

# TRAPPING OF AIR-BORNE INSECTS IN THE PACIFIC-ANTARCTIC AREA, 2<sup>1</sup>

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*Abstract:* Results of trapping air-borne arthropods from 15 cruises on 10 ships, plus an airplane, are reported upon. Approximately 1275 insects were trapped, of which 704 were Diptera, 52 were Aphididae, and 254 were Hymenoptera.

Consolidation of the results of all of the air-borne insects trapping program of 1962-1963 plus other earlier results which have not been reported in the preceding paper (Yoshimoto, Gressitt & Mitchell, 1962) are included here. These include the results of the Antarctic 1962-1963 (and partial 1961-1962) seasons, and ship trapping in the Pacific, 1962-1963, as follows:

USS VANCE. New Zealand—60° S.—return, Nov.—Dec. 1961, K. A. J. Wise.

USS ELKHORN. Antarctica—New Zealand, Jan. 1962, K. A. J. Wise.

USS ARNEB. New Zealand—Antarctica—return, X 2, Dec. 1962—Feb. 1963, J. C. L. Mather.

HMNZS ENDEAVOUR. New Zealand—Auckland Is., Dec. 1962, J. L. Gressitt & K. A. J. Wise.

USS DURANT. Hawaii—Society Is.—Kermadec Is., Aug.—Sept. 1962, G. A. Samuelson; Auckland Is.—South I., N. Z., Jan. 1963, J. L. Gressitt & K. A. J. Wise; New Zealand—Campbell I., Jan. 1963, K. A. J. Wise.

USNS ELTANIN. Valparaiso, Chile—Drake Straits—return, July—Sept. 1962, Cruise 4, W. A. Steffan; Valparaiso—Punta Arenas, Chile—Ushuaia, Argentina—Port Williams, Chile—Drake Passage—Montevideo, Uruguay—return, Sept. 1962—Feb. 1963, Cruises 5-7, H. Saiki.

USNS CHATTAHOOCHEE. Antarctica—New Zealand, March 1963, C. Fearon.

USNS SULTAN. Hawaii—Japan—Okinawa—Taiwan—Korea—Japan—San Francisco—Hawaii, Jan.—Feb. 1963, J. Harrell.

USNS GAFFEY. Hawaii—San Francisco—Hawaii, Nov. 1962, C. M. Yoshimoto.

SPENCER F. BAIRD (Scripps Institution of Oceanography). La Jolla, California—Guam—New Britain—New Caledonia—Fiji—Kwajalein—Western Samoa—Hawaii, March—Aug. 1962, E. Holzapfel.

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2. A number of other individuals contributed materially to the collection of the data in this paper. They are listed on the first page of this article.

NAVY VX-6 SUPER-CONSTELLATION. Rhode Island—Hawaii—New Zealand—Antarctica, etc., Sept. 1962—Apr. 1962, E. Holzapfel.

W. A. Steffan is separately reporting on his trapping results aboard the *Eltanin* from New York via Panama Canal, to Valparaiso, Chile. Other recent air trapping includes activities in the Atlantic Ocean, to South Georgia I., and Bird I. by Harry Clagg; this will be reported later.

*Methods*: Standard nylon nets on steel rings of 75 cm diameter strung in series on steel cables or lines from the cross-bar of the foremast to the deck railing of ships (Yoshimoto & Gressitt, 1960)<sup>3</sup> were used in our ship trapping program.

J. Harrell operated the nylon nets aboard the USNS *Sultan* using two steel cables which were strung 75 cm apart from the arm of the foremast to the deck railing. The net rings were fastened to the cables with shackles at each side and one end of the metal loop of the ring net was tied to the rope pulley. This method proved to be satisfactory only when the wind speed exceeded the ship's speed and when the ship's course was parallel with the wind.

The large suction trap reported previously (Yoshimoto, Gressitt, & Mitchell, 1962)<sup>3</sup> was modified; the area of the air dispensing unit below the motor housing was reduced to 15 cm in height. A wind vane was built partially covering the top of the trap opening. The wind vane orbited in a circular motion on 8 sets of wheels which were equally spaced and clamped onto a 7.6 cm wide and 1.3 cm thick metal railing situated 15 cm below the metal flange. This modification helped improve the air intake by "sucking" a stream of air from 30–40 cm above the orifice into the trap regardless of the outside wind speed. A wind speed of over 20 knots was tolerated.

In the Antarctic land trapping, 1 m and 75 cm trap nets were operated as previously discussed (Gressitt, Leech & O'Brien, 1960)<sup>3</sup>. In the subantarctic ship trapping up to 20 nylon nets on steel rings of 75 cm diameter were flown at one time.

On the ship "*Spencer F. Baird*", Holzapfel spent 6½ months mostly at sea. He operated 8 to 18 nylon nets strung on steel cables from the mast to the deck railing.

*Results*: Under the US Antarctic Research Program (USARP) of the National Science Foundation, several ship trapping activities were carried out during the 1962–63 season; also, included in this report are some ship trapping results from the 1961–62 season. Table 1 shows that Diptera and aphids are trapped about equally in numbers and the latter are represented by at least 5 genera. Likewise, Table 2 shows a total of 10 specimens, of which over 1/2 are aphids. It is interesting to note that *Rhopalosiphum padi* (L.) was commonly collected during the months of October to February off the coast of South Island, New Zealand.

The results of the ship trapping by J. C. L. Mather aboard the USS *Arneb* were found to be negative. Also, during the same season, C. Fearon operated the trapping aboard the USNS *Chattahoochee* and found results to be negative.

In Table 3, a great many live insects were taken off Banks Peninsula, South I., N. Z. On two separate occasions, oribatid mites were taken close to land. This air dispersal of soil inhabiting mites, carried approximately 15 kilometers from the shore, is interesting to

3. Yoshimoto & Gressitt, 1960, *Pacific Ins.* 2 (2): 239–43, 1 fig.; Gressitt, Leech, & O'Brien, 1960, *op. cit.* 2 (2): 245–50, 1 fig.; Yoshimoto, Gressitt, & Mitchell, 1962, *op. cit.* 4 (4): 847–58, 1 fig.

Table 1. Trapping of air-borne insects aboard USS Vance (Wise).

Date 1961	Wind Direction/Velocity (degrees)(knots)	Position	No.	Order	Family
22.X.	170- / 7-10 190	Dunedin to 45°53' S 170°49' E	1	Diptera	Muscidae
			1	"	Ephydriidae: <i>Hydrellia velutinifrons</i> T. & M.
			1	"	Ephydriidae: <i>Scatella nelsoni</i> T. & M.
			1	"	Agromyzidae: <i>Cerodontha denticornis</i> (Panz.)
			3	"	Sciaridae: <i>Sciara agraria</i> Joh.
			1	"	Tipulidae
			1	"	Cecidomyiidae
			4	"	Ceratopogonidae
			1	Hemiptera	Aphididae: <i>Rhopalosiphum padi</i> (L.)
			2	"	Aphididae: <i>Brachycaudus helichrysi</i> (Kltb.)
			11	"	Aphididae Unidentified
2	Psocoptera	Caeciliidae: <i>Ectopsocus congener</i> Till.			
6	Thysanoptera	Thripidae			
2	Spiders	Linyphiidae			
1	Insect wing				
-	Insect parts				
23.X.	297 / 4	Off Campbell I. 52°33' S 169°13' E	1	Exuvium?	
24.X.	352 / 13	Campbell I. to 55°51' S 169°36' E	1	Diptera	Mycetophylidae: <i>Mycetophyla</i> sp. nr. <i>marshalli</i> End.
31.X.	150 / 12	on picket station 60° S 170° E	1	Insect sclerite?	
12.XI.	031 / 15	Off Taiaroa Heads, 45°46' S 170°45' E	2	Diptera	Sphaeroceridae: <i>Leptocera thomasi</i> Harr.
			2	"	Drosophilidae: <i>Scaptomyza fuscitarisus</i> Harr.
			2	"	Sciaridae Sciarinae
			3	"	Ephydriidae: <i>Neoscatella vittithorax</i> (Mall.)
			1	Psocoptera	Caeciliidae: <i>Peripsocopsis</i> sp.
			14	Thysanoptera	Thripidae
			1	Hemiptera	Aphididae: <i>Betulaphis quadratuberculata</i> (Kltb.)
			1	"	Aphididae: <i>Aphis craccivora</i> C. L. Koch
			1	"	Aphididae: <i>Aulacorthum</i> sp.
			4	"	Aphididae Unidentified
			-	Hymenoptera	
-	Insect parts				
2	Unidentified insects				
1	Spider	Linyphiidae			
3	Mites				

note.

Table 4 shows that 6 insects were trapped on the USS Durant between Hawaii and the Kermadec Islands. On the same ship results proved negative heading southward from New Zealand to Campbell Island.

Table 5 shows another case of an oribatid mite dispersed in air. The calliphorid larva is the second case we have experienced of taking muscoid fly larvae in the air, as one was taken over central Oahu, Hawaii in experimental helicopter trappings in September 1959.

Six of the 1 m nylon net traps based at McMurdo Area, Antarctica, during the 1962-

63 season were operated by C. Fearon. His results also proved negative.

In the Pacific area, some insects were trapped between Hawaii and San Francisco with a

Table 2. Trapping of air-borne insects aboard USS Elkhorn (Wise).

Date 1962	Wind Direction/ Velocity (degrees)(knots)	Position	No.	Order	Family & Species
26.I.	010 / 5	47°32' S 171°08' E	1	Hemiptera	Aphididae: <i>Rhopalosiphum padi</i> (L.)
27.I.	270 / 12	Off Taiaroa Heads, 45°46' S 170°45' E	1	Diptera	Ephydriidae: <i>Ephydrella novae-zealandiae</i> (T. & M.)
			1	"	Phoridae
			1	"	Ceratopogonidae
			5	Hemiptera	Aphididae: <i>Rhopalosiphum padi</i>
			1	Collembola	

Table 3. Trapping aboard HMNZS Endeavour (Gressitt & Wise).

Date Dec. 1962	Time	Lat. S.	Long. E.	Approx. dist. from land in km.	No. Specimens	Order	Family
22	2000-2100	43°35' off Banks Penin., South I.	173°00'	15	1	Araneida	
					7	Thysanoptera	
					3	Hemiptera	
					13	Neuroptera	
					2	Lepidoptera	
					430	Diptera	
					2	Coleoptera	
					9	Hymenoptera	
23	1600-1830	45°37'	171°13'	25	2	Diptera	(thorax)
					1	"	Ephydriidae
24	1200-1430	46°00'	170°40'	nr. Taiaroa Heads, South I.	1	Acarina	Oribatid mite
					20	Diptera	Drosophilidae
					2	"	Ephydriidae
					1	Hymenoptera	Ichneumonidae
					1	"	Braconidae
24	1600-2000	46°40'	170°00'	50	1	Hemiptera	Aphididae
					1	Diptera	Chironomidae
					1	"	Drosophilidae
					2	"	Ephydriidae
24-25		47°06' 49°03'	169°40' 167°45'	250	1	Diptera	Ephydriidae
25-26		50°40'	166°25'	nr. Enderby I., Auckland Is.	1	Acarina	Oribatidae (Cephalothorax)
					1	Hemiptera	Aphididae (wing)
					1	Diptera	Coelopidae
					1	Hymenoptera	(thorax)

Table 4. Trapping aboard USS Durant (Samuelson).

Date 1962	Starting Lat.	Starting Long.	Ending Lat.	Ending Long.	No. Specimens	Order	Famiy
17.VIII	20°58' N	157°20' W	19°30' N	157°36' W	4	Coleoptera	Nitidulidae
					1		Scolytidae
					4	Psocoptera	Caeciliidae
					1	Heteroptera	Coreidae
					1	Hymenoptera	Agaontidae
21.VIII	00°00'	154°50' W			1	Diptera	Scatopsidae (inside ship)
23.VIII	11°30' S	152°59' W			1	"	Muscidae (on bridge)
28.VIII	19°19' S	156°28' W			1	Coleoptera	Oederidae

Table 5. Trapping aboard USS Durant (Gressitt &amp; Wis).

Date Jan. 1963	Time	Lat. S.	Long. E.	Approx. dist. from land in km	No. speci- mens	Orders	Family
20	1800	49°40'	167°30'	100/Auckland I.	1	Acarina	Oribatid mite
21	0800	47°20'	169°50'	65/Steward I.	1	Diptera	Calliphoridae? (larva)
21	1115	46°04'	170°30'	nr. Taiaroa Heads, South I.	1	Diptera	Sphaeroceridae

greater number of specimens collected near the West Coast as indicated in Table 6. There were frequent high winds ranging from 20 to 50 knots in the Pacific during the months of January and February, 1963. This situation hampered the ship operation aboard the USNS Sultan by tearing trap nets at the apex and along the seams; also, the wind vane of the suction trap was blown off the metal band when the wind speed was at its maximum. Only a few insects were trapped near Hawaiian waters as shown in Table 7. In future ship trapping programs, we are planning to introduce nets made of nitex (#308) along with the conventional nylon organdy nets. This nitex material might be fruitful from the standpoint of stress and longevity.

Tables 8 and 9 show the results of net trapping aboard the USNS Eltanin. The ship cruises 2-7 were operated during the 1961-1962 and the 1962-1963 Antarctic seasons. Many insects were caught near to land. There were twice as many Chironomidae as members of other families of insects trapped near the Chilean Coast. A greater number of dipteran families are represented among the collection as compared with other orders of insects. An interesting bibionid, *Dilophus nigripennis philippi?* was taken off the coast of Chile. The paucity of insects in the Drake Passage area was attributed to wind blowing largely from the direction of Southwest and West and not from the land mass. There were fewer insects during the winter season, and heavy damage to nets and rings from high winds.

A total of 367 specimens were trapped in nets and on deck at sea aboard the ship "Spencer F. Baird", and 37 marine Gerrids were trapped at sea as shown in Table 10. It is interesting to note that 142 specimens of the family Agaontidae were taken at sea in the South Pacific areas. The second highest in number was Formicidae with 90 specimens.

Results of the airplane trapping showed that a single partly crushed specimen of Ichneumonidae was taken at 3440 m altitude on latitude 72°04' S, longitude 171°25' E.

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Table 6. Trapping aboard USNS Gaffey (Yoshimoto).

Date 1962	Wind Direction/Velocity (degrees) (knots)	Starting		Ending		Approx. dist. nearest land, in km	No. Speci- mens	Order	Family	Species
		Lat. N.	Long. W.	Lat. N.	Long. W.					
17.XI	Nets 4A	103/17	24°20'	152°57'	25°41'	150°43'	625/Oahu I.	1	Diptera	Tipulidae (Crushed thorax and wing)
19-20.XI	Suction 11B	345/11	33°37'	134°43'	35°18'	130°30'	835/San Fran.	1	Psocoptera	Ectopsocidae (Head and thorax)
								1	Diptera	Acalyptrate (Thorax and abdomen)
26-27.XI	Nets 14A	360/25	7 km from Golden Gate, San Fran.		35°25'	128°00'		2	Heteroptera	Aphididae
								1	Psocoptera	Ectopsocidae
								1	"	" (Head and abdomen)
27.XI	Nets 17A	075/8	34°28'	130°20'	33°50'	132°20'	835/San Fran.	5	Diptera	Chironomidae
								1	Hymenoptera	Chalcidoidea? (Fore wing)
27.XI	Nets 17A	075/8	34°28'	130°20'	33°50'	132°20'	835/San Fran.	1	Psocoptera	Caeciliidae
								1	Diptera	Chloropidae: <i>Dactylothyrea</i> sp.
28-29.XI	Suction 19B	070/15	30°04'	139°54'	28°00'	143°50'	1775/Oahu I.	1	Psocoptera	Caeciliidae (Head and wing)

Table 7. Trapping aboard USNS Sultan (Harrell).

Date 1962	Wind Direction/Velocity (degrees) (knots)	Starting		Ending		Approx. dist., nearest land, in km	No. Speci- mens	Order	Family	Species
		Lat. N.	Long. W.	Lat. N.	Long. W.					
18.I	Nets	245/5	21°00'	160°00'	21°50'	162°50'	12/Kaula I.	1	Hymenoptera	
18.I	"	228/12	21°50'	162°49'	22°05'	164°54'	40/Necker I.	1	Collembola	
18.I	"	210/17	22°05'	164°54'	22°17'	166°37'	40/Necker I.	1	Hymenoptera	Formicidae (Head)
								2	"	(Wings)
18.I	"	245/26	22°17'	166°37'	23°03'	171°27'	45/La Perouse Pinnacle.	4	Hymenoptera	Formicidae (Head)

Table 8. Trapping aboard USNS Eltanin Cruise #4 (Steffan).

Date 1962	Wind Direction/Velocity (degrees) (knots)	Starting		Ending		Approx. dist., nearest land, in km	No. Speci- mens	Order	Family & Species
		Lat. S.	Long. W.	Lat. S.	Long. W.				
7.VII	Calm	32°03'	72°37'	33°01.5'	71°37.5'	Near Valparaiso, Chile	1	Diptera	Psychodidae Opomyzidae
							1	"	

7.VII	Calm	33°01.5'	71°37.5'	33°58'	72°23'	" "	1	"	Agromyzidae: <i>Liriomyza</i> sp.
							1	Lepidoptera	Noctuidae
12.VIII		35°43'	72°59'	44°49'	72°41.5'	140/Juan Fernandez I.	1	Diptera	Chironomidae Crushed thorax
25.VIII	135/	47°02'	76°13'	45°03'	76°16'	60/Off coast of Chile	2	"	"
25.VIII	135/	45°03'	76°16'	44°41'	75°54.5'	1-2/Coast of Chile	1	"	"

Table 9. Trapping aboard USNS Eltanin (Saiki).

Date 1962-63	Wind Direction/Velocity (degrees) (knots)	Starting Lat. S. Long. W.	Ending Lat. S. Long. W.	Approx. dist., nearest land, in km	No. Specimens	Order	Family & Species
13-14.X		52°59.5' 67°4'	54°10.5' 65°34'	41/Coast of Argentina	1 1 4	Lepidoptera Diptera	Geometridae Ephydriidae Chironomidae
10-11.IX		33°28.5' 72°03'	36°05' 73°31'	35/Coast of Chile	1 1	" "	Tipulidae Helomyzidae
22-23.IX		52°41' 69°55'	54°16' 65°39'	15/Off Coast of Argentina, Chile	12	"	Chironomidae (2 spp.)
26.IX		52°36' 69°44'	53°18' 66°42'	" " "	40 1	" "	" "
13-14.XI	192/16	35°36' 73°18'	33°02.5' 71°48'	43/Coast of Chile	2	Heteroptera	Mycetophilidae: <i>Trichonta?</i> Aphididae
24.XI	216/11.5	Valparaiso, Chile	35°27' 73°20'		2 1	Lepidoptera Diptera	Gelichidae Agromyzidae?
25.XI	207/10	38°17' 74°32.5'	38°59' 74°45'	108/Coast of Chile	1 1	Heteroptera Diptera	Aphididae Lauxaniidae
30.XI	317/12.5	53°14.5' 73°16'	Punta Arenas, Chile	3/Punta Arenas, Chile	1 2	" "	Tipulidae Chironomidae
1-2.XII	272/11	Punta Arenas, Chile	53°00' 61°59'	" " "	3 2 21 3 2 1 1 2	Heteroptera Diptera " " " " " " "	Aphididae Tipulidae Chironomidae Mycetophilidae Drosophilidae Sphaeroceridae Ephydriidae Bibionidae: <i>Dilophus nigripennis, philippi?</i>
2-3.XII	272/11	53°00' 61°59'	53°07.5' 59°34'	Near Falkland Is.	1 1	Coleoptera Hymenoptera	Staphylinidae Braconidae
					1	Diptera	Psychodidae

11-12.XII	350/16	54°07'	62°35.5'	53°47'	65°06'	100/Coast of Argentina	10 5	Diptera Heteroptera	Chironomidae Exuviae of instar nymph of Cicadellidae
12.XII	273/13	53°47.5'	65°06'	52°52'	67°31'	80/Coast of Argentina	4 1 1	" Diptera Hymenoptera	Aphididae Chironomidae Eulophidae?
12-13.XII		53°11'	70°53.5'	Punta Arenas, Chile		3/Punta Arenas, Chile	46 3 2 1 11 1 1	Diptera " Heteroptera Orthoptera Lepidoptera " Neuroptera	Chironomidae Ephydriidae Aphididae Exuvium Gelicidae Berothidae
17-18.XII	288/20	53°32'	67°07'	53°02'	66°34.5'	20/Coast of Argentina	3 1	Diptera Coleoptera	Chironomidae Scarabaeidae
18-19.XII	292/25	53°02'	66°34.5'	54°05'	58°48.5'	60/Coast of Argentina	3 1 3 1	Diptera " Lepidoptera Hymenoptera	Chironomidae (Thorax) (Thorax)
18-19.XII	289/11	55°15'	58°59'	54°00'	62°12'	150/Coast of Tierra del Fuego	5 3 1 1	Diptera Lepidoptera Coleoptera Heteroptera	Chironomidae Gelicidae? Exuvium
6-7.II.63	250/8	54°50'	68°16'	54°57.5'	65°07.5'	1-3/Coast of Navarino I.	2 7 2	Diptera Lepidoptera Hymenoptera	Scatopsidae Braconidae
16-18.III	360/16	45°29'	56°51'	36°12'	56°21'	20/Coast of Argentina	1 1 4 1 2 1 2 7	Coleoptera Heteroptera Diptera " " " Hymenoptera "	Staphylinidae Miridae Chironomidae Agromyzidae Trypetidae Ephydriidae Braconidae Eulophidae (2 genera)

Table 10. Trapping aboard "Spencer F. Baird" (Holzapfel).

Date 1962	Wind Direction/Velocity (degrees) (knots)	Starting Lat. Long	Ending Lat. Long.	Approx. dist., nearest land, in km	No. Specimens	Order	Family & Species
4.IV	90/12	12.5 km N.W. Orote Pt., Guam	2.6 km W. Orote Pt., Guam	2.6/W of Guam	+3	Hymenoptera	Formicidae



9.IV	90/15	13°29'N 144°15'E	0.6 km W., Orote Pt., Guam	0.6/Orote Pt., Guam	1	Heteroptera	Aphididae	
					3	Diptera	Agromyzidae	
					2	Hymenoptera	Formicidae	
11.IV	225/11	0.3 km off Orote Pt., Guam	12°26.9'N 156°07'E	0.3/off Orote Pt., Guam	82	Hymenoptera	Formicidae (2 genera)	
					1	"	Braconidae	
					2	Heteroptera	Aphididae	
					1	"	Jassidae	
					1	Coleoptera	Carabidae	
					3	"	Orthoperidae?	
3.V		7°03.2'N 144°16.5'E		On Station 22	×6	Hemiptera	Gerridae	
6.V	156/1	1°18'S 149°22'E	2°05'S 149°42'E	8.0/W. Mussau I. Bismarck Arch.	1	Heteroptera	Aphididae	
					2	Hymenoptera	Agaontidae	
7.V	225/4	Approaching Rabaul, New Britain		2.4/Praed Pt., New Britain	+1	Diptera	Chironomidae	
					1	Hymenoptera	Formicidae	
					2	"	Agaontidae	
					1	"	Pteromalidae	
					2	"	Cynipoidea	
							Eucoilinae	
11.V	135/30	Passing St. George Channel		15/Coast of New Britain & New Ireland	××1	Coleoptera	Cleridae	
					××2	Lepidoptera	Noctuidae	
14.V		6°51'S 151°47'E		On Station 26	×8	Hemiptera	Gerridae	
15.V	68/8	8°00.5'S 152°13.5'E	6°17.5'S 151°35.5'E	34/Cape Ludke, New Britain	1	Diptera	Ceratopogonidae	
					1	Hymenoptera	Agaontidae	
					1	"	Cleorymidae	
15.V		5°54'S 152°24.9'E		On Station 29	×2	Hemiptera	Gerridae	
16.V		5°48'S 152°29.1'E		On Station 31	×4	"	Gerridae	
17.V	Calm	5°51.7'S 152°26'E	5°48'S 152°29'E	48/Cape Oxford, New Britain	7	Hymenoptera	Agaontidae	
17.V	135/13	5°48'S 152°29'E	6°50'S 153°50'E	116/Cape Moltke, Bougainville	×29	"	"	2 spp.
18.V	45/5	6°50'S 153°50'E	6°19'S 153°45'E	102/Cape Moltke, Bougainville	12	"	"	
21.V	180/5	4°42.5'S 153°23'E	5°22.8'S 153°33'E	84/Cape St. George, New Ireland	6	"	"	
21.V	135/11	5°22.8'S 153°33'E	5°53'S 153°00'E	97/Cape Oxford, New Britain	1	"	"	

× on surface of sea, ×× on deck, + caught alive, — attracted to light.

22.V	112/6	5°53'S 153°00'E	7°49'S 155°55'E	8/Treasury I., Solomon Is.	+4 +9	" "	Eulophidae 3 spp. Agaontidae 2 spp. 2 spp.
					+2	Thysanoptera	Thripidae
					+1	Coleoptera	Scolytidae
23.V	225/10	7°49'S 155°55.5'E	9°18.5'S 157°36'E	45/Simbo I. & 40/Rendova I., Solomon Is.	1	Hymenoptera	Agaontidae
23.V	225/6	9°18.5'S 157°55.5'E	10°30'S 158°26'E	110/Russell I., Solomon Is.	4 2 ××1	" Thysanoptera Diptera	Agaontidae Thripidae Anthomyiidae
24.V	0/8	10°30'S 158°26'E	11°16.2'S 160°08'E	37/Bellona I., Solomon Is.	1	Hymenoptera	Agaontidae
24.V	156/7	11°16.2'S 160°08'E	10°46'S 161°19.6'E	8/Rennell I., Solomon Is.	+1		
24.V	135/6	10°46'S 161°19.6'E	11°06'S 161°36'E	8/San Cristobal I., Solomon Is.	1 ×4 ××+1 ×5	Araneida Thysanoptera Diptera Hymenoptera	Lycosidae? Spiderling Thripidae Anthomyiidae Agaontidae
25.V	112/6	11°08'S 163°30'E	On Station 39		-8	Hemiptera	Gerridae
26.	112/2	11°37'S 164°39.8'E	On Station 40		-12		"
31.V	225/16	12°46.5'S 165°58.3'E	16°12'S 166°48.4'E	11/Espiritu Santo I., New Hebrides	+3 +2 +4 +2 +1 +1 +1 +1	Orthoptera Heteroptera " " " Diptera Lepidoptera "	Tettigoniidae Jassidae Fulgoridae Lygaeidae Miridae Ephydriidae Gelechiidae Pyrallidae
1.VI	225/2	16°12'S 166°48.4'E	18°04.4'S 166°21.3'E	23/Reef Point on Malekula I., New Hebrides	1	Heteroptera	Psyllidae
2.VI	225/7	19°13.3'S 166°33.2'E	22°06.4'S 164°07.2'E	4/Lefèvre Point, Lifou I., New Caledonia	2 1 " " +1 +1	Heteroptera " " " Hymenoptera	Aphididae Jassidae Fulgoridae Psyllidae Agaontidae
2.VI	Various	22°06.4'S 167°07.2'E	22°24.5'S 166°48'E	1.3/Through Wooten Canal, New Caledonia	+18 +1 +3 +2 +1	" Thysanoptera Heteroptera Diptera "	" Thripidae Fulgoridae Chironomidae Ceratopogonidae

					+1	"	Ephyrididae
					+1	"	Chloropidae
					+2	Hymenoptera	Cynipoidea: <i>Pseudoeccola</i> sp.
5.VI	45/3	Inside Barrier Reef, Noumea, New Caledonia	21°57'S 167°51.5'E	12/Kutomo I. & 9/Kunie I., New Caledonia	3	Hymenoptera	Agaontidae
					1	Diptera	Chironomidae
5.VI	45/8		21°57.6'S 167°51.5'E	7/ Lifou I., New Caledonia	23	Hymenoptera	Agaontidae
					1	"	
					1	"	Platygasteridae
5.VI			20°35.2'S 167°34.5'E	On Station 48	+7	Hemiptera	Gerridae
6.VI	90/3		20°32.6'S 167°22.2'E	21/Lifou I., New Caledonia	21	Hymenoptera	Agaontidae
					1	Heteroptera	Psyllidae
14.VI	112/10		17°12.0'S 176°30'E	25/off Mornvanna Pt., Viti Levu, Fiji	1	Thysanoptera	Thripidae
					6	Heteroptera	Aphididae
					1	Diptera	Chironomidae
					3	"	Ceratopogonidae
					1	Hymenoptera	Cynipoidea: <i>Pseudoeucoila</i> ( <i>Heptamerocera</i> ) sp.
					2	"	Agaontidae
					2	"	Formicidae
15.VI	112/18		16°40.5'S 176°22.5'E	50/Virva I., Fiji	1	Heteroptera	Psyllidae
					4	"	Aphididae
					1	"	Fulgoridae
					1	Diptera	Chironomidae
					2	"	Trypetidae
					4	Hymenoptera	Agaontidae
21.VI			8°15'S 175°53'E	On Station 64	×3	Hemiptera	Gerridae
29.VI	4		4°10'S 174°06'E	On Station 80	×15	"	"
2.VII	135/9	Onotoa Atoll, Gilbert Is.	1°30'S 172°50'E	Anchored-Onotoa Atoll, Gilbert Is.	4	Diptera	Chironomidae
					1	Heteroptera	Aphididae
8.VII	90/7		7°42.3'N 165°16.8'E	Ennylabegan I., Kwajalein Atoll, Marshall Is.	+1	Heteroptera	Aphididae
1.VIII	135/15		14°10'S 171°0.05'W	Apia, Upolu I., Western Samoa	1	Hymenoptera	Agaontidae
					2	Heteroptera	Aphididae