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# *TRIOZIDAE* NEW OR INTERESTING FOR ITALY
## (*Homoptera Psylloidea*)

The present note considers 8 species; three of these (*Bactericera kratochvili, Dyspersa lautereriella* and *Trioza cirsii*) are new for Italy.

The localities are reported as distinct according to Regions, from North to South and from East to West; it is first indicated, in spaced letters, the name of the Region, followed by the names of the Province and the Commune; when useful, more specific or general names are added.

Almost all the material was collected and determined by us and it is preserved in our collections; we indicate only the names of other collectors.

## 1. *Bactericera bucegica* (Dobreanu & Manolache, 1962) (figs. 1-20)

*Morphology of the adult.* The only description of the rare *B. bucegica* is the original one by DOBREANU & MANOLACHE (1962: 351-354, figs. 259-261) with very good drawings: therefore it is useless a new detailed redescription. Our drawings show only small differences in forewings, parameres and penis, in comparison with the specimens of Rumania, the type locality.

The adult of *B. bucegica* is well distinguishable, also with a lens, by the two following characters:

— antennae black, with the III segment and the basal parts of IV and V segments clear;

— forewing (fig. 2) transparent, clear, without dark spot in the anal zone; their apex is rounded and Rs vein ends well after the bifurcation of M.

The spinulae on forewings are absent. Hindwings (fig. 3) with a black anal spot. Parameres (figs. 4-6) characteristic, with a unique shape in the Palaearctic *Bactericera*: they are long, slender and clearly narrower in the median part: this shape is very evident in oblique and posterior view. The penis (figs. 7-9) also is characteristic, with the apical expansion very large, longer than half of the apical segment, and the anterior part prominent; the sclerotized part of *ductus ejaculatorius* is long and narrow, with pointed apex. The terminalia of females are not particularly different from the similar *Bactericera*.

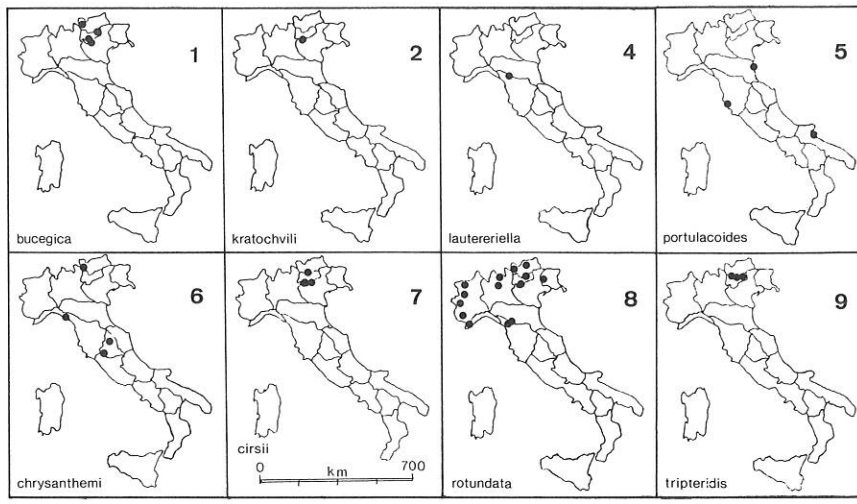


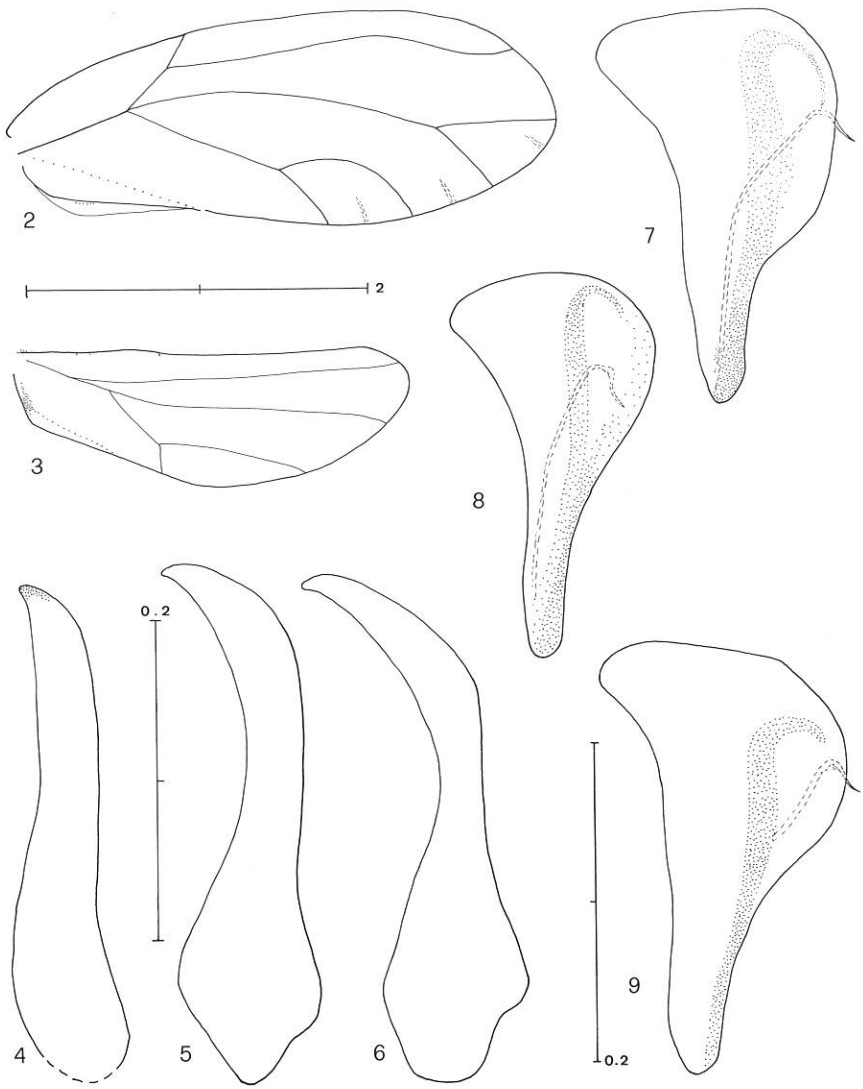

Fig. 1: orientative geographical maps with the presence of the 8 reported species in the Regions of Italy.

On the whole, the adult of *B. bucegica* has apparent likeness with *femoralis* and *nigricornis* groups.

*Morphology of fifth instar nymph.* We give the principal characters of the fifth stage nymph, till now undescribed. Terminology follows WHITE & HODKINSON (1982).

Colouration white or yellowish.

Structure. Body (fig. 10) strong, flattened, of regular oval form, of typic triozine aspect. Antennae (figs. 11-12) 3-6 segmented and with 4 rhinaria. The numer of antennal segments appears different, according to different slides. Humeral lobes of forewing pads well developed, rounded apically. The anterior margin surpasses clearly the anterior level




Figs. 2-9: *Bactericera bucegica*, males from Trentino, Folgaria - Fig. 2: forewing - Fig. 3: hindwing - Fig. 4: left paramere, outer surface - Fig. 5: left paramere, oblique view - Fig. 6: right paramere, posterior view - Figs. 7-9: penis, from three specimens.

of the eyes and sometimes also the anterior level of the head. Tarsal arolia (fig. 13) similar to those of *B. albiventris* and *B. crithmi*. Abdomen wider than long, with seven stigms on each side; the three anterior ones are small, close, often upon the posterior femur. Sclerified plates non distinguisable. Anus on the lower surface of the abdomen, distant from its posterior margin. Perianal glands (fig. 14) in two regular rings, both with a single row of pores.

Normal hairs few and short. Sectasetae (figs. 15-17) only marginal, truncate ringed, disposed regularly. The forewing sectasetae are shorter, wider and a little distant from one another; the head and abdominal sectasetae are longer, narrower and contiguous. Following number is present (one side only): head 38-45; forewing pads 137-144; hindwing pads 21-23; abdominal margin 117-136.

Measurements (in mm): antennal lenght 0.32-0.36; forewing pad lenght 1.30-1.44; body lenght 2.0-2.5; caudal plate breadth 1.0-1.3. The lenght of the head and abdomen sectasetae is 20-24 micron; of forewing pad 16-18 micron.

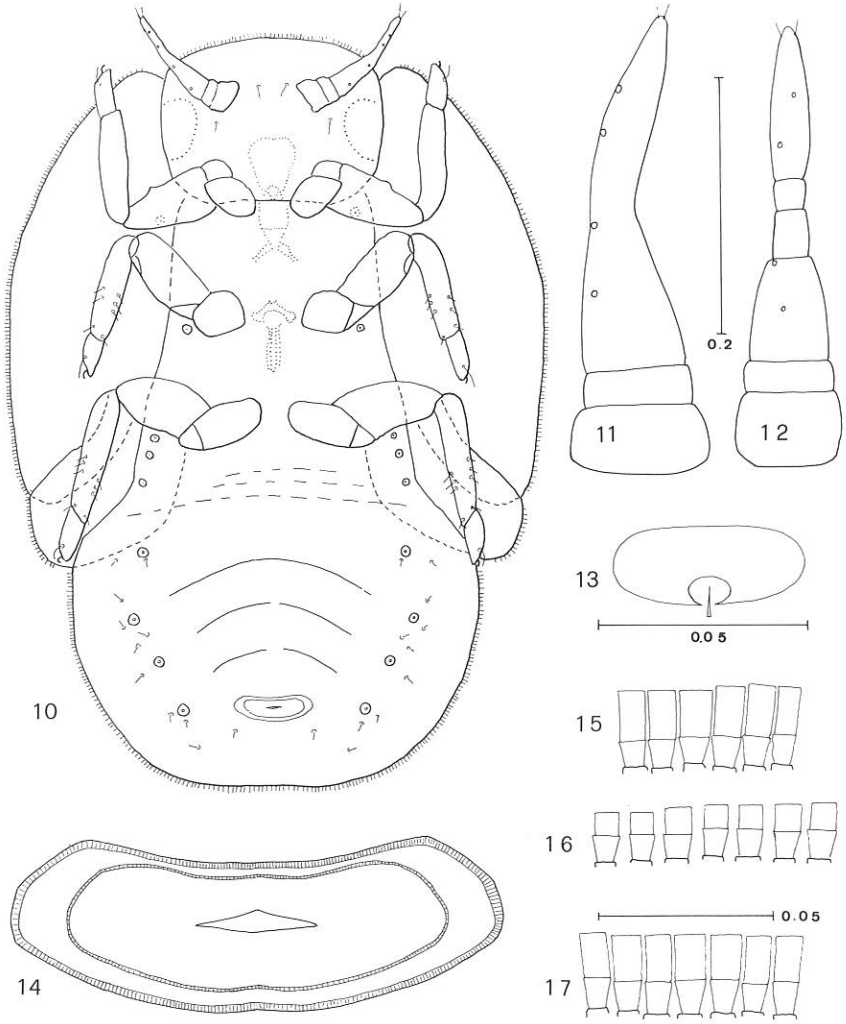
On the whole, the fifth instar nymph of *B. bucegica* is similar to the other described European *Bactericera* for the number of antennal segmentes, the position of humeral lobe regarding the eyes and the form of tarsal arolium; *B. bucegica* differs clearly from other species for the greater numer of sectasetae. However, till now only a third of the 25 European species of *Bactericera* are satisfactorily described.

*Eggs*. Eggs (hatched) found the 20.VII.1991 were on the lower surface of the leaves, mostly fixed on the principal veins, few on the parenchyma; the egg is of the characteristic type of *Bactericera*, with a very long stalk.

*New findings in Italy*. After what has been reported by Conci & Tamanini (1988b: 168) we have the following findings in NE Italy:

T r e n t i n o, Province Trento, Commune Folgaria, locality Malga II Posta, 1420 m, in a damp forest of *Picea excelsa* (figs. 19-20), August 1987, 1989, July 1991, many mature nymphs on *Ranunculus aconitifolius*; from those nymphs 83 males and 103 females hatched after breeding in a room. In this locality we found the 20.VII.1991 also eggs (hatched). T r e n t i n o, Commune Vigo di Fassa, Ciampedie, 1980 m, 2.X.1987, one male on *Picea excelsa*. T r e n t i n o, Commune Pozza di Fassa, Ciampedie, Prà Martin, 2000 m, 9.X.1988, one male on *Picea excelsa*. We already reported in 1988 specimens from these last two localities.

*Host plants*. The true host plant of *B. bucegica* is till now doubtful. Dobreanu & Manolache (1962) reported the findings of nymphs on *Homogyne alpina* L. (*Compositae*) and *Campanula patula* L. (*Campanulaceae*). These plants are reported without comments in the




Figs. 10-17: *Bactericera bucegica*, fifth instar nymph from Trentino, Folgaria - Fig. 10: whole nymph, lower surface - Figs. 11-12: antennae from different specimens - Fig. 13: tarsal arolium - Fig. 14: field of circumanal pores - Fig. 15: head margin sectasetae - Fig. 16: forewing-pad margin sectasetae - Fig. 17: abdomen margin sectasetae.

subsequent literature. We found many nymphs on *Ranunculus aconitifolius* L. (*Ranunculaceae*), in the reported damp forest near Folgaria. From these nymphs we obtained many adults. It is now difficult to state the true host plant: *B. bucegica* has a considerable trophic valence, since

it can develop on very different plants. Other *Bactericera* (of *nigricornis* group) have great trophic possibilities, but, contrary to *B. bucegica*, they are enough common. It seems strange that a very rare and localized species, as *B. bucegica*, is polyphagous.

*Life history. B. bucegica* overwinters as adult on conifers and has probably one generation per year. The species does not produce galls.

Parasites. From nymphs collected in August 1987 hatched some specimens of *Tetrastichus* gr. *pubescens* (*Hymenoptera Eulophidae Tetrastichinae*).

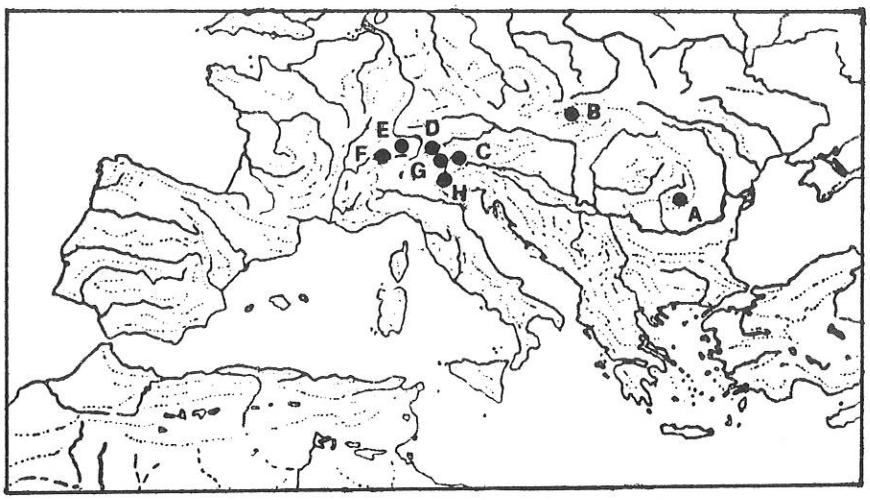



Fig. 18: *Bactericera bucegica*, general distribution. A) Rumania, Mounts Bucegi (*Locus typicus*); B) Czechloslovakia, Slovakia, Tatra Park; C) Austria, Kärnten, Glockner-Hochalpenstrasse, Guttal, 1900 m; D) Switzerland, Graubünden, Engadin; E) Switzerland, Schwyz, Rigi; F) Switzerland, Valais (Wallis); G) Italy, Alto Adige, Val Venosta-Vinschgau; H) Italy, Veneto and Trentino.

*General distribution* (fig. 18). Only East and Central Europe, rare and sporadic. Rumania (Mt. Bucegi, loc. typ.: DOBREANU & MANOLACHE, 1962: 352), Czechoslovakia (Slovakia, Tatra Park: LAUTERER, 1974: 136), Austria (Kärnten: BURCKHARDT, 1989: 371), Switzerland (Schwyz, Wallis, Engadin: BURCKHARDT, 1983: 76), NE Italy (Veneto, Alto Adige, Trentino: CONCI & TAMANINI, 1988b: 168 and the abovereported localities).

Figs. 19-20: biotope of *Bactericera bucegica* in NE Italy, Trentino, Folgaria, near Malga II Posta, 1420 m. Damp forest of *Picea excelsa* (*Picetum montanum*); in the fig. 19 also a little pool, a watering place for cattle. In this interesting biotope were found adults and nymphs of: *Bactericera bucegica* on *Ranunculus platanifolius, Trioza rotundata* on *Stellaria nemorum* subsp. *nemorum, Trioza cirsii* on *Cirsium erisithales, Trioza schrankii* on *Astrantia major, Trioza senecionis* on *Senecio fuchsii* and *Adenostyles alliariae, Trioza urticae* on *Urtica dioica*. (Photo C. Conci IX.1989).

## 2. *Bactericera* (*Bactericera*) *kratochvili* Vondracek, 1957 (figs. 1, 21, 22, 25-29)

*Morphology. B. kratochvili* was described by VONDRACEK (1957); other data were added by LAUTERER (1965). We report new figures of the parameres (figs. 26-27) because the form of our specimens is slightly different from the figures of Vondracek, and also of the antenna and the penis.

*New for Italy*: T r e n t i n o, Province Trento, Rovereto, Vallunga, 340-380 m, from July to September 1989, 1990, 40 males, 20 females, on *Allium lusitanicum* Lam. in xerophilous calcareous meadows, where was common also *Artemisia campestris* (figs. 21-22). In this locality the 25.VI.1991 we found also on *Allium lusitanicum* many eggs, mostly on the borders of the leaves; only one time on the stalk of a bud of flower. Together we found some nymphs on the lower surface of the leaves. Always in this locality we found 25.V.1991 on the meadow 16 males, 7 females and 25.VI.91 5 males, 1 female.

*Host plant. B. kratochvili* was reported by LAUTERER (1965) in Czechoslovakia on *Allium senescens* ssp. *montanum* (Fries) Holub (now *A. lusitanicum* Lam.) (*Liliaceae*). The same Author bred the species also on *A. sativum* ssp. *vulgare* (garlic) and on *A. cepa* (onion). Therefore *B. kratochvili* and *B. tremblayi* are, with the genus *Livia*, the only species of European Psylloidea that live regularly on Monocotyledones. *B. tremblayi* till now was found only on cultivated herbaceous plants.

However LOGINOVA (1927: 297) reports one finding of *B. kratochvili* in Mongolia on *Artemisia* sp. If this report could be confirmed, it will be possible to suggest that *B. kratochvili* lived on *Artemisia* (as the similar *B. perrisii*) and that has moved recently on *Allium*, adapting itself.

*Life history.* LAUTERER (1965) reports the results of his breeding: in Czechoslovakia the species has 2-3 generations per year and overwinters as adult and also as V instar nymph.

*General distribution. B. kratochvili* was described from Czechoslovakia (Slovakia, VONDRACEK, 1957; Moravia, LAUTERER 1965) and reported from Mongolia (LOGINOVA 1972); very recently GEGECHKORI & LOGINOVA (1989: 83) report also South European USSR, Kazakhstan and Kirghizistan.

*Observations. B. kratochvili* is similar to *B. rossica* Horvath, 1901: 274), which is found from Mongolia and Kazakhstan to South European USSR, on *Artemisia*. But *B. rossica* was described only incompletely, without figures, and necessitates a redescription.

Figs. 21-22: biotope of *Bactericera kratochvili* and *B. perrisii* in NE Italy, Trentino, Rovereto, Vallunga, 350 m. Xerophilous calcareous meadow with substeppic characters, with *Allium lusitanicum, Allium sphaerocephalon* and *Artemisia campestris* (*Diplachno-Festucetum*). The pink flowers of *Allium lusitanicum* are very abundant. (Photo C. Conci IX.1989).

## 3. Genus *Dyspersa* Klimaszewski, 1968, *status novus*

*Type species*: *Trioza apicalis* Förster, 1848.

*Dyspersa* was described by KLIMASZEWSKI (1968: 11, 20) as subgenus of *Heterotrioza*. KLIMASZEWSKI (1973: 244-248) ascribed to *Dyspersa* 23 Palaearctic species, belonging hovewer to very different groups. LAUTERER (1982: 150) wrote «I believe that *Dyspersa* Klimaszewski, 1968 is obviously of a generic character (with regard to *D. apicalis* (Förster) and the group of related species)». BURCKHARDT (1986) in his splendid work on the «*Trioza apicalis* complex» ascribed 8 species to this group.

We consider that *Dyspersa sensu* Lauterer 1982 is very homogeneous, monophyletic and with sure phylogenetic significance. Therefore we establish its elevation to the genus state. The characters are reported in detail by BURCKHARDT (1986: 415-416) to which we refer. We ascribe to *Dyspersa* the 8 species reported by BURCKHARDT (1986). The species of *Dyspersa*, monophagous or oligophagous on *Umbelliferae*, are univoltine and overwinter as adult on conifers. They live in the temperate zones of the Holarctic.

## 4. *Dyspersa lautereriella* (Burckhardt, 1986) (figs. 1, 23-24)

*Morphology*. The species is described good by BURCKHARDT (1986).

*New for Italy*: Central Italy, T o s c a n a, Appennino Tosco-Emiliano, Province Pistoia, Abetone, locality Val di Luce, 1550-1600 m, 3 males, 24-25.II.1990, on *Picea excelsa*, with *D. pallida* (Haupt). Probably this species is more widespread in Italy, but has not separated in our great series of other *Dyspersa*.

*Host plant*. According to BURCKHARDT (1986): *Dacus carota* L. and *Angelica sylvestris* L. (*Umbelliferae*).

*General distribution*. Till now the species was known only for the localities reported by BURCKHARDT (1986) in Czechoslovakia, Switzerland and France (Pyrénees orientales).

## 5. *Heterotrioza (Halotrioza) portulacoides* (Conci & Tamanini, 1984) (figs. 1, 30-35)

This species was described as Type species of *Halotrioza*, subgenus of *Trioza*. CONCI & TAMANINI (1988a) transferred *Halotrioza* as subgenus of *Heterotrioza*.

Figs. 23-24: biotope of *Dyspersa lautereriella* in Central Italy, Toscana, Abetone, Val di Luce, 1500-1600 m. Mountain slope with scarce *Picea excelsa*, bushes and grasses among stone. We found also, overwintering, *Cacopsylla limbata, Bactericera bohemica, Dyspersa pallida* and other more common species. *Trioza rotundata* was abundant, migrated from *Cardamine amara*, frequent in the nearby streams. (Photo C. Conci II.1990).

*Morphology.* We add some notices to the description of 1984. The genal cones do not appear in a normal microscopical preparation from above, but they are present, short, if the head is inclined (fig. 30). The hindwings (fig. 31) have a characteristic form and are very short, about half of the lenght of the forewings:
Lenght of forewings: males 1.92-2.20; females 2.06-2.13;
width of forewings: males 0.63-0.76; females 0.63-0.82;
lenght of hindwings: males 1.14-1.24;
width of hindwings: males 0.34-0.36.

The parameres and the penis appear with a very different form according to the visual angle (figs. 32-33).

*New findings in Italy.* After what has been reported by CONCI & TAMANINI (1984: 15) we found this species in the following Italian localities, always at sea level and on *Halimione portulacoides*:

E m i l i a - R o m a g n a, Province Ravenna: Ravenna, Capanno Garibaldi, 20.VII.84, 16 males, 6 females; idem, 25.VII.85, 11 males, 34 females; idem, 8.V.86, 20 males, 36 females; idem, 25.VI.89, 3 males, 14 females, some newly hatched (this biotope is reported in figs. 34-35); Ravenna, Lido di Dante and Marina Romea, 20-30.VII.86, 11 males, 5 females; Ravenna, Valli di Comacchio, 23.VII.84, 4 males, 5 females; Cervia, Saline, 8.V.86, 7 males, 8 females.

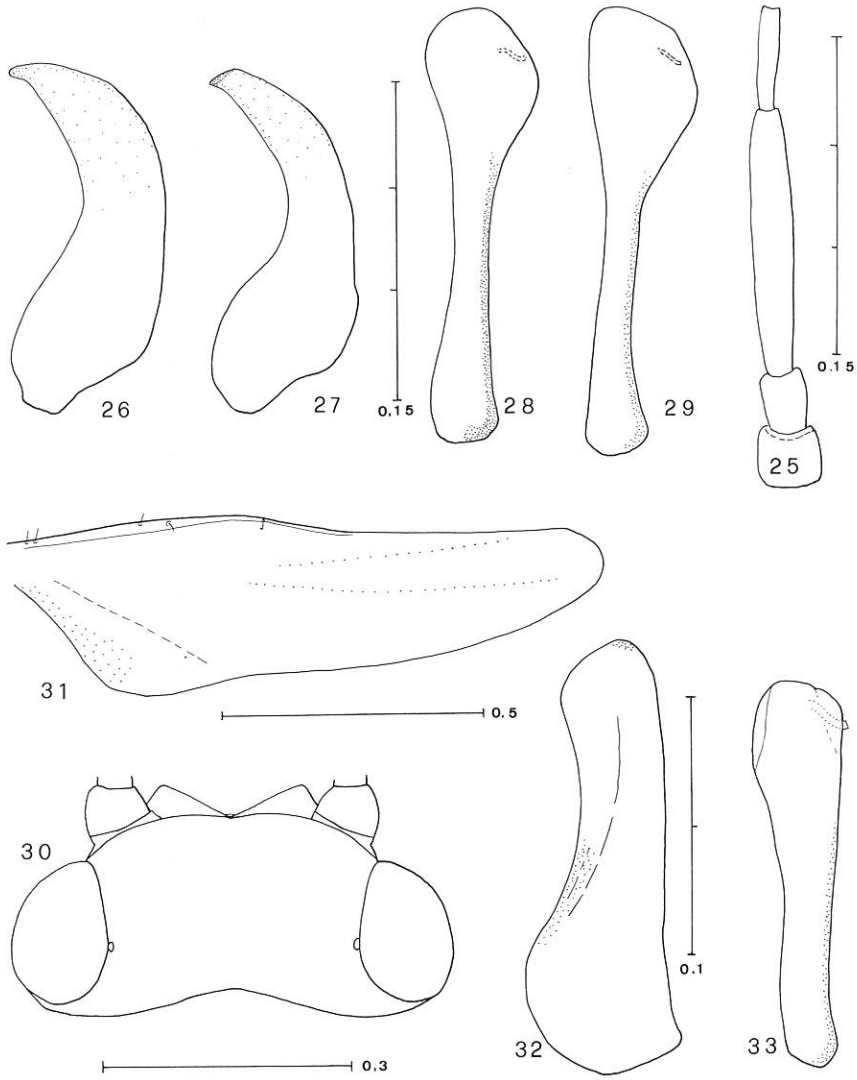
T o s c a n a, Province Grosseto, Alberese, mouth of the Ombrone River, 31.V.87, 12 males, 30 females.

P u g l i a, Province Foggia: Manfredonia, Frattarolo, 16.V.86, 4 males, 8 females; idem, Manfredonia, Vasche di Candelaro, 16.V.86, 4 males, 7 females.

On the whole, *Het. portulacoides* was collected by us in 3 Regions of North, Central and South Italy, in 8 localities, with 18 findings, at sea level, in May, June and July, with about 100 males and 200 females, always on their host plant, *Halimione portulacoides*, where it is common. Nymphs, undescribed, were not found.

*Host plant. Het. portulacoides* is known only from *Halimione portulacoides* (L.) Aellen (*Chenopodiaceae*), an halophilous, perennial little shrub with great distribution (Europe, W Asia, Africa, North America).

*Galls.* Already BALDRATI (1901: 31-32) referred to a «*Psylla* n. sp.» a pit gall on *Obione portulacoides* Moq. (now *Halimione portulacoides*) with the following description: The psyllid produces little humps on the upper surface of the leaves of the apex of young branches, to which corresponds a small concavity on the inferior surface where the larva stays. The hump has a red colouration. The plant tissue is slightly hypertrophied and also sometimes hyperplasied. Ravenna.




Figs. 25-29: *Bactericera kratochvili*, males from Trentino, Rovereto, Vallunga - Fig. 25: first segments of antenna - Fig. 26: left paramere, outer surface - Fig. 27: right paramere, posterior view - Figs. 28-29: penis of two specimens - Figs. 30-33: *Heterotrioza portulacoides*, males from Emilia-Romagna, Ravenna, Capanno Garibaldi - Fig. 30: head showing a part of the genal cones - Fig. 31: hindwing - Fig. 32: left paramere, outer surface - Fig. 33: penis.

The subsequent cecidiological literature (DARBOUX & HOUARD 1901: 56, n. 406: KIEFFER, 1901; 266; HOUARD 1908: 395, n. 2223) reports only the data of Baldrati. It is probable that the described galls are produced by *Het. portulacoides*, but till now we did not find galls.

*General distrib. Het. portulacoides* is known only for Italy.

*Observations.* It was not possible till now to compare *Het. portulacoides* with the similar *Het. obionae* (Loginova).

## 6. *Trioza chrysanthemi* Löw, 1877 (figs. 1, 36-37)

*Morphology.* We give figures of the parameres and penis from our specimens, respectively from Liguria and Umbria.

*New finding in Italy. Trioza chrysanthemi* was reported for NE Italy by Löw (1888: 25-26): A l t o A d i g e - S ü d T i r o l, Commune Stelvio-Stilfs, Trafoi (finding reported also by DALLA TORRE 1893: 116) and for Central Italy by MANCINI (1954: 35): U m b r i a, environs of Perugia): we saw the specimen from the latter locality, one female preserved on cardboard and with two labels: «Perugia, C. Mancini XI.1949» and «Trioza chrysanthemi det. K. Vondracek, Brno». We have the following findings:

L i g u r i a, Province La Spezia, Rocchetta di Vara, near the bank of Gravegnola Torrent, 130 m, one male leg. Conci-Sanfilippo 3.II.89, on *Juniperus communis*.

U m b r i a, Province Terni, Fabro, 400 m, one male leg. Conci-Tamanini 17.III.84, in a olive-grove.

On the whole, *T. chrysanthemi* was collected in 3 Regions of NW and Central Italy, in 4 localities with 4 findings, by us and Mancini between 130 and 500 m, in February, March and November, on *Juniperus communis* and in a meadow; we do not known the number of specimens, data and quote of the report by Löw, certainly above 1500 m.

*Host plants.* The literature reports findings from *Chrysanthemum leucanthemum* L., *C. leucanthemum* var. *coronopifolium*, *C. rotundifolium* W. K. and *C. japonicum* Thunb. The first three taxa are now referred, regarding TUTIN (1976), to the «difficult» genus *Leucanthemum*. *Chrysanthemum leucanthemum* is referred to species-complex *Leuc. vulgare* Lam.; *C. leuc.* var. *coronopifolium* is referred to species-complex *Leuc.atratum* (Jacq.) DC; *C. rotundifolium* from Carpathians is now called *Leuc. waldsteinii* (Schultz Bip.) Pouzar. Very uncertain is the report of «*C. japonicum*», now cultivar of the genus *Dendranthema*; the only original notice is the cecidiological datum of LAMÉE (1902, not seen:

Figs. 34-35: biotope of *Heterotrioza portulacoides* in NE Italy, Emilia-Romagna, Ravenna, Capanno Garibaldi (*Locus typicus*). Marshy halophilous meadow near the sea, with dominant *Puccinellia festucaeformis* (= *palustris*) (*Puccinellietum*). *Halimione portulacoides* is frequent near the little ponds and the canals, with *Suaeda maritima*, host plant of the very rare *Rhodochlanis bicolor* (= *salicorniae*). (Photo C. Conci VI.1989).

according HOWARD 1909), which was reported without criticism in subsequent literature.

Therefore, only new observations will can fix the real host plants of *Trioza chrysanthemi*.

*Life history. T. chrysanthemi* overwinters on conifers and probably has one generations per year. The species produces pit galls on the basal leaves, reported some times by the literature.

*General distribution.* The type locality is Switzerland, Canton of Luzern, Mount Rigi. The species is rare and known only for Europe, but it is enough widespread and is reported for the three Scandinavian States, European USSR (Moldavia), Rumania, Germany, Czechslovakia, Austria, Switzerland and Italy. *Trioza chrysanthemi*, till now considered boreo-alpine-carpathian, lives also in NE and Central Italy, in sub-mediterranean localities, the southernmost habitat till now known.

## 7. *Trioza cirsii* Löw, 1881 (figs. 1, 19-20)

*Trioza cirsii* has a somewhat complex synonymy. *Ossiannilsson* (1941, 1942) synonymized *cirsii* with *viridula* Zetterstedt, 1928; the name *viridula* up to that time was referred to *Trioza* of *apicalis* group. OSSIANNILSSON (1972) established that *cirsii* and *viridula* are similar but different species, distinguishable only for nymphal characters. At present most part of the literature reports are not verifiable and therefore are doubtful.

*Morphology. T. cirsii* is well figured by OSSIANNILSSON (1972). The good description of adult reported by DOBREANU & MANOLACHE (1962) sub *viridula* probably is to be referred to *cirsii*. We found some small differences in the chaetotaxy of Italian nymphs unlike Ossiannilsson; we will study in the future this problem.

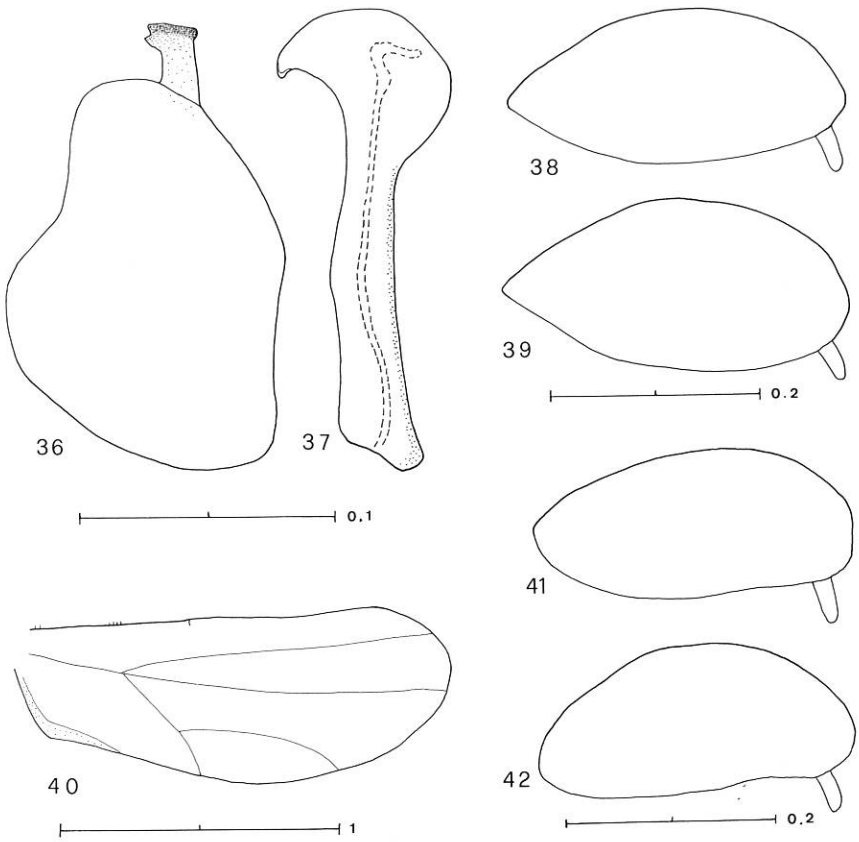
Some adult specimens collected by us in different Italian localities appear to have different parameres: also this problem will be studied in future.

*New for Italy.* We found adults and nymphs in the following localities:

V e n e t o, Province Belluno, Arsié, Col Perer, 1200 m, 16.VII.89, on *Cirsium erisithales*.

A l t o A d i g e - S ü d T i r o l, Province Bolzano-Bozen, Salorno-Salurn, Cauria-Gfril, 1400 m, 29.IX.90, on *Cirsium erisithales*.

T r e n t i n o, Province Trento, Folgaria, Malga II Posta, 1420 m, 21.VIII.89 and 30.VIII.90, on *Cirsium erisithales* (figs. 19-20). Vallarsa,




Figs. 36-37: *Trioza chrysanthemi* - Fig. 36: paramere of the specimen from Liguria, La Spezia - Fig. 37: penis of the specimen from Umbria, Fabro. - Figs. 38-39: *Trioza rotundata*, eggs from specimens from Lombardia, Sondrio, Val Malenco. - Figs. 40-42: *Trioza tripteridis*, specimens from Trentino, Vigo di Fassa, Ciampedie - Fig. 40: male hindwing - Figs. 41-42: eggs from females collected the 9.V.1988.

Pian delle Fugazze, road toward Passo Campogrosso, 1200 m, 12.IX.90, on *Cirsium carniolicum*.

Some findings of overwintering adults on *Picea excelsa* from Alto Adige, Trentino, Lombardia and Valle d'Aosta probably are *cirsii*, but without nymphs we have no certainty.

*Host plants*. The types of *T. cirsii* were collected by Löw in Austria, Niederösterreich, and referred to *Cirsium erisithales* (Jacq.) Scop. (*Compositae*). Löw (1888) reported also *C. oleraceum* (L.) Scop.

Ossiannilsson (1972) reported findings in Sweden from *C. helenioides* (L.) Hill (= *C. heterophyllum* (L.) Hill), *C. oleraceum* (L.) Scop. and *C. palustre* (L.) Scop. The report from Dobreanu & Manolache (1962) from *C. pauciflorum* (W. & K.) Spr. (now *C. waldsteinii* Rouy) probably is to be referred to *T. cirsii*. The report by Burckhardt (1983: 74) from *C. arvense* is to refer to *T. agrophila*.

We found *T. cirsii* in Italy some times on *C. erisithales* and once on *C. carniolicum* Scop. (new host plant); we found *T. cirsii* in Austria (Nord Tirol, between Steinach and Gries a B., 1100 m) one time on *C. helenioides*.

*Life history. T. cirsii* has one generation per year in Italy and overwinters as adult on *Picea excelsa*. The species does not produce deformations on the leaves.

*General distribution. T. cirsii* is known certainly for Austria (type locality), North Italy, Central and South Sweden and probably for Switzerland. It is likely that *T. cirsii* is widely present in Central and East Europe, but a sure distribution requires the nymphal examen, never reported in the recent literature.

*Observations. T. viridula* Zett. is till now known certainly only for Scandinavia: North and Central Sweden, few localities (Ossiannilsson 1974); SW Norway, one locality (Ossiannilsson 1974); Finland, without precisation of locality (Hulden & Heinkinheimo 1984). The host plant is exclusively *Cirsium helenioides* (= *C. heterophyllum* (L.) Hill). The nymph produces pit galls on upper surface of leaves (Ossiannilsson 1972: 63).

The host plant of the similar *T. agrophila*, rare but widerspread in Europe, is exclusively *Cirsium arvense* (L.) Scop. The nymph produces pit galls on leaves.

## 8. *Trioza rotundata* Flor, 1961 (figs. 1, 19-20, 38, 39, 43)

*Trioza rotundata* was reported widely by Conci & Tamanini (1987). Afterwards we found this species many times and we could make other observations.

*Morphology.* We report drawings of eggs (figgs. 38-39), till now unpublished. The egg has a primitive structure (type I, subtype I of Loginova, 1979). It is oval, with the base widely rounded; the apex is slightly pointed. Stalk placed near the base a little laterally, short, strong and stumpy; micropyle absent. Lenght 0.32-0.37 mm; width 0.15-0.17 mm. The eggs were obtained from dissection of females collected in Lombardia, Val Malenco, 9.V.1988.

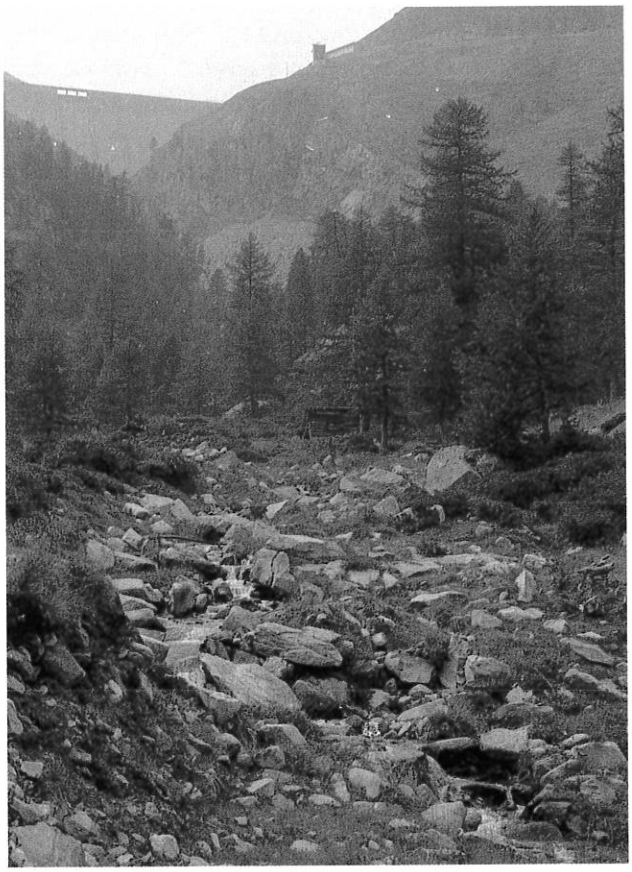


Fig. 43: biotope of *Trioza rotundata* in NE Italy, Alto Adige-Südtirol, Ultimo-Ulten, Valle Pracupola-Schmiedhofer Bach, near Neue Kuppelwieser-Alm, 2000 m. Small mountain torrent among *Larix decidua* and *Rhododendron ferrugineum* (*Rhododendro-Vaccinietum laricetosum*) with *Cardamine amara* and *Saxifraga aizoides* at the edges; on *Cardamine*, first and second instar nymphs were found at the end of July; mature nymphs and newly hatched adults at the mid of September. (Photo C. Conci IX.1987).

*New findings in Italy.* We collected *T. rotundata* in 8 Regions of North and Central Italy, in about 30 localities, with about 50 findings. The species is common and widespread on the whole Alpine arc and lives also on the Tuscan and Emilian Apennine (fig. 1). *T. rotundata* in Italy is orophilous and we found it on its host plants from 1200 till 2200 meters; on conifers from 950 (only one finding) till 2400 meters: the latter one, the highest finding, was in Piemonte, Province Torino, Sestriere, road of Assietta, Mount (Colle) Basset, 2400 m, 6.IX.88, some specimens on *Juniperus communis*.

In Italy *T. rotundata* is bound to damp and fresh localities; particularly it is frequent near to Alpine stream, where *Cardamine amara* often lives, but also *Stellaria nemorum* and *Saxifraga aizoides* (figs. 19, 20, 43).

*Host plants.* We found eggs, nymphs and adults on its more common host plant, *Cardamine amara* L.; we found nymphs and adults on *Stellaria nemorum* L. subsp. *nemorum* particularly in Trentino, Folgaria, Malga II Posta, 1420 m, in a damp forest (figs. 19, 20), in August and September of the years 1987, 89, 90. We found several nymphs and adults in Piemonte, Provinces Cuneo and Torino, on *Saxifraga aizoides* L.; we have also material collected by Prof. A. Arzone at Salbertrand (Province Torino) from *Saxifraga aizoides*.

We confirm therefore the data of our work of 1987, that *T. rotundata* is polyphagous in North Italy on three species of the families *Cruciferae, Caryophyllceae* and *Saxifragaceae*.

*Life history.* We observed the whole cycle: eggs laying in May in Lombardia, Val Malenco; nymphs from July to September; newly

Table I - Life history of *Trioza rotundata* in Italian Alps.

| Month | Jan | F | M | A | M | J | J | A | S | O | N | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Adult | ! | ! | ! | ! | ! | o | ! | + | + | ! | ! | ! |
| Egg | | | | | e | o | | | | | | |
| Nymph | | | | | | o | n | n | n | | | |

! = findings of adults on shelter plants (conifers).
+ = findings of adults both on host plants and on shelter plants.
o = no observations: the situation in June is to be fixed.
e = findings of eggs.
n = findings of nymphs.

hatched adults on host plants in August and September; overwintering adults on conifers from August to May (and July). Findings are lacking only in June (table I). It is probable that *T. rotundata* has one generation per year, at least at high altitude.

We did not observe galls on the leaves.

## 9. *Trioza tripteridis* Burckhardt, Conci, Lauterer & Tamanini, 1991 (figs. 1, 40-42)

*Morphology.* BURCKHARDT & al. (1991) published an accurate description of *Trioza tripteridis*. We report details and drawings of the hindwings and of the eggs, till now not figured.

The hindwing (fig. 40) has a normal structure as in the similar species, for example *Trioza rotundata*. Lenght mm 1.6-1.9, width mm 0.6.

The egg (figs. 41-42) is of type I of Loginova (1979). It is oval with sometimes a little concavity on the side of the stalk, that can give a bean-like shape to the egg. Base and apex widely rounded. Stalk short, strong and stumpy, near the base, slightly laterally; micropyle absent. Lenght 0.30-0.36 mm; width 0.12-0.18 mm. The eggs are fixed vertically as regarding the plant surface.

*Life history in Italy.* In the original description (1991) were published many details of the life history of the species, followed very carefully by Lauterer in Czechoslovakia on *Valeriana tripteris* L. The work was in press, when we could follow the whole cycle of the species also in

Table II - Life history of *Trioza tripteridis* in Italian E Alps (Ciampedie, 1950 m).

| Month | Jan | F | M | A | M | J | J | A | S | O | N | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Adult | ! | o | ! | ! | ! | — | — | t | ! | ! | o | o |
| Egg | | | | | | | e | | | | | |
| Nymph | | | | | | | n | n | | | | |

— = findings of adults on the host plant (*Valeriana montana*).
! = findings of adults on shelter plants (conifers: *Picea excelsa, Pinus mugo*).
o = no observations, but sure adults overwintering on conifers.
e = findings of eggs.
n = findings of nymphs.
t = findings of teneral (newly hatched) adults.

NE Italy on *Valeriana montana* L., in the same locality where we collected overwintering specimens several times, that is in T r e n t i n o, Province Trento, Commune Vigo di Fassa, E Dolomites, locality Ciampedie, near Negritella Refuge, 1950 m. We report here our observations.

The 11.VI.1990 we found many adults on *Valeriana montana* on the beginning of flowering.

The 20.VII.90 few egg-laying females, some eggs on the flower bract and many nymphs of different instars on the axillae of the flower stems with the little bracts.

The 13.VIII.90 nymphs of III-V instars and few newly hatched adults were present on *V. montana* at the end of flowering. Nymphs were bred in a room in Rovereto and after about a week adult males and females hatched.

In September adults were collected on conifers, where they overwinter.

On *V. montana* we collected females with mature eggs on the abdomen also in another locality of T r e n t i n o: Commune Ruffré, Mount Penegal, 1700 m, 5.VII.1990.

Therefore, the adult in Trentino, at about 2000 m, migrates in June from the conifers (*Picea excelsa* and *Pinus cembra*) where it has overwintered, to the host plant. After pairing (not seen), the egg laying occurs in July and at the beginning of August. The nymphal development occurs in July and August. The first adults hatch at about mid August; in a short time the adult migrates to conifers, where it stays about eight-nine months (table II).

The cycle is very similar to the one checked by Lauterer in Czechoslovakia, but is delayed of about one month owing to different climatic conditions (Lauterer observed the cycle in Brno, at 200 m).

From nymphs collected the 13.VIII.90 hatched one specimen of a Hymenopterous *Eulophidae Tetrastichinae* of the genus *Tetrastichus*.

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*RIASSUNTO* - *Triozidae* nuovi o interessanti per l'Italia (*Homoptera Psylloidea*).

*Sono trattate 8 specie*: Bactericera bucegica, B. kratochvili, Dyspersa lautereriella, Heterotrioza portulacoides, Trioza chrysanthemi, T. cirsii, T. rotundata *e* T. tripteridis, *riportando per ciascuna elementi su morfologia, ritrovamenti in Italia, piante nutrici primarie, biologia e distribuzione.* B. kratochvili, D. lautereriella *e* T. cirsii *sono nuove per l'Italia.* Dyspersa, *finora considerato sottogenere di Trioza, è elevato a genere. È decritta la ninfa, finora sconosciuta, della* B. bucegica. *Sono riportate 32 figure di dettagli morfologici, 2 carte di distribuzione e 9 foto di biotopi.*

*SUMMARY* - *Triozidae* new or interesting for Italy (*Homoptera Psylloidea*).

*Eight species are examined*: Bactericera bucegica, B. kratochvili, Dyspersa lautereriella, Heterotrioza portulacoides, Trioza chrysanthemi, T. cirsii, T. rotundata *and* T. tripteridis. *Notices on morphology, findings in Italy, host plants, life history and distribution are supplied.* B. kratochvili, D. lautereriella *and* T. cirsii *are new for Italy.* Dyspersa, *till now considered subgenus of* Trioza, *is establish to genus state. The nymph of* B. bucegica, *till now unknown, is described. Thirty-nine figures of morphology, 2 geonemic maps and 9 photos of biotopes are enclosed.*

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