

Two new West-Palaearctic species of *Brachyopa* Meigen, 1822 (Diptera, Syrphidae) with description and records of additional European species

JEROEN VAN STEENIS & WOUTER VAN STEENIS

Steenis, J.v. & Steenis, W.v. 2014. Two new West-Palaearctic species of *Brachyopa* Meigen, 1822 (Diptera, Syrphidae) with description and records of additional European species. *Norwegian Journal of Entomology* 61, 42–52.

Brachyopa cruriscutum sp. n. (east Turkey) and *B. vernalis* sp. n. (Crete) are described. The new species are members of the bicolor guild sensu Doczkal & Dziack, 2004 and are compared with species of this guild. The male and the intraspecific variation of *B. bimaculosa* Doczkal & Dziack 2004 are described for the first time. Data on the first records of *B. atlantea* Kassebeer, 2000 and *B. quadrimaculosa* Thompson, 1981 spec. aff. Thompson in Kaplan & Thompson 1981 from Europe are given.

Key words: *Brachyopa*, new species, West-Palaearctic, Mediteranean, first records, Europe.

Jeroen van Steenis, research associate Naturalis Biodiversity Center, Hof der Toekomst 48, NL-3823 HX Amersfoort, the Netherlands. E-mail: j.van.steenis@xmsnet.nl.

Wouter van Steenis, research associate Naturalis Biodiversity Center, Vogelmelk 4, NL-3621 TP Breukelen, the Netherlands. E-mail: w.v.steenis@casema.nl

Introduction

The genus *Brachyopa* Meigen 1822 is a Holarctic genus with 38 described species (12 Nearctic and 26 Palaearctic) (Pape & Thompson 2013).

The distribution of the genus is connected with the distribution of coniferous and deciduous broadleaved forest. The larvae live in decaying or exuding tree sap from dead or living trees, in tree stumps and even in rot holes. Some of the species are generalists and can be found in both broadleaved and coniferous trees, other species have a narrower tree preference (McLean & Stubbs 1990, Rotheray 1991, 1993, 1996, Sivova *et al.* 1999, Krivosheina 2005, Ricarte *et al.* 2013). The adults, especially the males, are regularly observed patrolling trees, with supposed sap runs, defending a territory and looking for females to

copulate with. Flower visiting is observed on plants with abundant and “open” flowers like Apiaceae, *Prunus* spp., and *Crataegus* spp. The flight period in Europe is April–July (Torp 1994, Reemer *et al.* 2009, Speight 2011).

The imagos of *Brachyopa* resemble dung-flies (Diptera, Scatophagidae) and can be separated from other Syrphidae by the following combination of characters: Medium sized (6–10mm) mainly brown, brown-red or black coloured flies. Postpronotum pilose; basoflagellomere round to oval, often with clearly visible sensory pit; arista pilose, from short to plumose; vein R₄₊₅ straight; crossvein rm before middle of discal cell; vein tm oblique to vein R₄₊₅ (Torp 1994, Reemer *et al.* 2009).

The classification of the genus as a member of the Brachyopini with the Chrysogastrini as

sister tribe has been stable over time (Rotheray & Gilbert 1999, Ståhls *et al.* 2003, Hippa & Ståhls 2005).

Material and methods

The material studied originate from: **DDG** – Dieter Doczkal, Gaggenau, Germany; **JSA** – Jeroen van Steenis, Amersfoort, the Netherlands; **MRA** – Menno Reemer, Amsterdam, the Netherlands; **RMNH** – National Museum of Natural History (“NBC Naturalis”), Leiden, the Netherlands; **WSB** – Wouter van Steenis, Breukelen, the Netherlands; **ZMAN** – now incorporated in RMNH; **ZMUC** – Zoological Museum, University Copenhagen, Denmark; **FSUNS** – Faculty of Sciences, Department of Biology and Ecology, University of Novi Sad, Serbia.

The illustrations were made with the aid of a camera Lucida attached to a stereomicroscope. The male genitalia were dissected and treated with potassium hydroxide (10 % KOH solution) and drawn in glycerol. The other parts were drawn in the dry state. The terminology used is based on Thompson (1999) and Doczkal & Dziack (2004). Some parts are measured with an ocular micrometer and the absolute or relative lengths are given. For the head of the males the relative length of distance from occiput to anterior ocellus; from anterior ocellus to eye contiguity, of eye contiguity and of frons is given as A:B:C:D.

The Species

Brachyopa curiscutum sp. n. (Figures 1–12)

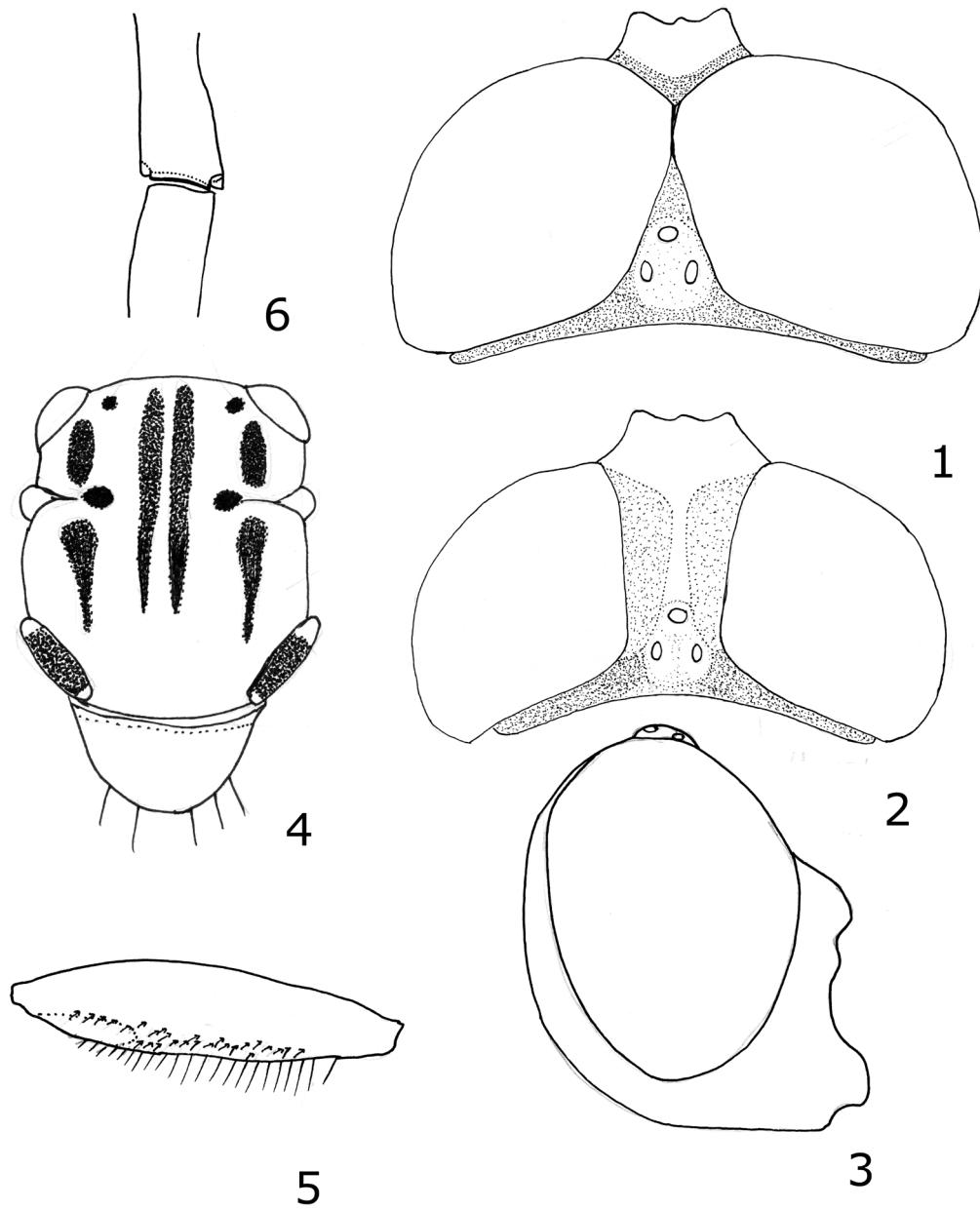
Type species. *Holotype ♂*. TURKEY, Hakkari, Sat Daglari, Varegös, 1600 m.a.s.l., [37° 25' N, 43° 55' E] 15.VI.1984, leg. J.A.W. Lucas, (ZMAN). *Paratypes* 9♂♂1♀. TURKEY, Hakkari, Sat Daglari, Varegös, 1600 m.a.s.l., 15.VI.1984, 1♀, leg. J.A.W. Lucas (ZMAN); TURKEY, Hakkari, Sat Daglari, Varegös, 1600–1650 m.a.s.l., 17.VI.1984, leg. J.A.W. Lucas (ZMAN, 3♂♂; JSA, 2♂♂; WSB, 1♂; FSUNS, 1♂); TURKEY, Hakkari, Sat Daglari, Varegös, 1600 m.a.s.l., 18.VI.1984, (ZMAN, 1♂; CNC, 1♂).

Diagnosis. This species is easily recognized by the extensively shiny scutum, which in combination with the nearly entirely black scutellum is unlike any other species. It is similar to an undescribed species from Lesvos, which will be described by Dr. Vujić and co-workers in a different paper. *B. curiscutum* is compared to a male of the Lesvos species (character states between parentheses) and differs by: hypostomal bridge black and entirely pollinose (yellow with shiny macula); basoflagellomere as long as high (longer than high); proepimeron pilose (non-pilose); abdomen entirely yellow (tergite 1 darkened laterally); posterior part of mesocoxa pilose (bare).

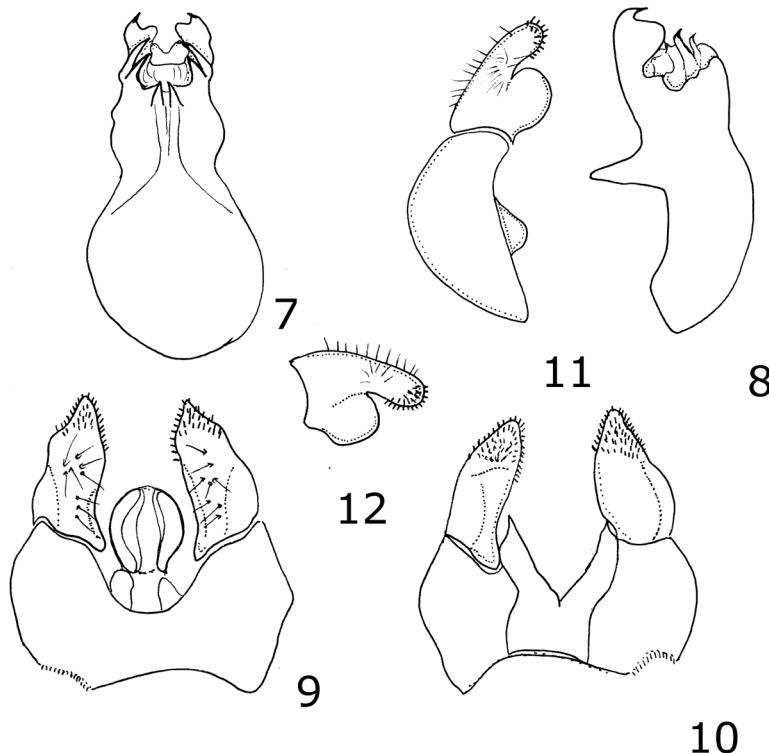
Description (male). Body length: 6.5–6.8 mm. Wing length: 6.6–6.8 mm.

Head (Figures 1, 3). Face protruding H:L 95:80 (1.2–1.4); yellow with brown genae and mouth edge; pollinose with bare shiny areas on anterior part of genae; long sparse white pile on genae. Paraface broad, pollinose, with a row of longer white pile. Sides of antennal prominence yellow, at most light brown; shiny and chagrinated. Frons and lunula yellow, pollinose, with long white pile along eyes; with a deep groove medially. Vertical triangle black, anteriorly more brownish, slightly grey pollinose. Relative length of A:B:C:D is 15:15:10:25. Hypostomal bridge black; entirely but faintly pollinose, white pilose; subcranial cavity L:W 60:40 (1.4–1.6). Clypeus brown, little pollinose, sides black; L:W 10:11 (0.9–1.1). Eyes bare. Occiput black, white pollinose with white pile; rim behind ocellar triangle narrow. Antennae orange, white pilose with row of black setulae on scape and pedicel; basoflagellomere as long as high, L:H 13:13 (1.0–1.1); arista orange, white pile about 1/3 of aristal diameter; sensory pit hardly visible.

Thorax (Figure 4). Scutum black, subalar callus dark brown; mostly shiny with thin white pollinose areas; with erect to semi erect white pile intermixed with black pile medially; sides with longer white pile and 8–11 black setae above wing. Postalar callus with longer white pile and 5–7 larger black setae. Postpronotum white pilose, some black pile intermixed medially. Pleura black with thin white pollinosity. Proepimeron with



FIGURES 1–6. *Brachyopa cruriscutum* sp. n. 1. ♂ (Paratype 17.VI.1984). Head dorsal view. 2. ♀ (Paratype). Head dorsal view. 3. ♂ (Holotype). Head lateral view. 4. ♂ (Holotype). Thorax dorsal view. 5. ♂ (Holotype). Metafemur lateral view. 6. ♂ (Paratype 17.VI.1984). Apex metatibia and metabasitarsus ventral view.



FIGURES 7–12. *Brachyopa cruriscutum* sp. n. ♂ (Holotype) genitalia. 7. Hypandrium ventral view. 8. Hypandrium lateral view. 9. Epandrium dorsal view. 10. Epandrium ventral view. 11. Epandrium lateral view. 12. Surstyli lateral view.

white pile on antero-dorsal corner; posterodorsal part of anepisternum with some black setae; posterior anepisternum, anepimeron and ventral and dorsal katepisternum with white pile. Mediotergite with lunulate pollinosity on anterior 3/4. Scutellum black, posterior 1/4 dark-brown; shiny, anterior 1/10 slightly pollinose; short semi erect black and white pile, longer along sides; 2–6 black setae along posterior margin; with shallow transverse sulcus; ventral scutellar fringe with black and white pile.

Wings. Completely covered with microtrichia. Halteres yellow.

Legs. Colour yellow; tarsi predominantly brown, protarsus with tarsomere 1 yellow on apical 1/10, tarsomeres 2–4 yellow on apical 1/3; metatarsus with tarsomere 1 brownish, tarsomeres 2–5 yellow on apical 1/3. Pile on legs white, posterior part of mesocoxa with pile. Pro- and

mesofemur with black pile apically. Black setulae on ventral side of metafemur and tarsomeres 1–4 of mesotarsus. Length ratio of tarsomeres of protarsus: 25:15:10:8:12. Metafemur (Figure 5) L:H 85:21 (3.8–4.2). Metatibia with apicoventral ridge as in Figure 6.

Abdomen. Colour yellow, shiny; pile white. Sternites shiny without pollinosity. Membrane connecting sternites with tergites pollinose without pile.

Genitalia. See Figures 7–12.

Description (female). Similar to male except for the usual sexual dimorphism. Body length: 5.9 mm. Wing length: 5.9 mm.

Head (Figure 2). Face H:L 70:65 (1.1); shiny with some pollinosity below antennae. Frons anterior 1/5 yellow, shiny; posterior 4/5 black, white pollinose, with bare shiny medial vitta of 1/7 of width of frons; flat. Ocellar plate hardly

pollinose. Subcranial cavity L:W 50:32. Clypeus yellow, shiny; sides dark brown; L:W 10:9 (1.1). Antennae: basoflagellomere little longer than high L:H 22:18 (1.2); arista greyish with grey pile; small but distinct sensory pit.

Thorax. 1–2 black setae above wing; scutellum posteriorly $\frac{3}{4}$ brown; with 3 setae along posterior margin. No transverse sulcus.

Legs. little less brown on tarsi and less black setulae on ventral side of metafemur. Metafemur L:H 100:22 (4.5).

Etymology. The name “*eruriscutum*” is the Latinised combination from the translation of the English words shiny shield, crus scuto.

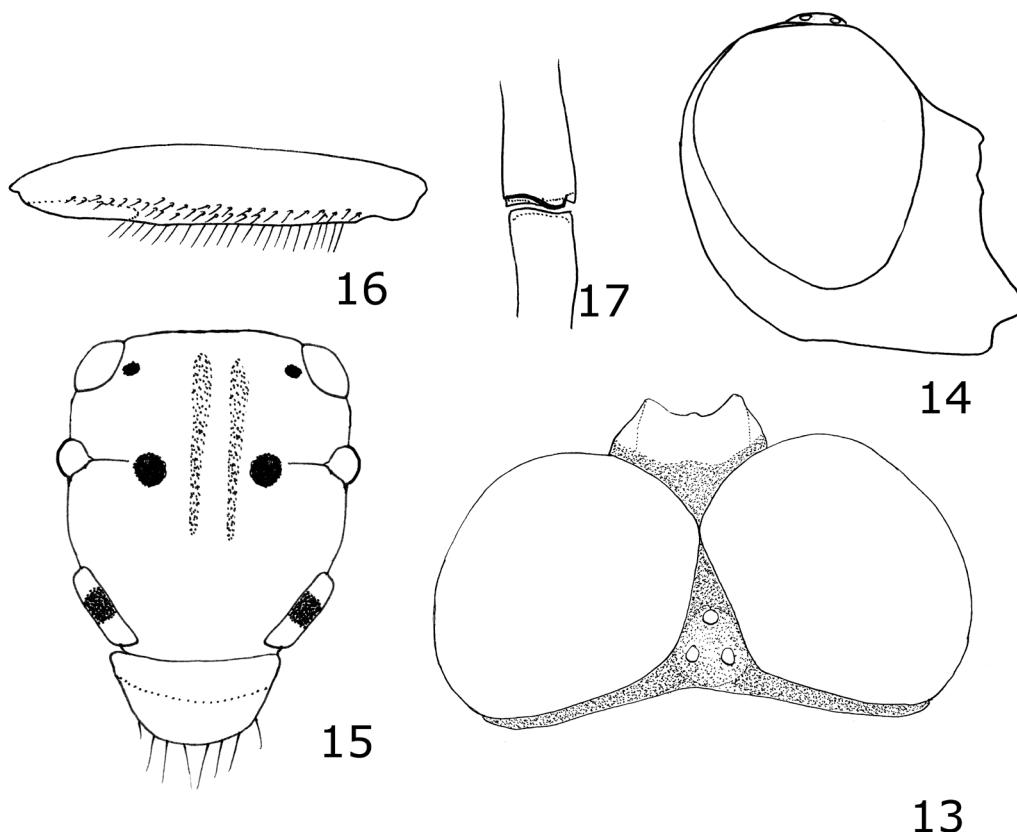
***Brachyopa vernalis* sp. n. (Figures 13–23)**

Types species. *Holotype* ♂. GREECE, Crete,

[Krassio prov Iraklio East Crete], Between Krasi & Tzermiado, 600 m.a.s.l., 8.IV.2008, leg. M. Reemer, (ZMAN). *Paratypes* 7♂♂. GREECE, Crete, [Krassio prov Iraklio East Crete], Between Krasi & Tzermiado, 600 m.a.s.l., 8.IV.2008, leg. M. Reemer, (MRA, 1♂; JSA, 1♂; WSB, 1♂; FSUNS, 1♂; CNC, 1♂); GREECE, W. Crete, [Sougia, Livadas prov Chania], Irini Gorge, 28.III.1997, 2♂♂, leg. V. Michelsen (ZMUC, 1♂; ZMAN, 1♂).

Diagnosis. Easily recognized from other species with grey thorax and yellow abdomen by the dark antero-basal part of the capitulum of the halter. Similar to an undescribed species from Samos and Lesvos, see under *B. quadrimaculosa* Thompson, 1981 spec. aff.

Description (male). Body length: 5.4–7.4



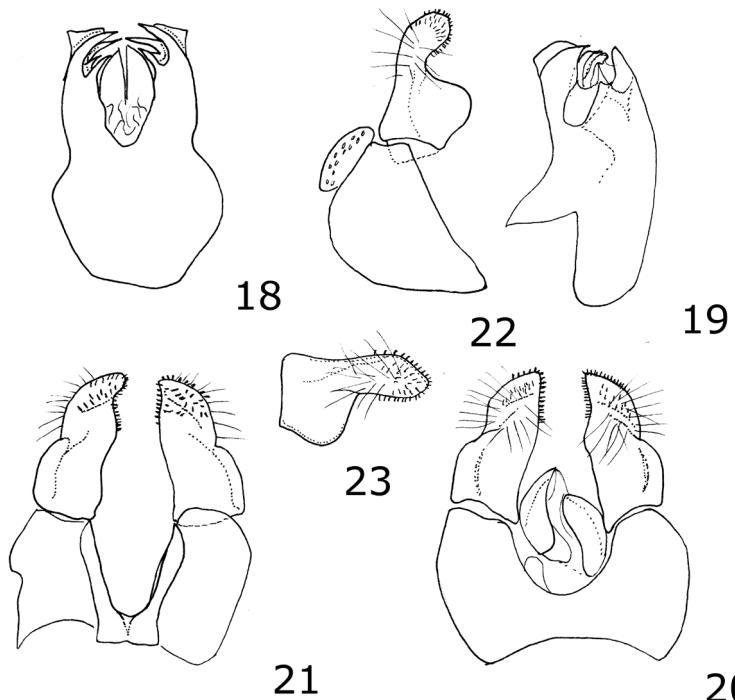
FIGURES 13–17. *Brachyopa vernalis* sp. n. 13. ♂ (Holotype). Head dorsal view. 14. ♂ (Holotype). Head lateral view. 15. ♂ (Holotype). Thorax dorsal view. 16. ♂ (Holotype). Metafemur lateral view. 17. ♂ (Holotype). Apex metatibia and metabasitarsus ventral view.

mm. Wing length: 5.4–7.6 mm.

Head (Figures 13, 14). Face slightly protruding H:L 52:40 (1.2–1.4); yellow with black maculae on either side of antennal cavity (in some specimens entirely yellow); pollinose, with bare shiny areas on genae and along mouth edge; white pile on genae and along mouth edge. Parafacce pollinose, laterally with bare shiny area. Sides of antennal prominence bare, shiny. Frons yellow and shiny, except for posterior $\frac{1}{2}$ white pollinose. Vertical triangle black, anterior more brownish; with white pollinosity; pile mixed black and white; ocellar triangle non-pilose. Relative lengths of A:B:C:D is 12:12:3:16. Hypostomal bridge black; entirely pollinose; white pilose; subcranial cavity L:W 62:40 (1.4–1.6). Clypeus shiny yellow, wrinkled along edge, non-pilose; L:W 19:10 (1.8–2.0). Eyes bare. Occiput black, white pollinose with white pile; rim behind ocellar triangle narrow with some black setae. Antennae orange-yellow, predominantly black pilose; basoflagellomere,

L:H 26:19 (1.4–1.5); arista black, basal part dark orange; sensory pit absent.

Thorax (Figure 15). Scutum black covered with dense white pollinosity except for 3 pairs of bare maculae, 1 close to postpronotum, 1 at medial end of transverse suture and 1 on medial part of postalar callus. Scutum with dense, black pile, on postpronotum, and along entire lateral margin of scutum with white erect pile. Some black setae laterally on both sides of transverse suture. Postalar callus with 2–3 long black setae. Pleura black with dense white pollinosity. Proepimeron with white pile in antero-dorsal corner; posterodorsal part of anepisternum with some black setae; posterior anepisternum, anepimeron and ventral and dorsal katepisternum with white pile. Mediotergite with pollinosity arcuate on about anterior 1/3. Scutellum yellow, anterior 1/2–4/7 black; pollinose on anterior 1/4–2/5, slightly shiny; with short semi erect white pile, medially with some black pile; 4–8 long setae along posterior margin;



FIGURES 18–23. *Brachyopa vernalis* sp. n. ♂ (Holotype) genitalia: **18.** Hypandrium ventral view. **19.** Hypandrium lateral view. **20.** Epandrium dorsal view. **21.** Epandrium ventral view. **22.** Surstyli lateral view

scutellar fringe with longer white pile.

Wings. Completely covered with microtrichia. Halteres yellow, dark on antero-basal part of capitulum.

Legs. Colour yellow; tarsi predominantly brown; tarsomers 4–5 always dark-brown; protarsus with tarsomere 1–3 yellow on respectively apical 1/10, 1/5 and 1/4; meso- and meta tarsus with tarsomeres 1–3 variable in colour, entirely yellow to predominantly dark-brown. Pile on legs predominantly white; black on tarsomeres 4–5 of pro- and metatarsus, entire mesotarsus, basal part of mesotibia, and apical part of pro- and mesofemur. Posterior part of mesocoxa pilose. Black setulae on ventral side of metafemur and tarsomeres 1–4 of mesotarsus. Black setae on apical 1/2 of mesofemur (4–10 setae). Length ratio of tarsomeres of protarsus: 28:18:10:5:15. Metafemur (Figure 16) L:H 95:18 (5.2–5.6). Metatibia with apicoventral ridge as in Figure 17.

Abdomen: Colour yellow, antero-lateral corner of tergite 1 black; pile white. Sternites 1–4 completely pollinose.

Genitalia. See Figures 18–23.

Etymology. The name is from the latinized word “vernalis” referring to the flight period, which is in early spring.

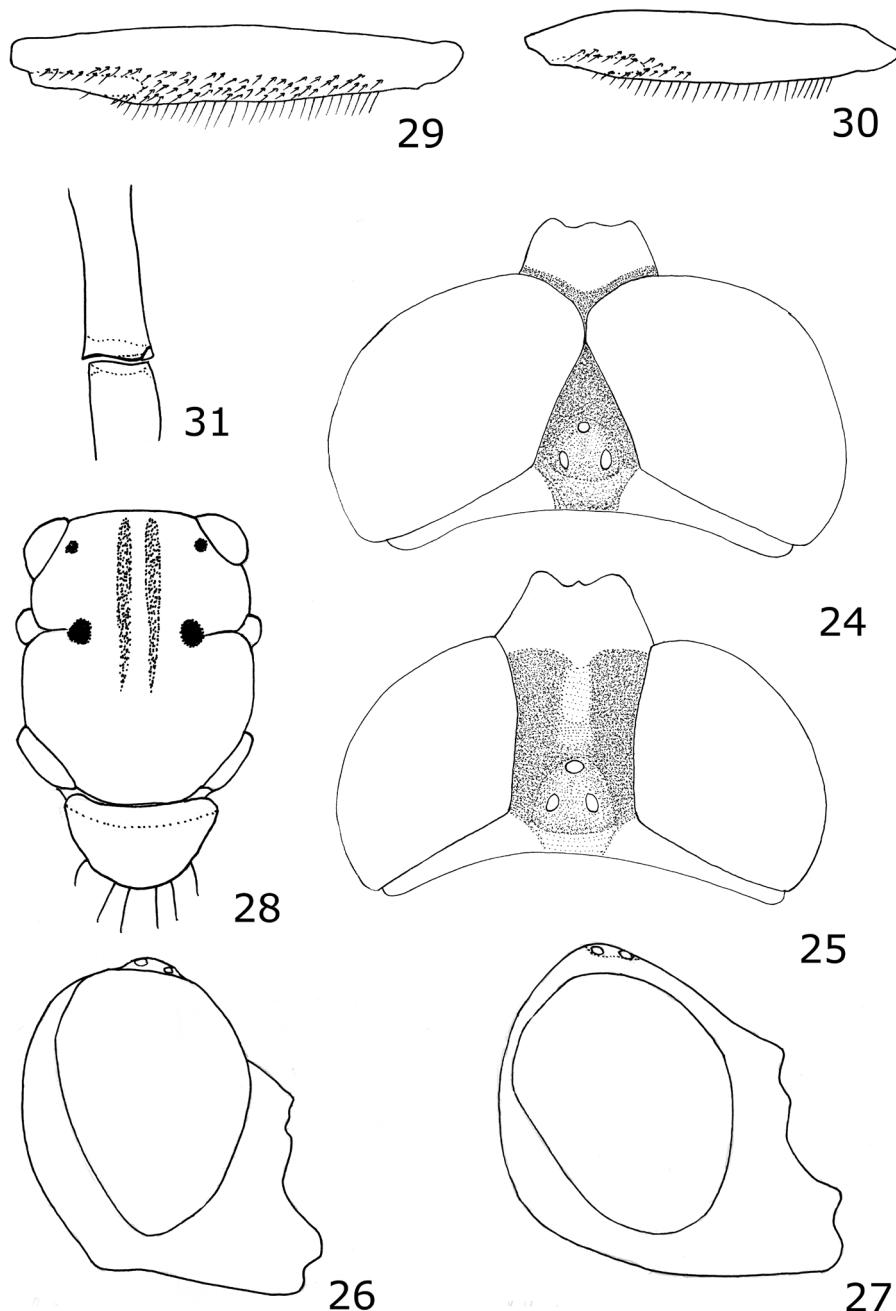
***Brachyopa bimaculosa* Doczkal & Dziock, 2004** (Figures 24–37)

Material studied. GREECE, Ipiros, Peristéri Mts., 1200–1700 m.a.s.l., 24–28.V.1994, 1♀, leg S. Andersen, *Brachyopa bimaculosa* Doczkal & Dziock 2004, det Doczkal 2004 (ZMUC); Ellas, Viotia Parnassos, 1100 m.a.s.l., 10 km NNE Delfi, 6.V.1998, 1♂, leg. M.J. Gijswijt, (WSB); Hellas, Lakonia, “to the shelter of Taigetos”, 22 km S.W. Sparti, 1000 m.a.s.l., 7.V.1990, 1♂ leg. J.A.W. Lucas, (ZMAN); ibid, 1♀, (ZMAN); Lakonia, Anavriti, 1000 m.a.s.l., Megali Vrisi fountain, Greek grid 354–4097, on *Prunus* sp., 22.IV.2005, 3♂♂, leg J. van Steenis, (JSA); Greece, Peloponnesos, Arkadia Karderas, Mt Menalo, N 37°37'43" E 22°18'01", 16.V.2012, 980 m.a.s.l., 1♂1♀, leg W. van Steenis (WSB); ibid on *Acer* spp., 2♀♀, leg J. van Steenis (JSA); ibid 18.V.2012, 2♀♀, leg W. van Steenis (WSB);

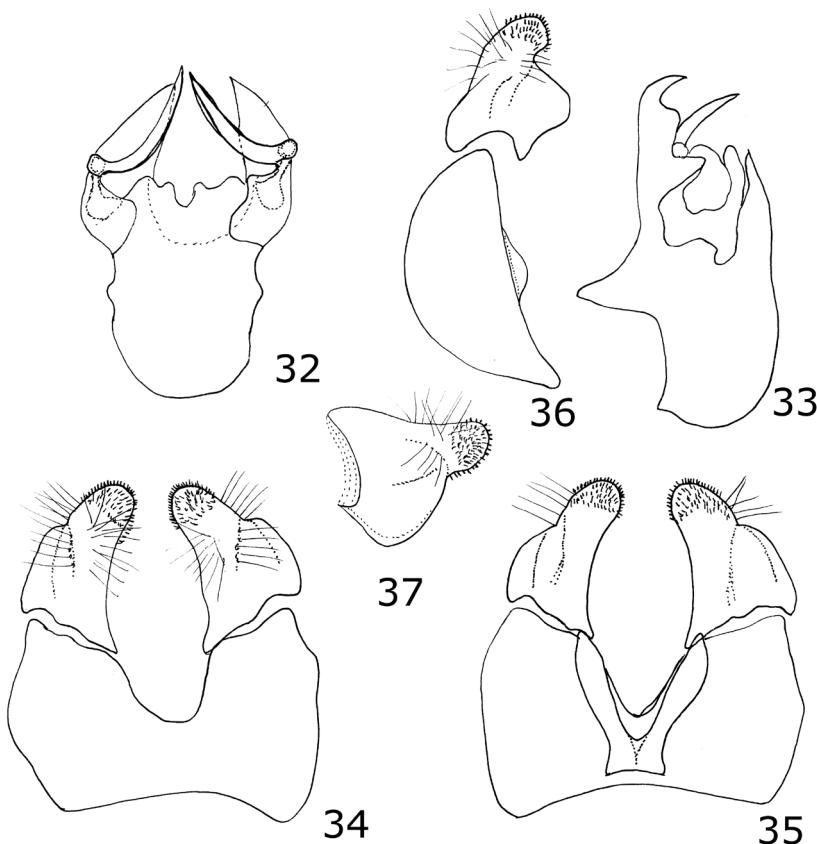
Greece, Peloponnesos, Arkadia Mt Menalo, Elati, on *Acer* spp, N 37°37'33" E 22°08'46", 19.V.2012 1170 m.a.s.l., 1♂, leg J. van Steenis (JSA); ibid 1♀, leg W. van Steenis (WSB); Greece, Peloponnesos, Arkadia Mt Menalo, Pyrgaki, on *Bupleurum cf rotundifolium*, N 37°38'08" E 22°09'27", 19.V.2012 1090 m.a.s.l., 1♂, leg J. van Steenis (JSA); ibid, 1♀ leg. W. van Steenis (WSB); Greece, Peloponnesos, Arkadia Mt Menalo, 5km South of Elati, N 37°34'59" E 22°09'50", 19.V.2012 1250 m.a.s.l., 3♂♂1♀, leg J. van Steenis (JSA); ibid 1♂2♀♀, leg W. van Steenis (WSB); Greece, Peloponnesos, Arkadia Mt Menalo, Vytina, road pass, on *Prunus* spp, N 37°39'20" E 22°15'56", 19.V.2012 1620 m.a.s.l., 1♂2♀♀, leg J. van Steenis (JSA); ibid 2♀♀ leg W. van Steenis (WSB); Greece, Peloponnesos, Arkadia Karderas, Mt Menalo, N 37°37'43" E 22°18'01", 20.V.2012, 980 m.a.s.l., 1♀, leg W. van Steenis (WSB); SLOVENIA Gorenjska, Jesenica, Dom Pristava, (Javorniški Rovt) N 46°27'17" E 14°05'27", 19.VI.2008, 970 m.a.s.l., 1♂, leg J. van Steenis (JSA); GERMANY Bayern, Riedberg Bolgenachtall, 47°26'52"N 10°08'07"E, 3.VI.2011, 1050 m.a.s.l., 1♂, leg J. van Steenis (JSA).

Description (male). Body length: 6.3–7.8 mm. Wing length: 6.5–7.9 mm.

Head (Figures 24, 26). Face strongly protruding H:L 73:75 (0.9–1.2); yellow with black maculae on either side of antennal cavity (in some specimens entirely yellow); pollinose, with bare shiny areas on genae, along mouth edge and below antennae; sparse pile on genae and along mouth edge. Paraface pollinose, laterally with bare shiny area. Sides of antennal prominence yellow, bare, shiny and chagrinated. Frons yellow and shiny, except for narrow pollinose vittae along eye-margin, and narrow posterior margin; with a shallow groove medially. Vertical triangle black, anterior more brownish; with white pollinosity; pile mixed black and white; ocellar triangle non-pilose. Relative lengths of A:B:C:D is 14:14:9:19. Hypostomal bridge yellow; entirely pollinose, sometimes with very small bare maculae laterally; white pilose; subcranial cavity L:W 58:30 (1.7–2.0). Clypeus shiny yellow, wrinkled along edge, non-pilose; L:W 18:8 (2.2–2.5; central European



FIGURES 24–31. *Brachyopa bimaculosa* Doczkal & Dziack 2004. 24. ♂ (7.V.1990). Head dorsal view. 25. ♀ (7.V.1990). Head dorsal view. 26. ♂ (22.IV.2005). Head lateral view. 27. ♀ (7.V.1990). Head lateral view. 28. ♂ (22.IV.2005). Thorax dorsal view. 29. ♂ (22.IV.2005). Metafemur lateral view. 30. ♀ (7.V.1990). Metafemur lateral view. 31. ♂ (22.IV.2005). Apex metatibia and metabasitarsus ventral view.



FIGURES 32–37. *Brachyopa bimaculosa* Doczkal & Dziock 2004 ♂ (22.IV.2005) genitalia. 32. Hypandrium ventral view. 33. Hypandrium lateral view. 34. Epandrium dorsal view. 35. Epandrium ventral view. 36. Epandrium lateral view. 37. Surstyli lateral view.

specimens 1.6–1.8). Eyes bare. Occiput black, white pollinose with white pile; rim behind ocellar triangle narrow with some black setae. Antennae orange-yellow, predominantly black pilose; basoflagellomere as long as high, L:H 16:14 (1.1–1.3); arista black, basal part dark orange; sensory pit minute, sometimes hardly visible.

Thorax (Figure 28). Scutum black, antero-medial extension of postpronotum and anterior and posterior 1/4 of postalar callus yellow; covered with dense white pollinosity except for two parallel vittae on anteromedial 2/3 slightly pollinose, and 2 pair (many specimens only with 1 pair) of bare maculae, close to postpronotum (in many specimens missing), and at medial end of transverse suture. Scutum with dense, black, semi erect pile, at postpronotum, notopleuron

and anterior part of scutum with white erect pile. Some setae laterally on both sides of transverse suture. Postalar callus with white erect pile and two long black setae. Pleura black with dense white pollinosity. Proepimeron with white pile on antero-dorsal corner; posterodorsal part of anepisternum with some black setae; posterior anepisternum, anepimeron and ventral and dorsal katepisternum with white pile. Mediotergite with straight pollinosity on anterior ½. Scutellum yellow, anterior 1/5 black; entirely but sparsely pollinose, slightly shiny; short semi erect white pile; 2–4 long setae along posterior margin, one smaller on both sides laterally; scutellar fringe with longer white pile.

Wings. Completely covered with microtrichia. Haltere entirely yellow.

Legs. Colour yellow; tarsi predominantly brown tarsomers 4–5 always dark; protarsus with tarsomere 1–3 yellow on at most apical 1/10, 1/6 and 1/5; meso- and meta tarsus with tarsomeres 1–3 variable in colour, entirely yellow to predominantly dark. Pile on legs white, black on tarsomeres 4–5 of pro- and metatarsus, entire mesotarsus, basal part of mesotibia, and apical part of pro- and mesofemur. Posterior part of mesocoxa bare. Black setulae on ventral side of metafemur and tarsomeres 1–4 of mesotarsus. Black setae on apical 1/2 of profemur (5–9 setae), mesofemur (2–3 setae) and apical ends of ta: 1–3 (5 setae). Length ratio of tarsomeres of protarsus: 25:12:8:5:15. Metafemur (Figure 29) L:H 95:18 (5.1–5.4). Metatibia with apicoventral ridge as in Figure 31.

Abdomen. Colour yellow, pile white. Sternites 1–4 completely pollinose.

Genitalia. See Figures 32–37.

Female. Similar to male, except for the usual sexual dimorphism. Body length: 6.4–6.9 mm. Wing length: 6.5–7.1 mm.

Head (Figures 25, 27): Face H:L 65:68 (0.9–1.1); shiny with pollinose fascia widely interrupted below antennae. Frons anterior 1/5 yellow, shiny; posterior 4/5 black, white pollinose, with bare shiny medial vitta of 1/5 of width of frons; flat. Ocellar plate pollinose. Subcranial cavity L:W 45:25 (1.7–1.9). Clypeus yellow, shiny; sides dark brown; L:W 18:9 (1.8–2.1). Antennae: basoflagellomere little longer than high L:H 15:12 (1.2–1.4); small but distinct sensory pit.

Legs: Metafemur L:H 107:21 (4.9–5.2).

Remarks. Abundant on the Peloponnesos (Greece), flying together with *B. bicolor* (Fallén), *B. grunewaldensis* Kassebeer, *B. insensilis* Collin and *B. pilosa* Collin; in Germany together with *B. dorsata* Zetterstedt, *B. testacea* (Fallén) and *B. vittata* Zetterstedt. Flowers visited: *Acer* spp., *Aegopodium* spp., *Bupleurum cf rotundifolium*, *Prunus* spp and white Apiaceae. In Slovenia (van Steenis *et al.* 2013) and Germany, it was found visiting flowers along a river in the shade of trees. The surrounding forest was dominated by Beech (*Fagus sylvatica*) and Fir (*Abies alba*) with *Salix* spp., *Acer* spp. and *Alnus* spp. along the river. On the Peloponnesos the specimens were caught on

open flower rich sub-alpine limestone meadows within forests (dominated by *Abies cephalonica* and *Pinus nigra*) and in rows of flowering *Acer* spp. trees bordering the roads close to mixed forest.

***Brachyopa atlantea* Kassebeer, 2000**

One of two species known from the African continent (Kassebeer 2000, 2002). As for other species like *Platycheirus marokkanus*, *Chrysotoxum volaticum*, and *Pipizella thapsiana* (Ssymank & Doczkal 2007, van Steenis & Lucas 2011) some of the African species tend to cross the Mediterranean sea and turn up in the Iberian peninsula.

Material studied. SPAIN, Espana, Grenada, Lanjaron, 550 m.a.s.l., 13.IV.1974, [36° 55' N, 3° 28' E] 1♀, J.A.W. Lucas (ZMAN).

Remarks. New to Spain.

***Brachyopa quadrimaculosa* Thompson, 1981 spec aff.**

This specimen is conspecific to a male of an undescribed species send to us by Dr. Vujić. It is similar to *B. vernalis* and *B. quadrimaculosa*. Differing from both by: mediotergite with arcuate pollinosity on anterior 1/2. Scutellum entirely pollinose. Posterior mesocoxa bare. Metafemur narrower L:H 82:14 (5.9). This species will be described by Vujić and co-workers in a separate paper.

Material studied. GREECE, Hellas, Samos, Platanakia, 25.IV.1988, 1♀, leg. J.A.W. Lucas (ZMAN).

Discussion

The genus *Brachyopa* is widespread in the Holarctic region. In Europe it is a well-studied genus. As this paper shows even within this genus several new species can be found in the Mediterranean sub region. Since there are several species with a very limited distribution within the Mediterranean sub region, it is to be expected that more cryptic species could be found on the Aegean islands or other isolated areas.

Acknowledgement. We wish to thank the following persons for the loan of material and for other valuable help: Dieter Doczkal (Gaggenau), Menno Reemer (Amsterdam), Ben Brugge (Leiden), Thomas Pape (Copenhagen) and Ante Vujić (Novi Sad).

References

- Doczkal, D. & Dziock, F. 2004. Two new species of *Brachyopa* Meigen from Germany, with notes on *B. grunewaldensis* Kassebeer (Diptera, Syrphidae). *Volucella* 7, 35–59.
- Hippa, H. & Stähls, G. 2005. Morphological characters of adult Syrphidae: descriptions and phylogenetic utility. *Acta Zoologica Fennica* 215, 1–72.
- Kaplan, M. & Thompson, F.C. 1981. New Syrphidae (Diptera) from Israel. *Proceedings of the Entomological Society of Washington* 83(2), 198–212.
- Kassebeer, C.F. 2000. Eine neue *Brachyopa* Meigen, 1822 (Diptera: Syrphidae) aus dem Atlas. Beiträge zur Schwebfliegenfauna Marokko X. *Dipteron* 3, 141–148.
- Kassebeer, C.F. 2002. Eine weitere *Brachyopa* Meigen, 1822 (Diptera, Syrphidae) aus Tunesien. *Dipteron* 4, 201–208.
- Krivosheina, N.P. 2005. Contributions to the biology of Flower-Flies of the genus *Brachyopa* (Diptera, Syrphidae). *Entomological review* 85(5), 569–585.
- Ricarte, A., Quinto, J., Speight, M.C.D., & M.A. Marcos-Garcia. 2013. A contribution to knowledge of the biodiversity of Syrphidae (Diptera) in Spain. *Arch. Biol. Sci.*, Belgrade 65 (4), 1533–1537.
- McLean, I.F.G. & Stubbs, A.E. 1990. The breeding site of *Brachyopa pilosa* (Diptera; Syrphidae). *Dipterists Digest* 3, 40.
- Pape, T. & Thompson, F.C. 2013. *Systema Dipterorum*, Version [1.5]. Available from: <http://www.diptera.org> (accessed 2 October 2013).
- Reemer, M., Renema, W., van Steenis, W., Zeegers, Th., Barendregt, A., Smit, J.T., van Veen, M.P., van Steenis, J. & van der Leij, L.J.J.M. 2009. *De Nederlandse zweefvliegen* (Diptera: Syrphidae). 442 pp. Nederlandse Fauna 8, Leiden.
- Rotheray, G.E. 1991. Larval stages of 17 rare and poorly known British hoverflies (Diptera: Syrphidae). *Journal of Natural History* 25, 945–969.
- Rotheray, G.E. 1993. Colour guide to Hoverfly larvae (Diptera, Syrphidae). *Dipterists Digest* 9, 1–156.
- Rotheray, G.E. 1996. The larva of *Brachyopa scutellaris* Robineau-Desvoidy (Diptera: Syrphidae) with a key to and notes on the larvae of British *Brachyopa* species. *Entomologist's Gazette* 47, 199–205.
- Rotheray, G.E. & Gilbert, F.S. 1999. Phylogeny of Palaearctic Syrphidae (Diptera): evidence from larval stages. *Zoological Journal of the Linnean Society* 127, 1–112.
- Sivova, A.V., Mutin, V.A., & Gritskevich, D.I. 1999. Syrphid larvae (Diptera: Syrphidae) living in *Ulmus pumila* L. in Komsomolsk-on-Amur. *Far Eastern Entomologist* 71, 1–8.
- Speight, M.C.D. 2011. Species accounts of European Syrphidae (Diptera), Glasgow 2011. *Syrph the Net, the database of European Syrphidae*, vol. 65, 285 pp., Syrph the Net publications, Dublin.
- Ssymank, A. & Doczkal, D. 2007. Contributions to the hoverfly-fauna (Diptera: Syrphidae) of southern Spain. *Poster presentation 4th international Symposium on Syrphidae, Siikaranta, Finland*.
- Stähls, G., Hippa, H., Rotheray, G., Muona, J. & Gilbert, F. 2003. Phylogeny of Syrphidae (Diptera) inferred from combined analysis of molecular and morphological characters. *Systematic Entomology* 28, 433–450.
- Steenis, J.v. & Lucas, J.A.W. 2011. Revision of the West-Palaearctic species of *Pipizella* Rondani 1856 (Diptera, Syrphidae). *Dipterists Digest* 18, 127–180.
- Steenis, W.v., Groot, M. de & Steenis, J.v. 2013. New data on the hoverflies (Diptera: Syrphidae) of Slovenia. *Acta Entomologica Slovenica* 21 (2), 131–162.
- Thompson, F.C. 1999. A key to the genera of flower flies (Diptera: Syrphidae) of the Neotropical Region including descriptions of new genera and species and a glossary of taxonomic terms. *Contributions on Entomology, International* 3(3), 321–378.
- Torp, E. (1994) Danmarks Svirrefluer (Diptera: Syrphidae). *Danmarks Dyreliv Bind* 6. 490 pp. Apollo books, Stenstrup, Danmark.

Received: 10 December 2013

Accepted: 16 April 2014