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**A Check List of the Syrphidae of Oceania**

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INTRODUCTION

The purpose of this paper is to present as completely as possible a catalog or check list of the flies of the family Syrphidae having an insular distribution in the Pacific region. I am greatly indebted to Mr. E. P. Mumford, Director of the Pacific Entomological Survey, for the opportunity of presenting this study on a region interesting from both a distributional and ecological point of view. The area studied is limited to the Marianas, the Carolines, and Fiji on the west; to Hawaii on the north; to Easter Island on the east; and to the Kermadecs on the south. For minor records or citations of species in the literature, the student is further referred to the complete and excellent summary of records for Hawaii by Mr. E. H. Bryan, Jr. (6)<sup>1</sup>.

The present paper lists 35 valid species from the region which are distributed among 18 genera. All records of introduced or intercepted species of which I am aware have been included. The accompanying table summarizes the distribution of 13 large genera as well as unique or peculiar genera, including the number of species known at the time of the preparation of this paper, within several subregions of continental Asia, Oceania, Malaya, Australia, and New Guinea. For the purposes of the table, Malaya is taken to include the Malay Peninsula, Sumatra, Borneo, Java, the Philippine Islands, Celebes and Bali. Oceania is primarily considered as the restricted

<sup>1</sup> Numbers in parentheses refer to Literature Cited, p. 85.

region treated in this paper, but for comparative purposes, in the table only, it is also considered in a broad sense as including New Guinea, Australia, New Caledonia, New Zealand, the Antipodes, and Galapagos. The figures given for the continent of Asia exclude the more remote sections such as Korea, Saghalin, Siberia, Arabia, and the islands of Formosa and Japan, from which islands several hundred species of Syrphids have been recorded in recent years, constituting an extraordinarily rich fauna.

The table indicates that the genera *Syrphus*, *Eristalis* (including *Lathyrophthalmus*), and *Eumerus* furnish the largest components of the Syrphid fauna of the restricted Oceanic region; while these same groups are also the most prominent of the continental and Malayan regions, nevertheless, the percentage components show *Syrphus* species to be most strongly represented in the Pacific islands and *Helophilus* species to be more than twice as well represented in Oceania, in the broad sense, as in the continental region. The absence of such characteristically Malayan genera as *Milesia*, *Korinchia*, and of such almost world-wide genera as *Sphagina*, *Rhingia*, *Mallota*, *Volucella* (except introduced species) in the Oceanic region is noticeable. It is also notable that while *Syrphus* species are largely endemic the species of the very closely related genus *Asarkina* are abnormally widespread. The same relationship appears to hold with regard to *Eristalis* and *Phytomia* species. It is perhaps odd that *Eristalis nitidus* Van der Wulp should be recorded from Java and Sumatra on the one hand, and from Fiji and Samoa on the other, but not from New Guinea or Australia. There are 26 Malayan species occurring in the expanded Oceanic region but only 3 in the restricted Oceanic region.

The generic names given in parentheses after a number of species in the check list are the names under which these species have been discussed by previous authors.

## Distribution of Syrphidae in Eastern Asia and Oceania

GENERA CONSIDERED	MALAYA	CONTINENT OF ASIA	SPECIES COMMON TO CONTINENT AND MALAYA	TOTAL OF SPECIES OF CONTINENT AND MALAYA	TOTAL OF SPECIES OF EX- PANDED OCEANIC REGION	AUSTRALIA	NEW GUINEA	OCEANIA	SPECIES LISTED FROM OCEANIA AND MALAYSIA	PERCENT OF OCEANIC SPECIES FOUND IN A SINGLE GENUS	PERCENT OF MALAYSIAN SPECIES FOUND IN A SINGLE GENUS
Syrphus	30	25	0	55	36	19	7	7	0	20.0	8.5
Ceriodes	9	28	0	37	23	17	5	0	0	—	5.7
Microdon	24	16	2	38	28	19	9	0	0	—	5.9
Eristalis	54	50	6	88	40	20	21	6	2	17.1	13.6
Xylota	11	11	0	22	7	6	1	0	0	—	3.4
Helophilus	13	4	2	15	16	12	4	0	0	—	2.3
Paragus	2	7	1	8	8	3	5	0	0	—	1.2
Eumerus	10	18	1	27	13	7	4	3	1	8.5	4.2
Syritta	5	4	1	8	5	2	2	1	0	2.8	1.2
Dissoptera	1	0	0	1	4	2	2	2	0	5.7	1.5
Baccha	35	11	1	45	11	2	7	1	0	2.8	6.9
Milesia	27	11	1	37	0	0	0	0	0	—	5.7
Graptomyza	17	4	0	21	9	5	3	1	0	2.8	3.2
Unique Genera	7	5	2	14	11	9	2	1	0	—	—

Total number of species known from Oceania.....	35
Total number of species known from the Pacific islands outside of the Oceanic area studied.....	259
Total number of species known from Malaya.....	323
Total number of species known from the continent of Asia (southeast- ern part) .....	321

CHECK LIST

Genus MELANOSTOMA Schiner, 1860

1. *Melanostoma stegnum* Say: 33, vol. 6, p. 163; 6.  
Hawaii; intercepted in quarantine; an American species not known to be established.
2. *Melanostoma univittatum* Wiedemann: 48, pp. 34, 53, 64; 2; 8; 9; 10; 11; 20; 21.  
Australia, Fiji, Samoa, Malay, Tonga, New Caledonia.

Genus ASARKINA Macquart, 1841

3. *Asarkina consequens* Walker: 47, vol. 1, p. 18; 8; 10; 11; 27.  
New Guinea, Malay, Samoa, Java, Sumatra, Celebes.
4. *Asarkina ericetorum* Fabricius: 13, vol. 2, p. 425; 2; 11; 20; 21; 27.  
Bezzi describes the variety *papuanum* from New Guinea and Fiji and the variety *oceanicus* from Fiji. See also the extensive notes of De Meijere (27, p. 311).  
New Guinea, Java, Sumatra, Fiji, Samoa, Australia.

Genus SYRPHUS Fabricius, 1775

5. *Syrphus corollae* Fabricius variety *vitiensis* Bezzi: 2, p. 71; 20; 21.  
Fiji, Samoa, Australia ? (Hardy, 20).
6. *Syrphus melanurus* Bigot: 3, ser. 6, vol. 4, p. 97.  
Listed as a synonym of *Ischiodon scutellaris* Fabricius by Bezzi.  
New Caledonia, Society Islands.
7. *Syrphus nodalis* Thomson: 41, p. 497; 2.  
Listed as a synonym of *Ischiodon scutellaris* Fabricius by Bezzi.  
"Taiti".
8. *Syrphus opinator* Osten Sacken: 32, vol. 3, p. 327; 6.  
Hawaii; a North American species which was intercepted and bred;  
I can find no record of its having become established.
9. *Syrphus rectus* Nowicki: 31, vol. 2; 22.  
Listed as a synonym of *S. ortas* Walker by Kertesz (23).  
Polynesia.
10. *Syrphus novae-selandiae* Macquart: 26, suppl. 5, p. 95, 1855; 28.  
New Zealand, Kermadec Islands, Chatham Islands, [Hutton (28) records it from Polynesia].
11. *Syrphus (Epistrophe) viridiceps* Macquart: 26, suppl. 2, p. 61, 1847; 7; 20; 24; 27; 28.  
New South Wales, Kermadec Islands, Australia.

## Genus ALLOGRAPTA Osten Sacken, 1876

12. *Allograpta obliqua* Say: 33, vol. 3, p. 89; 6; 40.  
Hawaii; an American species intercepted in quarantine.

## Genus SPHAEROPHORIA St. Fargeau, 1825

13. *Sphaerophoria annulipes* Macquart: 26, suppl. 5, p. 96, 1855; 34 (*Melithreptus*).  
Marquesas Islands, Society Islands.

## Genus XANTHOGRAMMA Schiner, 1860

14. *Xanthogramma amphoterum* Bezzi: 2, p. 74; 1; 21.  
Fiji, Marquesas Islands, Tahiti.
15. *Xanthogramma javanum* Wiedemann: 48, pp. 34, 53; 2; 4; 8; 10; 11; 20; 21; 27; 36 (*Syrphus*, *Sphaerophoria*).  
New Guinea, Malay, Australia, Fiji.

## Genus SIMOSYRPHUS Bigot, 1882

16. *Simosyrphus grandicornis* Macquart: 26, vol. 2, p. 96, 1842; 2; 5; 7; 9; 20; 24; 40; 45 (*Syrphus*, *Xanthogramma* of authors).  
Listed as a synonym of *Ischiodon scutellaris* Fabricius by Bezzi (2).  
Hawaii, Johnston Island, Fiji, Queensland, New Caledonia.

## Genus ISCHIODON Sack, 1913

17. *Ischiodon scutellaris* Fabricius: 15, p. 252; 1; 2; 4; 6; 8; 9; 10; 20; 21; 27; 36. (*Scaeva*, *Syrphus*, *Sphaerophoria*, *Xanthogramma*).  
See Brunetti (4) for the extensive synonymy of this species. Note, however, Bezzi's addition of *Xanthogramma aegyptius* and *Simosyrphus grandicornis* Macquart in the synonymy of this species.  
Hawaii, Johnston Island, Wake Island, Marianas Islands, Australia, India, Malay, New Guinea, Tahiti, Marquesas Islands.

## Genus MESOGRAMMA Loew, 1865

18. *Mesogramma marginatus* Say: 33, vol. 3, p. 92; 6.  
Hawaii; introduced.

## Genus BACCHA Fabricius, 1805

19. *Baccha praeifica* Bezzi: 2, p. 76; 21.  
Fiji.

## Genus VOLUCELLA Geoffroy, 1764

20. *Volucella obesa* Fabricius: 12, p. 763; 1; 2; 6; 21; 23.  
Introduced into Fiji, Samoa, Hawaii, Tahiti, Marquesas.
21. *Volucella pusilla* Macquart: 26, vol. 2, pp. 2, 21, 1842; 6; 39.  
Hawaii; introduced.

Genus GRAPTOMYZA Wiedemann, 1820

22. *Graptomyza uchiyamae* Shiraki: 36, vol. 1, pp. 1-446.  
Marianas Islands.

Genus ERISTALIS Latreille, 1804

23. *Eristalis (Lathyrophthalmus) aeneus* Scopoli: 35, p. 356; 6.  
Hawaii; intercepted.
24. *Eristalis (Lathyrophthalmus) arvorum* Fabricius: 14, vol. 2, p. 335; 4; 6;  
7; 8; 10; 11; 17; 27.  
*Fulvipes* Macquart-*arvorum* Fabricius [Brunetti (4)].  
Hawaii, Queensland, Bengal, Java, Sumatra, China.
25. *Eristalis (Lathyrophthalmus) nitidus* Van der Wulp: 43, p. 38; 2; 21; 27.  
Java, Sumatra, Fiji, Samoa.
26. *Eristalis punctulatus* Macquart: 26, suppl. 2, p. 259; 6; 9; 17; 19; 24; 27.  
Ferguson (17, pt. 1), following Hardy (19), lists *Eristalis agno* as a  
synonym of *E. punctulatus*.  
Australia, Tasmania, Hawaii, New Caledonia.
27. *Eristalis rhynchops* Bezzi: 2, p. 80.  
Fiji.

Genus DISSOPTERA Edwards, 1915

28. *Dissoptera maritima* Hull: 21, p. 196.  
Samoa.
29. *Dissoptera unicolor* Bezzi: 2, p. 77.  
Fiji.

Genus AXONA Walker, 1864

30. *Axona chalcopyga* Wiedemann: 49, vol. 2, p. 178; 8; 10; 11; 36; 44.  
New Guinea, Malay, Marianas Islands.

Genus MERODON Meigen, 1803

31. *Merodon equestris* Fabricius: 12, vol. 4, p. 292; 6; 28.  
New Zealand, Hawaii (bred but not known to be established).

Genus SYRITTA St. Fargeau and Serville, 1828

32. *Syritta oceanica* Macquart: 26, suppl. 5, p. 112; 1; 2; 6; 28.  
New Zealand, Tahiti, Marquesas Islands.  
Bigot credits to Tahiti and New Zealand (Miller, 28); Hutton  
(22, 1881) did not believe it occurred in New Zealand, but it has  
been recorded from there since. Possibly the "Taita" of New Zea-  
land has been confused with Tahiti.

## Genus EUMERUS Meigen, 1822

33. *Eumerus hemipterus* Bezzi: 2, p. 82.  
Fiji.
34. *Eumerus marginatus* Grimshaw: 18, vol. 3, p. 82; 6; 8; 11; 19.  
Hawaii, Malaysia.
35. *Eumerus strigatus* Fallen: 16, p. 61; 6.  
Hawaii; intercepted and bred but not known to be established.

*Eupeodes volucris* Osten Sacken, an American species, was introduced into Hawaii for aphid control, but apparently did not become established (6). An additional American species, *Syrphus wiedemanni* Johnson, was noted by Osborn under the name *S. americanus* Wiedemann (Hawaiian Ent. Soc., Proc., vol. 4, p. 333, 1920).

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