.)	5										
<i>Hephathus nanus</i> (H.-S.)					33						
<i>Agallia brachyptera</i> (Boh.)										17	
<i>Agallia</i> cfr. <i>consobrina</i> Curt.							5				
<i>Anaceratagallia laevis</i> (Rib.)	37	55	45	29		15					
<i>Anaceratagallia ribauti</i> (Oss.)	5		9	14	33	38	5				
<i>Anaceratagallia venosa</i> (Fourcr.)		9	9	14	33	31	37	29	67	50	75
<i>Austroagallia sinuata</i> (M., R.)	37	36	18	14		8	5				25
<i>Dryodurgades dlabolai</i> Wagn.*				29							
<i>Dryodurgades</i> cfr. <i>ribauti</i> Wagn.***					33	8	5				
<i>Rhytidodus decimusquartus</i> (Schrk.)		9									
<i>Idiocerus herrichii</i> (Kbm.)	5					15	11				
<i>Idiocerus stigmatalis</i> Lew.						23	16	29	17		
<i>Idiocerus vicinus</i> Mel.	5		9			31	32				
<i>Acericerus heydenii</i> (Kbm.)				14		8	11				
<i>Acericerus ribauti</i> Nickel & Rem.	11	9	9	14							
<i>Acericerus vittifrons</i> (Kbm.)	5	27	9	29		8	5				
<i>Bugraia ocularis</i> (M., R.)	16										
<i>Metidiocerus dimidiatus</i> (Rib.)**	5					8					
<i>Metidiocerus rutilans</i> (Kbm.)*						8	11				
<i>Populicerus albicans</i> (Kbm.)	5					8					
<i>Populicerus confusus</i> (Fl.)						23	21	29			
<i>Populicerus laminatus</i> (Fl.)*						8	21	29			
<i>Populicerus populi</i> (L.)						15	21	29			
<i>Stenidiocerus poecilus</i> (H.-S.)						8	5				
<i>Tremulicerus distinguendus</i> (Kbm.)	5					8					
<i>Tremulicerus fulgidus</i> (F.)	5	9				8					
<i>Tremulicerus tremulae</i> (Estl.)	5					8	16				
<i>Tremulicerus vitreus</i> (F.)		9					5				
<i>Viridicerus ustulatus</i> (M., R.)	11					8					
<i>Batracomorpha irroratus</i> Lew.										17	
<i>Iassus mirabilis</i> Orosz***				14		8		14			
<i>Iassus scutellaris</i> (Fieb.)	5	9	9								
<i>Eupelix cuspidata</i> (F.)	11	9	9					17			
<i>Aphrodes carinata</i> (Stål)	5										
<i>Aphrodes</i> gr. <i>makarovi</i> Zachv.	5		18			31	42	29	17	17	
<i>Anoscopus</i> gr. <i>albifrons</i> (L.)	5										

<b>Altitudinal belt</b>	0 199	200 390	400 590	600 790	800 990	1000 1190	1200 1390	1400 1590	1600 1790	1800 1990	2000
<b>Number of localities</b>	19	11	11	7	3	13	19	7	6	6	4
Anoscopus cfr. flavostriatus (Don.)						15	11				
Anoscopus serratae (F.)			9			8	16				
Planaphrodes trifasciata Fourcr.										17	50
Stegelytra erythroneura Hpt.*	5			14							
Evacanthus acuminatus (F.)		9				15	16	14	17		
Evacanthus interruptus (L.)						8	16	14	33		25
Cicadella viridis (L.)	16	18	27			15	5				
Alebra albostriella (Fall.)	5			14		15		14			
Alebra viridis R. ***			9				5	10			
Alebra wahlbergi (Boh.)	4	10		11			10	14			
Erythria aureola (Fall.) *						8					
Erythria seclusa Horv.										33	25
Liguropia juniperi (Leth.)		9									
Emelyanoviana mollicula (Boh.)		9	18	29		54	47	43	33		25
Micantulina stigmatipennis (M., R.)	5										
Wagneriala sinuata (Then)*										17	50
Notus italicus Wagn.							11				
Kybos rufescens Mel.						23	16	29			
Kybos cfr. virgator (Rib.)*	5					8	5				
Empoasca alsiosa Rib.							5				
Empoasca decipiens Paoli	5	18	9		33	15	16	14			
Empoasca pteridis (Dhlb.)	11		18		33	15	16	14	17		25
Empoasca vitis (Goethe)					33	8					
Asymmetrasca decedens Paoli	5						5				
Austroasca vittata (Leth.) (sensu Rib.) *						8	5				
Kyboasca bipunctata (Osh.)*	5										
Chlorita beieri Dlab.*					33		11				
Fagocyba cruenta (H.-S.)							11	14	33		
Fagocyba douglasi (Edw.)							11	29	67		
Edwardsiana diversa (Edw.)				14							
Edwardsiana flavescens (F.)							5	14			
Edwardsiana plebeja (Edw.)	5										
Edwardsiana plurispinosa (Wagn.)***	5										
Edwardsiana prunicola (Edw.)*		9					5				
Edwardsiana rosae (L.)							5				
Edwardsiana salicicola (Edw.)*		9						14			
Linnavuoriana sexmaculata (Hardy)*	5	9				8	16	14			
Ficocyba ficaria (Horv.)			9								
Lindbergina aurovittata (Dgl.)	5										
Lindbergina (Youngiada) sp.		9									
Ribautiana cruciata Rib.	5										
Typhlocyba quercus (F.)									17		
Eurhadina concinna (Germ.)								14			
Eurhadina kirschbaumi Wagn.*						8					
Eupteryx andalusica Ferr.	11										
Eupteryx collina (Fl.)						8					
Eupteryx curtisii (Fl.)		9				15	11				
Eupteryx cyclops Mats.						8					
Eupteryx melissae Curt.			9								
Eupteryx cfr. origani Zachv.***											25
Eupteryx rostrata Rib.	11	9	9			23	16				
Eupteryx thoulessi Edw.			9								
Eupteryx urticae (F.)		9	9			15	5				
Eupteryx zelleri (Kbm.)	16	18	27	29		23	21		17		
Zyginella pulchra Löw			7	14	33						
Alnetoidia alneti (Dhlb.)					33	8		29			

<b>Altitudinal belt</b>	0 199	200 390	400 590	600 790	800 990	1000 1190	1200 1390	1400 1590	1600 1790	1800 1990	2000
<b>Number of localities</b>	19	11	11	7	3	13	19	7	6	6	4
<i>Hauptidia provincialis</i> (Rib.)		9	9								25
<i>Zyginidia</i> cfr. <i>ribauti</i> Dwor.	58	36	36	29		23	16				25
<i>Zyginidia servadeii</i> Vid.	5			14					17		
<i>Zygina discolor</i> Horv.	5				33	8					
<i>Zygina</i> cfr. <i>eburnea</i> Fieb.	5										
<i>Zygina flammigera</i> (Fourcr.)								14			
<i>Zygina schneideri</i> (H. Günth.)						8					
<i>Zygina</i> gr. <i>tiliae</i> (Fall.)						8					
<i>Zygina hyperici</i> (H.-S.)									17		
<i>Arboridia erecta</i> (Rib.)*		9									
<i>Arboridia parvula</i> (Boh.)			18				11	14	17		25
<i>Arboridia</i> cfr. <i>pusilla</i> (Rib.)*									17	17	50
<i>Arboridia ribauti</i> (Oss.)*	5			14		8					
<i>Arboridia spathulata</i> (Rib.)	5	9									
<i>Fruticidia sanguinosa</i> (R.)	11										
<i>Tamaricella</i> gr. <i>tamaricis</i> (Put.)	11										
<i>Grypotes puncticollis</i> (H.-S.)							11				
<i>Goniagnathus brevis</i> (H.-S.)	5		27	29	33	46	47	43	17		
<i>Goniagnathus guttulinervis</i> (Kbm.)	5										
<i>Opsius lethierryi</i> Wagn.	11										
<i>Opsius stactogalus</i> Fieb.	16										
<i>Neoaliturus fenestratus</i> (H.-S.)	11	27		29		8	5	14			
<i>Circulifer opacipennis</i> (Leth.)	21										
<i>Balclutha nicolasi</i> (Leth.)*	16	9	18								
<i>Balclutha</i> gr. <i>punctata</i> (F.)			9	14		31	11				
<i>Balclutha rosea</i> (Scott)	11										
<i>Balclutha saltuella</i> (Kbm.)	5						5				25
<i>Macrosteles forficula</i> (Rib.)		9				8					
<i>Macrosteles frontalis</i> (Scott)	5		9			8					
<i>Macrosteles laevis</i> (Rib.)	16	9	18			31	16				
<i>Macrosteles ossianniilssoni</i> Ldb.**		9									
<i>Macrosteles quadripunctulatus</i> (Kbm.)	5		9				5				
<i>Macrosteles sardus</i> Rib.		9									
<i>Macrosteles septemnotatus</i> (Fall.)							11				
<i>Macrosteles sexnotatus</i> (Fall.)	5	18					5				
<i>Macrosteles variatus</i> (Fall.)						8					
<i>Macrosteles viridigriseus</i> (Edw.)	11		18								
<i>Sagatus punctifrons</i> (Fall.)						8	5				
<i>Deltocephalus pulicaris</i> (Fall.)			18			31	21	14	17	17	25
<i>Nanosius chloroticus</i> (Mel.)*							5	14		17	25
<i>Recilia schmidtgeni</i> (Wagn.)	32	18	45	14		15		14			
<i>Japananus hyalinus</i> (Osb.)	5	9									
<i>Chiasmus conspurcatus</i> (Perr.)	21	18	27	14							
<i>Doratura stylata</i> (Boh.)					67	69	53	43	50	33	
<i>Doratura veneta</i> Dlab.	16	9	27	14							
<i>Aconurella proluxa</i> (Leth.)	11			14							
<i>Fieberiella florii</i> (Stål)	5		18	14		23	11				
<i>Synophropsis lauri</i> (Horv.)	11	9	9								
<i>Placotettix taeniatifrons</i> (Kbm.)	5			14							
<i>Phlogotettix cyclops</i> (M., R.)			9								
<i>Doratulina ragusai</i> (Mel.)	16										
<i>Exitianus taeniaticeps</i> (Kbm.)	37	9									
<i>Platymetopius cebifurcatus</i> Gugl.				14		15	16	29	17	17	
<i>Platymetopius major</i> (Kbm.)	5										
<i>Platymetopius verae</i> Gugl.**		9									
<i>Platymetopius</i> cfr. <i>guttatus</i> Fieb.				29		8	5				

<b>Altitudinal belt</b>	0 199	200 390	400 590	600 790	800 990	1000 1190	1200 1390	1400 1590	1600 1790	1800 1990	2000
<b>Number of localities</b>	19	11	11	7	3	13	19	7	6	6	4
<i>Anoplotettix fuscovenosus</i> (Ferr.)		9	18	14							
<i>Anoplotettix putoni</i> Rib.		9									
<i>Idiodonus cruentatus</i> (Panz.)						8		14	50	17	
<i>Lamprotettix nitidulus</i> (F.)						8	5	14	17		
<i>Allygus mixtus</i> (F.)						8		14			
<i>Allygus modestus</i> Scott			9								
<i>Allygidius abbreviatus</i> (Leth.)		27	9	29	33	15	32	29	17	50	25
<i>Allygidius detectus</i> Rib.		9	18								
<i>Allygidius furcatus</i> (Ferr.)			9	14							
<i>Allygidius mayri</i> (Kbm.)*				14							
<i>Phlepsius intricatus</i> (H.-S.)				14							
<i>Phlepsius spinulosus</i> Wagn.					33						
<i>Selenocephalus obsoletus</i> (Germ.)	11		9	29	33	46	26	29			
<i>Selenocephalus stenopterus</i> Sign.	5		9								
<i>Graphocraerus ventralis</i> (Fall.)			9				26	14			25
<i>Rhytistylus proceps lavicus</i> D'Urso**					33			14	17		
<i>Hardya anatolica</i> Zachv.*				14							
<i>Eohardya fraudulenta</i> (Horv.)		9		14		8	11				
<i>Sardius argus</i> (Marsh.)	5			14							
<i>Rhopalopyx cigigas</i> Gugl.										33	25
<i>Rhopalopyx elongatus</i> Wagn.			9								50
<i>Rhopalopyx vitripennis</i> (Fl.)										33	
<i>Elymana sulphurella</i> (Zett.)			9			8		14	17		
<i>Cicadula lineatopunctata</i> (Mats.)*	11										
<i>Cicadula persimilis</i> (Edw.)									17		
<i>Cicadula quadrinotata</i> (F.)	5	9	18			23	21				
<i>Mocydia crocea</i> (H.-S.)	5		9	29	33	8	5				
<i>Mocydiopsis longicauda</i> Rem.				14	33	8	16		33		
<i>Mocydiopsis monticola</i> Rem.**	11	9	9	14			5				
<i>Speudotettix subfuscus</i> (Fall.)		9	9	14		8					
<i>Hesium domino</i> (Reut.)					33		5	14	17		
<i>Thamnotettix dilutior</i> (Kbm.)			9	71	33	46	26	29	17		
<i>Thamnotettix exemtus</i> Mel.			9	29			21		33	17	
<i>Thamnotettix zelleri</i> (Kbm.)	5	9	18								
<i>Athysanus quadrum</i> Boh.***							5				
<i>Handianus ignoscus</i> (Mel.)						8		14			
<i>Handianus mediterraneus</i> Lnv.										17	
<i>Stictocoris picturatus</i> (C. Shlb.)							16	29			
<i>Ophiola decumana</i> Kontk.*						15					
<i>Euscelidius variegatus</i> (Kbm.)	11	9	9								
<i>Conosanus obsoletus</i> (Kbm.)			18		33	31	26				
<i>Euscelis distinguendus</i> (Kbm.)							5			50	25
<i>Euscelis incisus</i> (Kbm.)	26	55	27	29	33	38	37	14	17	33	
<i>Euscelis lineolatus</i> Br.	37	18	36	14			5				
<i>Euscelis venitala</i> Rem., Bückle & Gugl.						8	16				
<i>Artianus manderstjernii</i> (Kbm.)	16	9		14	33	8	11				
<i>Paramesus obtusifrons</i> (Stål)	5										
<i>Paralimnus phragmitis</i> (Boh.)	5		9								
<i>Arocephalus grandii</i> Serv.*						15	16		17	33	
<i>Arocephalus longiceps</i> (Kbm.)			9	43	33	31	42	29	50	33	25
<i>Psammotettix adriaticus</i> Wagn.	5										
<i>Psammotettix gr. alienus</i> (Dhlab.)	68	45	64	29		23	21				
<i>Psammotettix confinis</i> (Dhlab.)	42	45	64	14	33	54	42	29		33	25
<i>Psammotettix gr. helvolus</i> (Kbm.)		9			33	38	53	57	100	100	100
<i>Psammotettix gr. nodosus</i> (Rib.)					33						50
<i>Ebarrius cognatus</i> (Fieb.)						8	16		17		

Altitudinal belt	0 199	200 390	400 590	600 790	800 990	1000 1190	1200 1390	1400 1590	1600 1790	1800 1990	2000
<b>Number of localities</b>	19	11	11	7	3	13	19	7	6	6	4
<i>Ebarrius interstinctus</i> (Fieb.)*								14			
<i>Adarrus exornatus</i> Rib.	5	9	18	71	33	85	42	29	33	67	75
<i>Adarrus multinotatus</i> (Boh.)			9								
<i>Jassargus bisubulatus</i> (Then)	5	18	36	29	33	38	11	29			
<i>Jassargus latinus</i> (Wagn.)	11		9	29		46	26	14		17	25
<i>Jassargus repletus</i> (Fieb.)											
<i>Diplocolenus bohemani</i> (Zett.)								14	17	50	25
<i>Diplocolenus frauenfeldi</i> (Fieb.)*								14	17	33	25
<i>Verdanus monticola</i> (Lnv.)						15	5			17	
<i>Verdanus nigrifrons</i> (Kbm.)								14		33	
<i>Arthaldeus striifrons</i> (Kbm.)	16	27	18		33	8	16				

## V. Ecological analysis

Even if the main object of our research, as already explained in the introduction, had a faunistic and not an ecological character, we did attempt to arrange at least a part of the habitats, where we collected, into several categories such as: 1. mountain pastures and meadows (1700-2200m), 2. humid areas such as moist meadows, swamps, river sides or lake shores, 3. beech forests (ca. 1400-1650m), 4. mixed submediterranean forests (ca. 800-1300m), 5. low mediterranean forests (- ca. 700m), 6. seashores and 7. meadows at low and medium altitude. This is obviously a very general subdivision, but it is nevertheless possible to delineate some characteristics of the ecological and orografical distribution of the collected Auchenorrhyncha taxa. For our analysis we have selected habitats with fairly clear characteristics, excluding those which represent combined or transition conditions. For every habitat type we give the number of places entered in the analysis. Behind the mentioned species we indicate in parentheses in how many of those places the species were found.

### 1. Mountain pastures and meadows (1700-2200m)

(18 places: 0, 1, 2, 11, 24 - 26, 31, 33, 34, 40, 56, 65, 68, 91, 93, 103, 121)

These areas represent the upper regions of the Appennines, rather well defined also by the vegetation consisting chiefly of grasses (both Poaceae and Cyperaceae) besides other low vegetation, but almost devoid of trees, partially on account of former deforestation and permanent overgrazing. The cicada fauna of these areas is equally well characterized.

We can distinguish a first group of species, which were found exclusively or almost exclusively here: *Peltonotellus quadrivittatus* (Fieber) (5), *Arboridia* cfr. *pusilla* (Ribaut) (4), *Dicranotropis divergens* (Kirschbaum) (2), *Diplocolenus bohemani* (Zetterstedt) (6), *Diplocolenus frauenfeldi* (Fieber) (4), *Verdanus nigrifrons* (Kirschbaum) (2), *Erythria seclusa* Horváth (3), *Euscelis distinguendus* (Kirschbaum) (4), *Kelisia italica* Guglielmino & Remane (3), *Nanosius chloroticus* (Melichar) (3), *Planaphrodes trifasciata* Fourcroy (4), *Psammodettix* gr. *nodosus* (Ribaut) (3), *Rhopalopyx cigigas* Guglielmino (3), *Rhopalopyx vitripennis* (Flor) (2), *Wagneriala sinuata* (Then) (4).

A second group consists of some species, which were found there very often and in great numbers, thus they are quite typical for this area, but exist, even if sometimes in minor abundance, in other habitats as well: *Adarrus exornatus* Ribaut (10), *Anaceratagallia venosa* (Fourcroy) (9), *Kelisia monoceros* Ribaut (10), *Neophilaenus campestris* (Fallén) (8), *Psammotettix* gr. *helvolus* (Kirschbaum) (17).

A third group is formed by species which we found occasionally in this area, but which obviously find their optimum in other regions, where they were collected more often and in greater numbers: *Allygidius abbreviatus* Lethierry (3), *Arocephalus grandii* Servadei (2), *Arocephalus longiceps* (Kirschbaum) (5), *Deltocephalus pulicaris* (Fallén) (2), *Verdanus monticola* (Linnavuori) (1), *Doratura stylata* (Boheman) (4), *Emelyanoviana mollicula* (Boheman) (2), *Empoasca pteridis* (Dahlbom) (2), *Euscelis incisus* (Kirschbaum) (1), *Jassargus latinus* (Wagner) (2), *Laodelphax striatellus* (Fallén) (6), *Psammotettix confinis* (Dahlbom) (3), *Rhopalopyx elongatus* Wagner (2), *Toya propinqua* (Fieber) (3), *Utecha* gr. *trivia* Germar (2). Some of the species of the last group might have been transported passively by the wind in the high mountain regions without being able to propagate or to hibernate there (see Kisimoto & Rosenberg, 1994).

In this context we mention the phenomenon that in one place (Maielletta, 2150m: 103) we found a group of cicada species (*Austroagallia sinuata*, *Hauptidia provincialis*, *Zyginidia* cfr. *ribauti*) normally collected at low or medium, never at very high altitude. Indeed in the same place 3 years previously we had found none of these species. This place is situated on the ridge of a high mountain chain, which runs from north to south parallel to the Adriatic coast. On its eastern side it slopes steeply over nearly 1800m to the littoranean hill region. We can hypothesize that often thermic winds rise from the coastal region and may transport populations of flying cicadas from lower altitudes up to the mountain crest, where the insects land immediately behind the crest. They may colonize this region for one summer but perhaps without being able to hibernate.

## 2. Moist meadows, swamps, river sides and lake shores

(25 places: 9b, 20, 21, 32, 36, 39, 49, 70, 71, 75, 77, 79, 80, 82, 83, 86, 87, 88, 97, 99, 101, 102, 107, 110, 113)

In this category we have unified all the habitats of rather humid character. In many cases, however, it is quite difficult to delimitate those areas from other ones: normally we find zones of transition between a humid area and its drier surroundings. In addition we have to realize that most of the explored swampy or moist zones have a very small extension and are more or less damaged by human interventions (canalization of rivers or brooks) or wholly produced by human activity (artificial lakes), while original natural habitats are almost completely destroyed. For these reasons in these somewhat degraded areas we usually found among others the most common species with a wide ecological range, too, such as:

*Adarrus exornatus* Ribaut (6), *Anaceratagallia laevis* (Ribaut) (12), *Aphrodes* gr. *makarovi* Zachvatkin (5), *Austroagallia sinuata* (Mulsant & Rey) (7), *Balclutha punctata* (F.) (4), *Chiasmus conspurcatus* (Perris) (7), *Deltocephalus pulicaris* (Fallén) (5), *Verdanus monticola* (Linnavuori) (4), *Doratura stylata* (Boheman) (6), *Emelyanoviana mollicula* (Boheman) (8), *Empoasca decipiens* Paoli (4), *Empoasca pteridis* (Dahlbom) (5), *Euscelis incisus* (Kirschbaum) (4), *Euscelis lineolatus* Brullé (6), *Exitianus taeniaticeps* (Kirschbaum) (5), *Goniagnathus brevis* (Herrich-Schäffer)



(6), *Jassargus bisubulatus* (Then) (6), *Laodelphax striatellus* (Fallén) (19), *Philaenus spumarius* (L.) (10), *Psammotettix* gr. *alienus* (Dahlbom) (18), *Psammotettix* gr. *helvolus* (Kirschbaum) (6), *Recilia schmidtgeni* (Wagner) (9), *Toya propinqua* (Fieber) (15), *Zyginidia* cfr. *ribauti* Dworakowska (17) and many other less common species, which however don't show any preference for such humid habitats and often were found only in the marginal areas but not in the core of the investigated swamps.

Another group of species, even if found rather in the border areas of swamps as well and mostly in meadows near brooks, rivers or lakes with a moderate but stable humidity seems to show a more or less clear inclination for these areas. If they were found in many cases elsewhere too, so often in less numerous populations. The species of this type are *Arthaldeus striifrons* (Kirschbaum) (7), *Cicadella viridis* (L.) (5), *Cixius nervosus* (L.) (7), *Dicranotropis* gr. *hamata* (Boheman) (8), *Macrosteles laevis* (Ribaut) (8), *Macrosteles quadripunctulatus* (Kirschbaum) (3), *Psammotettix confinis* (Dahlbom) (17).

As members of a third group *Cicadula lineatopunctata* (Matsumura) (2), *Cixius simplex* (Herrich-Schäffer) (2), *Flastena fumipennis* (Fieber) (7), *Florodelphax leptosoma* (Flor) (4), *Javesella dubia* (Kirschbaum) (7), *Macrosteles sexnotatus* (Fallén) (4), *Macrosteles viridigriseus* (Edwards) (4), *Megamelus notula* (Germar) (2), *Notus italicus* Wagner (3), *Tachycixius remanei* D'Urso (2), *Xanthodelphax stramineus* (Stål) (5) were exclusively or almost exclusively found in to some degree moist areas.

For many species their preference for humid places is due to their host plants: *Juncus*: *Conomelus lorifer* Ribaut (9), *Conosanus obsoletus* (Kirschbaum) (8); *Phragmites*: *Chloriona sicula* Matsumura (5), *Chloriona unicolor* (Herrich-Schäffer) (1), *Paralimnus phragmitis* (Boheman) (2); *Cyperus*: *Balclutha nicolasi* (Lethierry) (6); *Carex*: *Kelisia* gr. *ribauti* Wagner (5), *Cicadula quadrinotata* (F.) (9); *Equisetum*: *Macrosteles frontalis* (Scott) (3); *Phalaris*: *Stenocranus major* (Kirschbaum) (2); *Mentha*: *Eupteryx rostrata* Ribaut (8), *Eupteryx zelleri* (Kirschbaum) (8); *Salix* spp.: *Aphrophora pectoralis* Matsumura (5), *Idiocerus herrichii* (Kirschbaum) (4), *Idiocerus stigmatalis* Lewis (6), *Idiocerus vicinus* Melichar (8), *Populicerus confusus* (Flor) (4), *Metidiocerus rutilans* (Kirschbaum) (2), *Macropsis cerea* (Germar) (5), *Macropsis haupti* Wagner (5), *Macropsis marginata* Herrich-Schäffer (7), *Sagatus punctifrons* (Fallén) (2), *Kybos rufescens* Melichar (5), *Kybos* gr. *virgator* (Ribaut) (1), *Linnavuoriana sexmaculata* (Hardy) (5); *Populus tremula*: *Populicerus populi* (L.) (4), *Tremulicerus tremulae* (Estlund) (2); *Populus alba* or *P. canescens*: *Populicerus albicans* (Kirschbaum) (2), *Tremulicerus distinguendus* (Kirschbaum) (1), *Viridicerus ustulatus* (Mulsant & Rey) (2), *Macropsis vicina* Horváth (4); *Populus nigra*: *Stenidiocerus poecilus* (Herrich-Schäffer) (2), *Tremulicerus fulgidus* (F.) (2).

With these host plants preferring moist habitats, of course the same preference is valid for their cicadas and it is not surprising that we have found most of them almost exclusively in such moist or swampy areas. But even if willows and poplars form the typical arboreal vegetation belt along rivers or lakeshores we found them far from open water as well where the soil contains sufficient moistness. We find this situation in the sandstone (not calcarean !) range of Monti della Laga: in its rich mountain forests several *Salix* species and *Populus tremula* form an essential element of the arboreal vegetation and so there are *Idiocerus*, *Tremulicerus*, *Populicerus*, *Macropsis* or *Kybos* species in places without moist character.

### 3. Beech forests (ca. 1400 - 1650m)

(5 places: 3, 4, 27, 52, 94)

The beech forests form the upper tree belt in the high Appenines. We find more or less the same situation as in the mixed forests of the medium altitudes, i. e. a continuation of the pasture fauna into the open areas within the forest: *Adarrus exornatus* Ribaut (2), *Allygidius abbreviatus* (Lethierry) (2), *Anaceratagallia venosa* (Fourcroy) (2), *Arboridia* gr. *parvula* (Boheman) (2), *Arocephalus longiceps* (Kirschbaum) (2), *Doratura stylata* (Boheman) (2), *Emelyanoviana mollicula* (Boheman) (2), *Psamnotettix* gr. *helvolus* (Kirschbaum) (2), and in addition we find some ± arboricole species like *Lamprotettix nitidulus* (F.) (2), *Thamnotettix dilutior* (Kirschbaum) (2) or *Platymetopius cebifurcatus* Guglielmino (2). Very typical is *Fagocyba douglasi* (Edwards) (4), which can occur in extremely numerous populations.

#### 4. Mixed submediterranean forests (ca. 800 - 1300m)

(15 places: 5, 6, 9c, 12, 22, 35, 37, 42, 46, 64, 92, 94, 95, 96, 98)

The forests of medium altitude are mixed deciduous forests (at most *Quercus*, also *Ostrya*, *Acer*, *Populus tremula*, *Salix* etc.) and generally they are not close forests but rather open, often sparsely wooded areas with a lot of more or less extended clearings where the surrounding brushes, meadows and pastures continue between the trees. It is therefore little surprising that the typical cicada fauna of the pastures and meadows is present in the low vegetation at least of the somewhat open areas of the forests as well. So very often we found *Adarrus exornatus* Ribaut (7), *Anaceratagallia venosa* (Fourcroy) (5), *Arocephalus longiceps* (Kirschbaum) (4), *Dicranotropis* gr. *hamata* (Boheman) (in not too dry places) (4), *Doratura stylata* (Boheman) (9), *Emelyanoviana mollicula* (Boheman) (5), *Euscelis incisus* (Kirschbaum) (5), *Philaenus spumarius* (L.) (5), *Allygidius abbreviatus* (Lethierry) (4), *Fieberiella florii* (Stål) (3), *Gargara genistae* (F.) (3), *Goniagnathus brevis* (Herrich-Schäffer) (5), *Selenocephalus obsoletus* (Germar) (7), and particularly *Thamnotettix dilutior* (Kirschbaum) (6) (often collected on trees: e.g. *quercus*), *Evacanthus acuminatus* (F.) (3), *Evacanthus interruptus* (L.) (3) and *Platymetopius cebifurcatus* Guglielmino (3), seem to prefer those transition or mixed areas of meadows near forest edges or shrubs.

Of course more related to the forests are the species whose host plants are trees: *Acericerus* spp., adults of *Allygus mixtus* (F.) (larvae in the low vegetation) (3), *Zygina discolor* Horváth (2), which all were found almost exclusively in the above described habitats. We have to add *Alebra albostriella* (Fallén) (2), *Alebra wahlbergi* (Boheman) (3), *Alnetoidia alneti* (Dahlbom) (2), *Fagocyba douglasi* (Edwards) (3), adults of *Issus coleoptratus* (F.) (3) and *Lamprotettix nitidulus* (F.) (2) (larvae of both species in the low vegetation), which however were also collected in other, of course always arboreal habitats. *Thamnotettix dilutior* (Kirschbaum) was found both on trees and (numerously) in the grassy vegetation of the undergrowth.

Finally there are some species on *Populus tremula* (*Populicerus laminatus* (Flor) (5), *Populicerus populi* (L.) (3)) and on some *Salix* species (*Idiocerus stigmatalis* Lewis (3), *Idiocerus vicinus* Melichar (4), *Kybos* gr. *rufescens* Melichar (3), *Populicerus confusus* (Flor) (3) and, less often, other *Idiocerinae* or *Macropsinae* species). In Central Italy these trees are normally (i. e. in the calcarean mountains) restricted to habitats near water or swamps, but form in the sandstone range of Monti della Laga a constituent

element of the forests of medium altitude, and so their cicada inhabitants are widely distributed in those mountains.

#### 5. Lowland mediterranean forests (- ca. 700m)

(13 places: 55, 63, 72, 73, 74, 78, 81, 84, 85, 89, 105, 115, 117)

This type of forest is characterized by some sclerophyllous tree species such as *Quercus ilex* or *Pistacia lentiscus*, but also deciduous trees like *Acer campestre*, *Ulmus* or other *Quercus* species. In the low vegetation of the open areas within these forests we find the species of the surrounding meadows: *Anaceratagallia laevis* (Ribaut) (3), *Arboridia ribauti* (Ossiannilsson) (2), *Caliscelis bonellii* (Latreille) (3), *Psammotettix confinis* (Dahlbom) (4), *Psammotettix* gr. *alienus* (Dahlbom) (3), *Zyginidia* cfr. *ribauti* Dworakowska (3) and many others. *Allygidius detectus* Ribaut (2) (on *Quercus*), *Bugraia ocularis* (Mulsant & Rey) (2) (on *Pistacia lentiscus*), *Japananus hyalinus* (Osborn) (2) (on *Acer campestre*), *Philaenus italosignus* Drosopoulos & Remane (3) and *Placotettix taeniatifrons* (Kirschbaum) (on *Quercus*), *Selenocephalus stenopterus* Signoret (2) and *Stegelytra erythroneura* Haupt (3) (on *Quercus ilex*), *Synophropsis lauri* (Horváth), *Tettigometra* gr. *obliqua* (Panzer) (2), *Zyginella pulchra* Löw (3), were species almost exclusively found in the arboreal vegetation of those forests. In addition, *Acericerus vittifrons* (Kirschbaum) (6) (on *Acer campestre*) and *Philaenus spumarius* (L.) (8) were found very often, always on the trees. Somewhat less common were *Acericerus ribauti* Nickel & Remane (on *Acer campestre*) (3), *Thamnotettix dilutior* (Kirschbaum) (3) (on *Quercus*).

#### 6. Seashore

(10 places: 28, 50, 79, 108, 118 - 123)

Compared with their natural state, the coastal areas of Central Italy have been changed almost everywhere. Above all, the lagoons that formerly characterized a great part of the coastline, have been transformed into intensely cultivated agricultural areas, but also from the littorean dune vegetation, damaged by tourism with all its implications, there is left only a poor remainder. The habitats we explored are few and they are also quite degraded. In addition to the normal fauna of open areas at low altitude (*Anaceratagallia laevis* (Ribaut) (4), *Austroagallia sinuata* (Mulsant & Rey) (4), *Euscelis lineolatus* Brullé (3), *Laodelphax striatellus* (Fallén) (4), *Psammotettix* gr. *alienus* (Dahlbom) (4), *Recilia schmidtgeni* (Wagner) (3), *Zyginidia* cfr. *ribauti* Dworakowska (4) and so on), we collected *Aconurella proluxa* (Lethierry) (3), *Goniagnathus guttulinervis* (Kirschbaum) (2) and *Circulifer opacipennis* (Lethierry) (3) in rich populations, what seems to indicate, that these three species seem to find ideal conditions in the vegetation of the sandy coastal areas, even if they occur in other biotopes as well. Halotolerant or properly halophilous (in different degrees) are apparently *Chloriona sicula* Matsumura (2), *Chloriona unicolor* (Herrich-Schäffer) (1), *Muirodelphax aubei* (Perris) (3), *Paramesus obtusifrons* (Stål) (1), *Pentastiridius leporinus* (L.) (2), *Psammotettix adriaticus* Wagner (1), *Ribautodelphax fanari* Ashe, Dros., Hoch (3).

#### 7. Meadows at low and medium altitude

(21 places: 7, 8, 9a, 14, 23, 29, 38, 41, 43, 44, 45, 46, 47, 51, 54, 57, 58, 62, 63, 70, 114)

This is a very general category because of the vast number of plant species occurring in the different types of meadows (different altitude, humidity, shade). We exclude only very moist meadows, mountain pastures of high altitude, the coastal area (and of course all types of woodland), which were placed in separate categories (see above). We will confine ourselves to mention the most common species of cicadas which a collector can expect with great probability. It seems obvious that these species are poliphagous or their host plants are equally widely distributed as their cicada inhabitants (for example some Poaceae).

The most important species encountered during our research were *Adarrus exornatus* Ribaut (11), *Arocephalus longiceps* (Kirschbaum) (8), *Doratura stylata* (Boheman) (8), *Emelyanoviana mollicula* (Boheman) (8), *Goniagnathus brevis* (Herrich-Schäffer) (11) (often near forests), *Laodelphax striatellus* (Fallén) (8), *Psammotettix confinis* (Dahlbom) (10) (often in rather moist places), *Psammotettix* gr. *helvolus* (Kirschbaum) (10) (above all in more elevated areas), *Thamnotettix dilutior* (Kirschbaum) (9) (rather shadowy places near forests).

Common are further *Anaceratagallia venosa* (Fourcroy) (7) (in rather elevated sites), *Aphrodes makarovi* Zachvatkin (5), *Deltocephalus pulicaris* (Fallén) (6), *Eupteryx zelleri* (Kirschbaum) (6) (in not too dry places), *Euscelis incisus* (Kirschbaum) (6), *Jassargus latinus* (Wagner) (6), *Philaenus spumarius* (L.) (6), *Psammotettix* gr. *alienus* (Dahlbom) (6), *Recilia schmidtgeni* (Wagner) (5), *Selenocephalus obsoletus* (Germar) (6), *Toya propinqua* (Fieber) (6).

*Allygidius abbreviatus* (Lethierry), *Anaceratagallia laevis* (Ribaut) (at low altitude), *Anaceratagallia ribauti* (Ossiannilsson), *Arocephalus grandii* Servadei (at rather high altitude), *Artianus manderstjernii* (Kirschbaum), *Conosanus obsoletus* (Kirschbaum), *Dicranotropis* gr. *hamata* (Boheman) (not too dry places), *Fieberiella florii* (Stål), *Jassargus bisubulatus* (Then), *Mocydiopsis longicauda* Remane, *Neophilaenus lineatus* (L.), *Trypetimorpha occidentalis* Huang & Bourgoïn were collected in only 4 of the 21 selected meadow habitats.

## Discussion

During this research we found 331 species, that is approximately 37 % of the species number up to now recorded from Italy as a whole (about 900 species). Three of these species proved to be unknown before, they were new to science and were described in separate publications (Delphacidae: *Kelisia italica* Guglielmino & Remane, 2002), Cicadellidae: *Rhopalopyx cigigas* Guglielmino, 2002, and *Euscelis venitala* Remane, Bückle & Guglielmino). Another group of species (10) were apparently not yet recorded from Italy as a whole, 11 species were recorded so far from Sicily and/or Sardinia only, and in addition for 38 species it seems to be the first record for the Appennine Peninsula (the region "S" of D'Urso 1995a) - taken altogether no less than 59 out of the collected 331 species (i.e. 1 out of 7) were not yet recorded from the Appennine Peninsula. Whereas the three newly described species provisionally might be considered as endemics of the Appennines (Central Appennines only ?), many of the species newly recorded from this area however are rather widely distributed at least in the Mediterranean "region" (e.g. *Kelisia monoceros* Ribaut, *Balclutha nicolasi* (Lethierry), *Ribautodelphax fanari* Asche, Drosopoulos & Hoch etc.), their presence in this area was to be expected: the fact that they were collected only now shows, on the one hand, the

gaps in previous research and on the other hand the need for intense future research. This new research should cover - more than our research to date - all parts of the vegetation period, for many Cicadina species are rather short lived as adults (the only stage at which most of them may be safely identified). During the present research, for instance, short research trips in springtime resulted in a disproportionately large number of species which would not have been collected otherwise (e.g. *Cixius dubius* Wagner, *Euryssa rubripes* (Matsumura), *Cercopis* spp., *Thamnotettix zelleri* (Kirschbaum), *Metropis latinus* Linnavuori).

The future research activities should cover as many biotopes and plant species as possible, for the present research has revealed a very local or ecological specialized presence of several taxa within the examined area, e.g. *Kelisia italica* Guglielmino & Remane and *Rhopalopyx cigigas* Guglielmino, which had been found at rather elevated sites only, *Eupteryx* cfr. *origani* Zachvatkin on one hostplant species different from the one recorded up to now and in one site only. Many species were observed living in similar biotopes on the same host plant species as in other regions and as recorded in other publications. Some taxa, however, were observed occurring in ecologically very different biotopes: two rich populations of *Ommatidiotus dissimilis* (Fallén) - in Central Europe confined to fens and bogs (normally feeding on *Eriophorum* species) - were found: one of them at 1800m inhabiting a mountain meadow with *Carex* spp., but no *Eriophorum* present, another one in a coastal biotope at sea level on a small *Carex* species.

In addition, the specimens on which previous records of several species are based ought to be re-examined: especially the "identifications" made (and published) by Servadei have been found wrong in many cases (e.g. *Metropis latifrons* Kbm.: all specimens seen are *M. latinus* Linnavuori; *Platymetopius henribauti* Dlabola is in fact *P. cebifurcatus* Guglielmino; *Verdanus abdominalis* (F.) is - at least in Central Italy - *V. monticola* (Linnavuori) and many others).

## Appendix

Here we mention briefly some taxa collected 1977 in Marche/Umbria (Monti Sibillini) and Abruzzo by the third author.

A) Marche (Ascoli Piceno): Monti Sibillini, Aso valley, Montefortino, 500m, south exposed rocky slope with *Quercus pubescens*, *Ostrya carpinifolia*, *Brachypodium* sp., 7.9.77:

*Chlorita mendax* (Ribaut)\*.

B) Marche (Ascoli Piceno): Monti Sibillini, Montefortino, Tenna river: Gola dell'Infernaccio, 750m, 7.9.77:

*Euryssa flavobrunnea* (Dlabola)\*.

C) Marche (Ascoli Piceno): Monti Sibillini, Montefortino, 750m, north exposed calcarean slope with spring areas with *Juncus*, *Carex* spp., 7.9.77:

*Kelisia guttulifera* (Kirschbaum), *Kelisia perrieri* Ribaut, *Kelisia brucki* Fieber, *Kelisia melanops* Fieber, *Delphacodes venosus* (Germar)\*, *Conomelus lorifer dehneli* Nast.

E) Marche (Ascoli Piceno): Monti Sibillini, Aso valley, Montemonaco, 800m, south exposed open slope, meadows with *Quercus*, *Sorothamnus*, *Juniperus*, 8.9.77:

*Kelisia guttula* (Germar).

F) Marche (Ascoli Piceno): Monti Sibillini, west of Montemonaco, near Foce, 900m, moist brook valley, *Salix* spp., *Juncus* sp., Poaceae, Lamiaceae (*Mentha*), 8.9.77:

*Euryssa flavobrunnea* (Dlabola), *Kelisia guttulifera* (Kirschbaum), *Edwardsiana prunicola* (Edwards).

G) Marche (Ascoli Piceno): Monti Sibillini, south of Montemonaco, 800m, 8.9.77:

*Tettigometra* cfr. *atra* Hagenbach.

H) Marche (Ascoli Piceno): Monti Sibillini, east beneath Colle Galluccio, 8.9.77:

*Cixius simplex* (Herrich-Schäffer), *Ribautiana debilis* (Douglas).

I) Umbria (Perugia): Monti Sibillini, south beneath Castelluccio, 1350m, 8.9.77:

*Jassidaeus lugubris* (Signoret).

K) Umbria (Perugia)/Marche (Ascoli Piceno): Monti Sibillini, Pass north of Castelluccio, 1500m, 8.9.77:

*Jassidaeus lugubris* (Signoret), *Eupteryx cyclops* Matsumura.

L) Marche (Ascoli Piceno): Fork Croce Casale, north slope with moist incision, *Ostrya carpinifolia*, *Quercus*, *Alnus glutinosa*, Lamiaceae, 650m, 9.9.77:

*Cixidia advena* (Spinola).

M) Marche (Ascoli Piceno): beneath Colle San Marco, 500m, 9.9.77:

*Tettigometra* gr. *obliqua* (Panzer) I, *Tettigometra* gr. *obliqua* (Panzer) II, *Peltonotellus quadrivittatus* (Fieber).

N) Abruzzo (L'Aquila): Gran Sasso, Vomano valley southwest of Ortolano, 1000m, south exposed slope with *Quercus*, *Acer campestre*, *Corylus avellanae*, *Carpinus betulae*, *Crataegus*, 10.9.77:

*Ribautiana alces* (Ribaut).

O) Lazio (Rieti): Monti della Laga, Amatrice, n.e. supra Campotosto, ~ 1400m, 10.9.77:

*Kelisia monoceros* Ribaut, *Euscelis venitala* Remane, Bückle & Guglielmino.

P) Abruzzo (L'Aquila): Gran Sasso, drive to Aqua San Franco, 1400m, dry meadows with *Carlina* spp., *Astragalus*, *Ononis*, *Thymus*, *Eryngium*, Poaceae, 10.9.77:

*Eupelix cuspidata* (F.), *Anaceratagallia ribauti* (Ossiannilsson), *Muirodelphax aubei* (Perris).

R) Abruzzo (Teramo): Monti della Laga, above Poggio Rattieri, 900m, slope of marly rocks with *Quercus*, *Juniperus*, *Spartium*, 11.9.77:

*Ebarrius cognatus* (Fieber), *Ebarrius interstinctus* (Fieber), *Arocephalus longiceps* (Flor).

S) Abruzzo (Teramo): Monti della Laga, north Pietralta, 900m, forest of *Quercus* and *Castaneus*, moist shadowy brook valley with *Petasites*, *Urtica*, *Mentha*, *Salvia glutinosa*, *Stachys*, 11.9.77:

*Lamprotettix nitidulus* (F.), *Edwardsiana diversa* (Edwards), *Dryodurgades dlabolai* Wagner, *Mocydiopsis longicauda* Remane.

This list contains 3 species recorded for the first time from peninsular Italy (*Eurysa flavobrunnea* (Dlabola)\*, *Delphacodes venosus* (Germar)\*, *Chlorita mendax* (Ribaut)\*) and 4 species not found during the research undertaken in 1998 - 2003 (*Kelisia perrieri* Ribaut, *Tettigometra* cfr. *atra* Hagenbach, *Ribautiana debilis* (Douglas), *Ribautiana alces* (Ribaut)).

## Riassunto

La fauna italiana ad Auchenorrhyncha si compone di circa 890 taxa (D'Urso, 2000). Nonostante l'elevato numero di specie e sottospecie note, lo stato attuale delle conoscenze su questo interessante gruppo di insetti è da ritenersi non del tutto soddisfacente in quanto il contingente di taxa ancora sconosciuto può essere stimato intorno al 20-30% .

La presente ricerca ha lo scopo di incrementare le conoscenze circa la struttura del popolamento ad Auchenorrhynchi presente in Italia e la distribuzione dei suoi taxa in Italia centrale, con particolare riferimento ai più significativi ambienti naturali ivi presenti. I dati riportati in questo contributo si prefiggono di fornire un "database" sulla presenza in Italia e la distribuzione attuale di quei taxa, così che, futuri cambiamenti nella distribuzione delle specie o persino nella struttura del popolamento, possano essere facilmente riconoscibili e possibilmente correlati con eventuali cambiamenti climatici (riscaldamento globale) o "impatti" diretti (agricoltura, turismo, inquinamento, ecc.).

I risultati di diverse campagne svolte nel periodo 1998-2003, in 128 località di raccolta situate in regioni dell'Italia centrale (Lazio, Abruzzo e alcune località in Umbria), coprono una varietà di biotopi situati in zone che vanno dalle aree costiere sino alle alte montagne. Complessivamente sono stati raccolti 331 taxa, ma per alcuni di essi non è stato possibile una loro determinazione specifica certa. Tra i taxa raccolti, 3 sono stati individuati come nuovi per la scienza e già descritti in altre pubblicazioni (*Kelisia italica* Guglielmino & Remane, *Rhopalopyx cigigas* Guglielmino e *Euscelis venitala*, Remane, Bückle & Guglielmino), 10 sono nuovi per la fauna d'Italia, 11 per l'Italia continentale e 39 per l'Italia peninsulare.

Gran parte degli ambienti esaminati sono stati inseriti nelle seguenti categorie: 1) Pascoli e praterie di montagna (1700-2200 m); 2) Prati umidi, paludi, rive di fiumi e laghi; 3) Boschi misti submediterranei (ca. 800-1300 m); 4) Faggete (ca. 1400-1650 m); 5) Boschi mediterranei di bassa quota; 6) Litorali. Questa è ovviamente una

suddivisione generale, ma è nondimeno possibile delineare alcune caratteristiche riguardanti le preferenze ecologiche e ambientali e la distribuzione altitudinale dei taxa di Auchenorrhyncha reperiti.

Mentre le 3 specie recentemente descritte possono provvisoriamente essere considerate endemiche dell'Appennino (solamente Appennino centrale?), di contro non ci meraviglia la presenza di molti taxa segnalati per la prima volta in quest'area, essendo abbastanza largamente distribuiti almeno nella "regione" mediterranea (e.g. *Kelisia monoceros* Rib., *Balclutha nicolasi* (Leth.), *Ribautodelphax fanari* Asche, Drosopoulos & Hoch, etc.). Il fatto che essi non erano ancora stati raccolti dimostra da un lato la carenza di ricerche in quest'area e dall'altro la necessità di intensificare in futuro le indagini. Le ricerche dovrebbero riguardare tutti i periodi dell'anno, poiché parecchi Auchenorrhynchi vivono solo per breve tempo come adulti (il solo stadio in cui molti di essi possono essere classificati con certezza). Ad esempio, nel corso della presente ricerca, brevi escursioni svolte in primavera hanno avuto come risultato il rinvenimento di un elevatissimo numero di specie non raccolte in altri periodi dell'anno (ad es. *Cixius dubius* Wagn., *Eurysa rubripes* (Mats.), *Cercopis* spp., *Thamnotettix zelleri* (Kbm.), *Metropis latinus* Lnv.). Le ricerche, inoltre, dovrebbero interessare quanti più biotopi e specie vegetali possibili; infatti, all'interno dell'area esaminata, è stato possibile mettere in evidenza una presenza molto localizzata ed ecologicamente specializzata di diversi taxa, come ad es. *Kelisia italica* Guglielmino & Remane and *Rhopalopyx cigigas* Guglielmino, che sono stati rinvenuti soltanto in siti di alta quota, ed *Eupteryx* cfr. *origani* Zachv. rinvenuta soltanto in una località e su una pianta ospite diversa da quella segnalata sino ad ora. E' stato osservato inoltre che molte specie vivono in biotopi simili e sulle stesse piante ospiti come in altre regioni e come risulta dai dati bibliografici. Alcuni taxa, però, sono stati trovati in biotopi ecologicamente molto differenti: due ricche popolazioni di *Ommatidiotus dissimilis* (Fall.) - specie confinata in Europa centrale in paludi e pantani e normalmente infeudata ad *Eriophorum* spp. - sono state rinvenute una a 1800m in una prateria di montagna con *Carex* sp., ma senza *Eriophorum* spp., l'altra in un ambiente costiero, al livello del mare, infeudata ad una piccola specie di *Carex*.

E' da sottolineare infine che dovrebbero essere riesaminati tutti gli esemplari sui quali sono state basate alcune vecchie segnalazioni di specie; in particolare in molti casi sono stati trovati errati i dati pubblicati da Servadei.

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