

Contribution to

Arthropods of southern Sardinia – a monograph

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Diptera, CALLIPHORIDAE

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The Calliphoridae (blowflies) are a small family of calyptrate Diptera, with about 60 species recorded from Italy (Rognes 1995, 2005), 114 species from Europe (Rognes 2005) and about 1000 species world-wide (Rognes 1991) [one additional species recorded from Europe is reported upon below and marked with an asterisk (*)]. It is probably not a monophyletic group (Rognes 1997). The included species are small to very large and robust flies. Most have a green (*Chrysomya*, *Lucilia*), olive green (*Bellardia*) or blue or bluish black metallic colouring (*Calliphora*, *Melinda*), but there are also black or more or less orange non-metallic species (*Pollenia*, *Rhyncomya*, *Stomorhina*). Most species have bodies covered with more or less conspicuous pollinosity (microtomentum). Whereas adult blowflies in general visit flowers, faeces and dead animals to obtain nourishment, the larval habits are extremely diverse. Most species are oviparous, but there are a few genera which have multilarviparous (*Bellardia*) or even unilarviparous (*Eurychaeta*) species. Many blowflies lay their eggs on dead bodies of various animals. Being very numerous their larvae play an important part in natural communities as decomposers and scavengers. Blue-bottles (*Calliphora*) and green-bottles (*Chrysomya*, *Lucilia*) are among the first species to arrive on dead animal bodies, including human bodies, and such species are of importance in forensic medicine for determining the post-mortem interval. The habit of feeding on faeces and cadavers and visiting fresh or cooked meat, fish or dairy products make many species potent vectors of bacteria, viruses, protozoans and helminths causing various enteric diseases in man, and are therefore of great hygienic importance. Species of *Melinda* have an extremely elongate ovipositor which they use to insert their eggs into the pallial cavity of snails. The larvae subsequently live as an internal parasite that ultimately cause the death of the snail which is devoured. Some genera (e.g. *Bellardia*, *Pollenia*) have species associated with earthworms. Some *Pollenia* females lay their eggs on the soil and the newly hatched larvae find their way to their hosts or prey by following natural spaces in the soil. Other *Pollenia* species are reported as parasitoids of honey-bee workers or parasites of lepidoptera larvae. The larvae of *Rhyncomya* species are sometimes associated with termites or ants. The larvae of *Stomorhina lunata* are predators of egg-pods of locusts. Many blowfly larvae are able to live on live vertebrate bodies, feeding on the host's dead or living tissue, liquid body substances or ingested food. This phenomenon is called myiasis and is an important aspect of blowfly biology. Key to identification of Palaearctic genera and species and references to further literature can be found in Rognes (1991, 1998).

Distributional data outside Sardinia have been taken from Rognes (2005). – Thanks to Christophe Daugeron (Muséum National d'Histoire Naturelle, Paris), Amnon Freidberg (Department of Zoology, Tel Aviv University, Tel Aviv) and Thomas Pape (Zoological Museum, University of Copenhagen, Copenhagen) for loan of material from the collections in their care, and to Miguel Angel Alonzo Zarazaga, Madrid, for help with a locality name.

1. *Bellardia brevistylata* (Villeneuve, 1926)

Conca Margiani, radura strada, 700m, (9m 2f) ++ – R

Conca Margiani, radura, 725m, (1m) + – R

dint. colonia Beneck, 636m, (8m 10f) ++ – M

sa Duchessa, 371m, (3m 6f) + – M, R

Valle Oridda, 592m, (1f) + – M

First published records from Sardinia. A Mediterranean species known also from Spain (González-Mora 1989) and Sicily (type locality). Biology unknown.

B. brevistylata is a brownish species with infuscated wings and the wing cell r4+5 closed in margin or short-petiolate. Scutellum with 2 strong marginal pairs and one weaker pair in between. Arisal hairs very short, especially below. Presutural acrostichal setae usually 2 pairs, sometimes only 1 pair. Prosternum in one specimen without setae (area often difficult to observe). One such specimen thought to be *B. maroccaa* Villeneuve, 1941, but the genitalia have been dissected and are identical to those of males identified as *brevistylata*. Specimens fit photographs of kindly provided by D^{ra} D. Gonzalez-Mora (Madrid). Male genitalia fit her figures (González-Mora 1989). Abdomen with middorsal stripe and dark hind margins under some lights, under other lights tessellated. Very weak bronze/coppery hue shines through dusting. Front tibia usually with 2 posteroventral setae, a few with 1 pv (both sexes). Mid tibia in males with 1 anterodorsal seta (sometimes 2); in females with 2-3 ad. T6 in ovipositor a narrow band, divided at middle. A dissected female had a uterus with 2-300 first instar larvae. Specimens have been compared with *B. nova* Rognes, 2002 from Israel (Department of Zoology, Tel Aviv University). The Sardinian specimens are definitely not that species. Male genitalia are somewhat similar, but *B. nova* is a paler species with bright white dusted parafacialia (brownish in *brevistylata*), broader frons, and paler wings and calypters.

2. *Bellardia siciliensis* (Villeneuve, 1926)

Italy, Liguria Province, Genova, Costa Calderaia (rendered as “Costa Caldera” on label), 19. IX.1980, H. Arter leg., 1m, Museum National d’Histoire Naturelle, Genève (det. K. Rognes)

dint. Planargia-Scoveri, 625m, (1m) + – R

Not recorded from Sardinia in Rognes (1995), but included in Rognes (2005) on the basis of the above specimen from “Costa Caldera” in Muséum National d’Histoire Naturelle, Genève (coll. Bernhard Merz), under the assumption that the specimen was from Sardinia (as it was labelled). Through the help of colleagues I have now reason to believe that the specimen has been mislabelled and that the locality is on the Italian mainland. A Mediterranean species known also from Sicily and Tunisia. Biology unknown.

3. *Bellardia* sp.

Iglesias Marganai – SAR1, 700m, (1f) + – M

Tintillonis, 480m, (1f) + – M

Two females that possibly belong to *B. siciliensis*, but safe identification must await revision of most *Bellardia* females. The T6 of the ovipositor is visible and similar to the one in *B. pandia* (Walker) (cf. Rognes 1991: fig. 97, p. 50).

4. *Calliphora vicina* Robineau-Desvoidy, 1830

Bega d'Aleni, 621m, (1m) + – Caccia al lume (= L ?)

Conca Margiani, radura strada, 700m, (1m 1f) + – R

dint. colonia Beneck, 636m, (2m 1f) + – M

dint. P.ta piscina Argiolas, 282m, (1f) + – R

Lago Siuru, 322m, (7m) + – M

Tintillonis, 480m, (3m) + – R

Valle Oridda, 592m, (4m 8f) ++ – M

Domusnovas, M.ti Marganai, dint. Grotta S. Giovanni, (1f) + – R

Iglesias, 500m, (on *Phoeniculum vulgare*) (1f) + – R

Iglesias, M.ti Marganai, 500m, (on *Phoeniculum vulgare*) (1m) + –R

Iglesias, Marganai, 700m, (1f) + – P

Iglesias, Marganai, 700m, (2m) + – M

Iglesias, Marganai, Area ConEcoFor SAR1, 700m, (1f) + – M

Iglesias, Marganai, Plot Conecofor SAR1, 700m, (4m 2f) + – P, Glass trunk trap

M.ti Marganai, dint. Case Marganai, 650m, (1m) + – R

Marganai, Tintillonis, 480m, (radura con *Foeniculum vulgare*) (1m 1f) + – M

A cosmopolitan species breeding in refuse and all kinds of decomposing animal matter. Often entering houses.

5. *Calliphora vomitoria* (Linnaeus, 1758)

Bega d'Aleni, 621m, (1f) + – R

dint. colonia Beneck, 636m, (3m 3f) + – M

Tintillonis, 480m, (6m 1f), + – M, R

Valle d'Oridda, 643m, (2f) (on *Ferula communis*) + – R

Valle Oridda, 592m, (13m 17f) ++ – M, R

Iglesias, Marganai, 700m, (1m 1f) + – M

First published records from Sardinia. A cosmopolitan species breeding in refuse and all kinds of decomposing animal matter.

6. *Chrysomya albiceps* (Wiedemann, 1819)

Bega d'Alenia, 621m, (2m) + – R

Conca Margiani, 750m, (3m) + – R

Conca Margiana, radura strada, 700m, (1m) + – R

dint. L. di Montimannu, 256m, (1m) + – R

Lago Siuru, 322m (3f) + – M, R

Nuraghe is Cangialis, 373m, (3m) + – R
Oristallai, 947m, (1m) + – R
sa Duchessa, 371m, (1f) + – R
Tintillonis, 480m, (1m) + – R
Valle Oridda, 592m, (1m) + – R

Iglesias, 500m, (2m 1f) + – R
Iglesias, Fontanamare, 7m (1m) + – R
Iglesias, M.ti Marganai, 500m, (1m 1f) + – R
Iglesias, Marganai, Plot Conecofor SAR1, 700m, (1f) + – Glass trunk trap
Marganai, Botanical Garden, (1f) + – R

First published records from Sardinia. An almost cosmopolitan species, but apparently absent from East Palearctic, Australia and Nearctic. Often confused with *C. rufifacies* (Macquart, 1843). Breeding in carrion and refuse.

7. **Lucilia caesar** (Linneus, 1758)

Bega d'Aleni, 621m, (4m) + – R
Conca Margiani, 750m, (1m) + – R
Conca Margiani, radura strada, 700m (1m) + – R
dint. colonia Beneck, 636m, (4f) + – M
Lago Siuru, 322m, (5m 10f) ++ – M, R
Radura sponda sinistra Rio Cannisoni, 401m, (1f) + – R
Rio Cannisoni, 390m, (1f) + – R
Tintillonis, 480m, (10m 3f) ++ – M, R
Valle Oridda. 592m, (3m 2f) ++ – M, R

Villacidro, dint. Punta Piscina Argiolas, 300m, (1m) + – R

First published records from Sardinia. A Palearctic species breeding in carrion.

8. **Lucilia sericata** (Meigen, 1826)

Bega d'Aleni, 621m, (1m) + – R
Lago Siuru, 32mm, (7m 1f), ++ – M, R
Monte Idda, 474m, (1m) + – R
Stagno di s'Ena Arrubia, 0m, (2m 2f) + – R
Valle Oridda, 592m, (1m 1f) + – R

Iglesias, Fontanamare, 7m, (1m 1f) + – R
Stagno di Marceddi, ?m, (1m) + – R
Villacidro, diga Lago di Montimannu, 250m (1f) + – R

First published records from Sardinia. A cosmopolitan species. Breeds in carrion and refuse.

9. **Melinda gentilis** Robineau-Desvoidy, 1830

Tintillonis, 480m, (2m) + – R
Valle Oridda, 592m, (1f) + – R
Valle Oridda, 643m, (2m 3f) + – R

Domusnovas, M.ti Marganai, dint. Grotta S. Giovanni, ?m, (1f) + – R
Iglesias, Marganai, 700m, (1f) + – P

First published records from Sardinia. A Palaearctic species. A parasite of snails in the larval stages.

10. **Pollenia griseotomentosa** (Jacentkovský, 1944)

Lago Siuru, 322m, (10m 13f) ++ – M, R

First published record from Sardinia. European distribution. Recently recorded from the Nearctic. Biology unknown.

11. ***Pollenia haeretica** Séguy, 1928

dint. P.ta piscina Argiolas, 282m, (1m) + – R
Lago Siuru, 322m, (3f) + – M
Valle Oridda, 592m, (1f) + – M

Arbus, Piscinas, dune, ?m, (1f) + – R
Dune di Piscinas, ?m, (1m 2f) + – R

First published records from Europe. Also known from Algeria (syntypes, Muséum National d'Histoire Naturelle, Paris) and Tunisia (Zoological Museum, University of Copenhagen). Biology unknown.

[Note : A revision of the *P. haeretica* species-group is in progress.]

12. **Pollenia paupera** Rondani, 1862

Pollenia longithecata Rognes, 1987

Conca Margiani, 750m, (1m) + – R
Conca Margiani, radura strada, 700m, (2m 2f) + – R
dint. colonia Beneck, 636m, (8m 10f) ++ – M
Lago Siuru, 322m, (1m) + – M

Also known from Sicily and southern part of Italian mainland, Greece (incl. Crete), Cyprus, Turkey and Israel. Biology unknown.

13. **Pollenia pseudintermedia** Rognes, 1987

Oristallai, 947m, (1m) + – R

First published record from Italy. Also known from Spain, Portugal, Greece, and Israel.
Biology unknown.

14. **Pollenia rudis** (Fabricius, 1794)

dint. colonia Beneck, 636m, (1m) + – M
Lago Siuru, 322m, (1m 3f) + – M, R
Valle Oridda, 592m, (2f) + – M, R

Iglesias, Marganai, 700m, (1m) + – M

First published records from Sardinia. Almost cosmopolitan, but absent from the Afrotropical and Neotropical regions. Larvae parasitoids of earthworms.

15. **Pollenia ruficrura** Rondani, 1862

Pollenia ruficrura: Rognes, 1995: 10 (lapsus).

Lago Siuru, 322m, (8m 2f), ++ – M

First published record from Sardinia. Also known from Corsica, Italian mainland (Puglia, Parma) and Morocco. Biology unknown.

Please note that there is an error in my *viatica* species-group paper (Rognes 1992: 457) where this species is treated in more detail. There are 3m1f present in ZMC, not 3m 2f as stated erroneously in the paper. In Rognes (1995: 10) Rondani's name is mis-spelt as *ruificrura*.

16. **Pollenia venturii** Zumpt, 1956

Valle Oridda, 592m, (2m 3f) + – M

First published record from Sardinia. Very rare, but widely distributed in Europe (France, Germany, Poland, Italian mainland, Greece; also Russia (Krasnodar Kray) and Iran (Khuzestan: Shush, unpublished). Biology unknown.

17. **Rhyncomya impavida** (Rossi, 1790)

Bega d'Aleni, 621m, (12m 10f) ++ – R
Conca Margianai, 750m, (1m 1f) + – R
Conca Margiani, radura strada, 700m, (1f) + – R
Cuccuruneddi, Hill top, 708m, (6m) + – R
dint. Colonia Beneck, 636m (1f) + – M
dint. L. di Montimannu, 256m, (1f) + – R
Greto di R. Sa Duchessa, 270m, (2f) + – R
Laghetto Siuru, 307m, (1f) + – R

Lago Siuru, 322m, (1m 4f) + – M
Punta Cungiaus, 636m, (2m) + – R
Rio Cannisoni, 390m, (2m) + – R
Rio Cannisoni, 400m, (1f) + – R
Sa P.ta de S'Erbaceu, 744m, (1f) + – R
Valle Oridda, 592m, (21m 9f) ++ – M, R

Domusnovas, M.ti Marganai, dint. Grotta S. Giovanni, ?m, (2f) + –R
Domusnovas, Siusu, Lagodomus, ?m, (2m 3f) + –R
Dune di Piscinas, ?m, (1m 1f) + – R
Iglesias, 500m, (1f) + – R
Iglesias, M.ti marganai, 500m, (3f) + – R
Piscinas, ?m, (1f), + – R
Sassari, Alghero, Capo Caccia, ?m, (1f) + – R
Villacidro, dint. Punta Piscina Argiolas, 300m., (3m) + – R

Also known from Corsica, Sicily and southern part of Italian mainland. Biology unknown.

18. *Stomorhina lunata* (Fabricius, 1805)

Bega d'Aleni, 621m, (21m 5f) ++ – R
Cala Domestica, 10m, (1m 1f) + – sfalcio
Conca Margiani, 750m, (1m 4f) + – R
Conca Margiani, radura strada, 700m, (2m 1f) + – R
dint. Planargia – Scoveri, 625m, (2m) + – R
Genna Mirratta, 794m, (1m) + – R
Lago Siuru, 322m, (2m) + – M, R
Monte Idda, 474m, (7m 3f) ++ – R
Nuraghe is Cangialis, 373m, (2f) + – R
Valle Oridda, 592m, (4m 5f) + – M, R
Vecchia cartiera (= cantoniera) Marganai, 491m, (1f) + – R

Domusnovas, Siusu, Lagodomus, ?m, (1m) + – R
Dune di Piscinas, ?m, (1f) + – R
Iglesiente, Domusnovas, Sa Duchessa, 308m, (1m 1f) + – R
Iglesiente, Domusnovas, Valle d'Oridda, 300m, (1m) + – R
RC, Calabria, Giffone dint. 800m (fagetta), 800m, (1f) + – R

Widely distributed in the southern Palaearctic (also France and Great Britain); all of Afrotropical Region; northern Oriental Region; only Bermuda in the Nearctic region. Larvae are predatory on locust egg-pods.

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