

An Annotated Checklist of the *Anopheles* of Guyana, South America

by

Indal Rambajan¹

ABSTRACT. Twenty-two species of Anopheline mosquitoes are confirmed as occurring in Guyana. In addition, data is presented on several subgenera.

INTRODUCTION

An annotated checklist of the *Anopheles* found in Guyana is presented. It represents an up-date on the reports of Bruce *et al.*, (1943), Stage & Giglioli (1948) and Giglioli (1948). Giglioli (1948) noted that 16 species of *Anopheles* were confirmed records and a number of others were reported as uncertain. In this checklist, 22 species are now confirmed as occurring in Guyana. In addition to the records based on the author's observations, data are included from the following: Subgenus *Nyssorhynchus* of *Anopheles* - *Albimanus* Section (Faran 1980); *Argyritarsis* Section (Linthicum, thesis 1978); Subgenus *Kerteszia* (Zavortink 1973); Knight & Stone (1977); Giglioli (1948); Komp (1942) and Kuyp (1950).

In Guyana, the subgenus *Nyssorhynchus* is presently considered the only medically important group of *Anopheles*. Faran & Linthicum (1981) treated the *Albimanus* and *Argyritarsis* sections of this subgenus. With the exception of *An. albimanus* Wiedemann, 1820, the entire subgenus is restricted to the Neotropical Region. *Anopheles albimanus* is not found in Guyana. Detailed accounts of these two sections were given by Faran (1980), Faran & Linthicum (1981) and Linthicum (Thesis 1978).

Anopheles darlingi Root, 1926, of the *Argyritarsis* section of the subgenus *Nyssorhynchus* is considered the most important anopheline in Guyana, being the primary, if not the only vector of human malaria. Also, it has been considered by Davis (1931), Causey, Deane *et al.*, (1945) and Giglioli (1948) to be a possible vector of *Wuchereria bancrofti* (Cobbold), 1877, the causative organism of human filariasis in Brazil and Guyana. From our experience in Guyana, *An. darlingi* is always found where indigenous malaria is present. However, where there is no indigenous malaria, *darlingi* is rare, or not present. Further, we strongly support the observations of Horsfall (1955) that *darlingi* is, "The most satisfactory component in the insect portion of the reservoir for human plasmodia in the Neotropica." Also, we believe, as Foote & Cooke (1959) stated, "Malaria would become a relatively unimportant disease in South America with the disappearance of *darlingi* ." In Guyana, this has been clearly demonstrated in the coastal areas where *An. darlingi* was eradicated by 1951. These areas have

¹ Parasitologist/Entomologist, Ministry of Health, Brickdam Guyana.

since remained free of this anopheline and also of indigenous malaria despite the local importation of a large number of malaria cases.

Of the *Albimanus* Section, i.e., *An. aquasalis* Curry, 1926, was considered as a secondary vector of human malaria in Guyana (Giglioli 1948). However, careful scrutiny of the data does not offer any conclusive proof of its role as a vector of malaria. Rambajan (1984a) suggested that this mosquito may not be considered even a secondary vector of malaria in Guyana. Of all the other *Anopheles* recorded from Guyana, only *An. bellator* of the subgenus *Kerteszia* was considered a vector of malaria by Charles (1959). That report presented an isolated incident at Koriabo, Upper Barima River, North West Region and the evidence advanced was circumstantial and unconvincing.

It is important to note that *An. albitarsis* Lynch Arribalzaga, 1878 of the *Albimanus* Section, previously reported from Guyana, is now considered by Faran & Linthicum (1980) as, "apparently restricted to the southern most temperate region of South America." This *Anopheles* is now reported as being identified as *An. allopha* Peryassui, 1921 or *An. braziliensis* (Chagas, 1907) from Guyana, Rambajan (1984b) reported on the distribution of both these *Anopheles*. Recently, however, Oliviera and Deane (1984) questioned the availability of the name *allopha*.

Literature consulted for the taxonomic determination of species are as follows: Subgenus *Nyssorhynchus* - Faran (1980), Faran & Linthicum (1981) and Linthicum (Thesis, 1978); Subgenus *Kerteszia* - Zavortink (1973); and general taxonomic references; Gorham *et al.*, (1973), Stojanovich *et al.*, (1966), Shannon (1933), Root (1926), Komp (1942), Kuyp (1950). Many of the species were confirmed by Drs. M. E. Faran & B. A. Harrison, successive Managers, Walter Reed Biosystematics Unit at the National Museum of Natural History, Smithsonian Institution.

A summary of the species found by genus and subgenus follows:

- Genus: *Anopheles*
 Subgenus: *Anopheles* - Seven (7) - *mediopunctatus*, *intermedius*, *peryassui*, *mattogrossensis*, *shannoni*, *apicimacula*, *punctimacula*.
Kerteszia - Two (2) - *bellator*, *neivai*.
Nyssorhynchus - Eleven (11) - *aquasalis*, *triannulatus*, *strodei*, *nuneztovari*, *darlingi*, *oswaldoi*, *allopha*, *braziliensis*, *evansae*, *argyritarsis*, *rangeli*.
Stethomyia - One (1) - *nimbus*.
Chagasia - One (1) - *fajardi*.

The map of Guyana given in Figure 1 shows the 10 Administrative Regions from which the actual locality of capture and distribution can be traced to a detailed map with the aid of the Gazetteer of Guyana, 1974.

Species	Locality of capture, distribution and collector where indicated.	Admin. Div. Reg.	Sub-Reg.	Recorded by
<i>An. (Ano.) mediopunctatus</i> (Theobald), 1903	Widely distributed throughout the forest district of the interior. Occasionally in the bush covered localities near the Coast-Upper Barbice River Savannah; Giglioli, 1943.			Giglioli (1948)
	Barima/: Barima R. - Red Hill	I	I	
	Waini: Aruka R. - Arukamai	I	I	
	: Waini R. - Baramanni, Warapoka, Large Kunaballi	I	2	Rambajan (1981)
	: Moruca R. - Cart Market Id., Kumaka	II	I	Rambajan (1982)
	Upper Demerara/: Siberia Berbice	X	I	Rambajan (1985)
<i>An. (Ano.) intermedius</i> (Peryassu), 1908	Upper Demerara/: Timehri, Linden Berbice	X	I	Bruce et al (1943)
	Upper Takutu/: Rupununi-Locality & Upper Esseq.district not specified.	IX	?	Bruce et al (1943)
	Upper Demerara/: West Watooka, Old Berbice England, Siberia.	X	I	Rambajan (1984)
	East Berbice/: Corentyne R.-White Corentyne Hall, Siparuta.	VI	6	Rambajan (1983)
	Essequibo Id./: Leguan.		I	Rambajan
	West Demerara	III	I	(1984)

Species	Locality of capture, distribution and collector where indicated.	Admin. Reg.	Div. Sub-Reg.	Recorded by
<i>An. (Ano.) pervassui</i> Dyar & Knab, 1908	Upper Demerara/: Timehri, Linden Berbice	X	I	Bruce <u>et</u> (1943)
	Upper Takutu/: Rupununi-Locality & Upper Esseq.district not specified.	IX	?	Bruce <u>et</u> (1943)
	Upper Demerara/: West Watooka, Old Berbice England, Siberia.	X	I	Rambajan (1981)
	East Berbice/: Corentyne R.-Orealla, Corentyne Siparuta.	VI	6	Rambajan (1982)
	Upper Takutu/: Rupununi West-Letham, Upper Esseq. Tabatinga, Moco-Moco, Nappi, Yupukari.	IX	I	Rambajan (1982-83)
	Barima/: Moruca R. - Cart Market Waini Id., Ko-Ko, St. Peter & Santa Rosa Missions, : Manawarin R.-Cementary Pt., Waramuri Id., Shipara.	II	I	Rambajan (1982)
	Demerara/: Lama R.-M.B.Nathan, 1985 Mahaica	V	2	Rambajan (1985)
	<i>An. (Ano.) mattogrossansis</i> Lutz & Neiva, 1911	Upper Takutu/: Rupununi West - Upper Esseq. Yupukari & Karanambo; Jardine, 1943.	IX	I
: Rupununi West - Karanambo		IX	I	Rambajan (1981)
<i>An. (Ano.) shannoni</i> Davis, 1931	Upper Demerara/: Linden; Jardine, Berbice 1946	X	I	Giglioli (1948)
	Barima/: Moruca R.-Cart Market Id., Waini Ko-Ko, Wallaba, Kumaka, Santa Rosa Mission.	II	I	Rambajan (1981-82)
	: Manawarin R. - Kyre I & II, Tiger Bay, Shipara.	II	I	Rambajan (1981-82)
<i>An. (Ano.) apicimacula</i> Dyar & Knab, 1906	Upper Demerara/: Old England, Berbice Siberia. East Berbice/: Corentyne R.-Orealla Corentyne Siparuta.	X VI	I 6	Rambajan (1982-84) Rambajan (1982)

Species	Locality of capture, distribution and collector where indicated.	Admin. Reg.	Div. Sub-Reg.	Recorded by
<i>An. (Ano.) punctimacula</i> Dyar & Knab, 1906	Upper Demerara/: Old England, Berbice	X	I	Rambajan (1982-84)
	East Berbice/: Corentyne R.-Orealla Corentyne Siparuta.			VI 6 Rambajan (1982)
<i>An. (Ker.) neivai</i> Howard, Dyar & Knab, 1912 (1913)	Cuyuni/: Locality & district not specified	VII	?	Giglioli (1948)
	Potaro/: Locality & district not specified			Giglioli (1948)
	L. D. Cleara, 1910	VIII	?	Rambajan (1981-82)
	Barima/: Moruca R. - Cart Market Id., Ko-Ko.	II	I	Rambajan (1981-82)
	Waini: Manawarin R.-St. Nicholas, Cementary Pt., Kyre I & II, Tiger Bay.	II	I	Rambajan (1981-82)
Region, locality & district not specified	?	?	Knight & Stone (1977)	
<i>An. (Ker.) bellator</i> Dyar & Knab, 1906	Mahaica/: St. Culbert Mission, Berbice	X	II	Zavortink (1973)
	Upper Demerara/: West Watooka, Berbice			Rambajan (1981-82)
	Barima/: Barima R.-Ite Landing, Waini	I	I	Rambajan (1982)
	High Hill, Koriabo, Savannah, I mile, 3 miles			Rambajan (1982)
	: Aruka R.-Arukamai.	I	I	Rambajan (1982)
	: Waini R.-Kwabanna, Santa Cruz.	I	2	Rambajan (1982)
	: Moruca R.-Ko-Ko.	II	I	Rambajan (1982)
	: Manawarin R.-Waramuri, Cementary Pt., Kyre I & II, Shipara.	II	I	Rambajan (1982)
: Barima R.-Koriabo; G.C.Low, 1901	I	I	Zavortink (1973)	

Species	Locality of capture, distribution and collector where indicated.	Admin. Reg.	Div. Sub-Reg.	Recorded by
<i>An. (Ker.) bellator</i>	Potaro/: Kaiteur Plateau, W. Adams 1959.	VIII	I	Zavortink (1973)
Dyar & Knab, 1906	Sipuruni: Potaro, L. D. Cleare, 1910	VIII	?	Zavortink (1973)
(continued)	Barima/: Waini R.-Locality & district			Charles (1959)
	Waini not specified	I	?	Charles (1959)
	: Kaituma R.-Locality & district not specified	I	?	Charles (1959)
	: Aruka R.-Locality & district not specified	I	?	Charles (1959)
	Upper Demerara/: Right Bank Essequibo			Charles (1959)
	Berbice R.-Rockstone	X	I	
	Potaro/: Potaro R.-Upper Reaches, Sipurunu			Charles (1959)
	Locality & district not specified	VIII	?	Charles (1959)
	: Kaieteur escarpment	VIII	?	Charles (1959)
<i>An. (Nys.) allopha</i>	Upper Takutu/: Rupununi-Widespread	IX	I	Rambajan (1981-84)
(Peryassu), 1921	Upper Essequibo	IV	I	Rambajan (1981-85)
	Demerara/: Widespread			Rambajan (1981-85)
	Mahaica			Rambajan (1981-85)
	Mahaica/: Widespread	V	2	Rambajan (1981-85)
	Barbice			Rambajan (1981-85)
	East Berbice/: Widespread	VI	I-4	Rambajan (1981-85)
	Corentyne			Rambajan (1981-85)
	Upper Demerara/: Siberia	X	I	Rambajan (1981-85)
	Old England, West Watooka, Berbice			Rambajan (1984)
	Essequibo/: Leguan, Wakenaam	III	I	Linthicum (Thesis, 1978)
	West Demerara	VI	3	Do
	East Berbice/: No.63 Village, Corentyne J. Aiken, 1962.	IV	I	Do
	Demerara/: G/Town, 1942.			Do
	Mahaica G/Town; Sept., 1945.			Do
	G/Town; Sept., 1945.			Do
	Region, locality & district not specified			Do
	L. Rozeboom, Sept., 1945, Giglioli, 1936, G. Bevier, 1940.	?	?	Do

Species	Locality of capture, distribution and collector where indicated.	Admin. Reg.	Div. Sub-Reg.	Recorded by
<i>An. (Nys.) braziliensis</i> (Chagas), 1907	Upper Takutu/: Rupununi-Widespread	IX	I	Rambajan (1981-84)
	Upper Essequibo			Rambajan (1981-85)
	Demerara/: Widespread	IV	I	Rambajan (1981-85)
	Mahaica			Rambajan (1981-85)
	Mahaica/: Widespread	V	2	Rambajan (1981-85)
	Berbice			Rambajan (1981-85)
	East Berbice/: Widespread	VI	I-4	Rambajan (1981-85)
	Corentyne			Rambajan (1981-85)
	Upper Demerara/: West Watooka, Old	X	I	Rambajan (1981-85)
	Berbice England, Siberia.			Rambajan (1981-85)
Mahaica/: Rosignol	V	2	Linthicum (Thesis, 1978)	
Berbice			Linthicum (Thesis, 1978)	
	Upper Takutu/: North Rupununi - Upper Esseq. Locality & district not specified.	IX	?	Do
<i>An. (Nys.) evansae</i> (Brethes), 1926	Region, locality & district not specified	?	?	Knight & Stone (1977)
	Upper Takutu/: Moco-Moco, Tabatinga, Upper Esseq. Yupukari.	IX	I	Rambajan (1981)
<i>An. (Nys.) arquivitarsis</i> Robineau-Desvoidy, 1827	Upper Takutu/: Rupununi Savannahs	IX	?	Bruce et al (1943)
	Upper Esseq.			Rambajan (1981)
	: Rupununi West-Ambrose & Yupukari.	IX	I	Rambajan (1981)
	Barima/Waini: Manawarin R.-Waramuri Id.	II	I	Rambajan (1982)
	Upper Demerara/: Hyde Park, Mahaicony, Berbice July, 1941.	V	2	Linthicum (Thesis, 1978)

Species	Locality of capture, distribution and collector where indicated.	Admin. Reg.	Div. Sub-Reg.	Recorded by
<i>An. (Ste.) nimbos</i> (Theobald), 1902	Throughout forest district: Demerara, Mazaruni, Potaro: Giglioli, 1943	?	?	Giglioli (1948)
	Barima/: Moruca R. - Cart Market Id., Waini Ko-Ko, St. Peter Mission, Santa Rosa Mission.	II	I	Rambajan (1982)
	: Waini R.-Little Trootie Cr. Region, locality & district not specified.	I	2	Rambajan (1982)
		?	?	Knight & Stone (1977)
<i>An. (Nys.) aquasalis</i> Curry, 1932	East Berbice/: New Amsterdam; Corentyne E. Rowland 1900	VI	I	Faran (1980)
	: New Amsterdam; J. Aiken, 1900	VI	I	Faran (1980)
	: Locality & district not specified; W. Komp, 1936.	VI	?	Faran (1980)
	Demerara/:G/Town;W.Beveridge, 1931			Faran (1980)
	Mahaica :G/Town;E.Rowland, 1941	IV	I	Faran (1980)
	Mahaica/: Hyde Park, Mahaicony; E. Berbice Rowland, 1941.	V	2	Faran (1980)
	Barima/: Locality & district not specified; E. Rowland, 1941.	I	?	Faran (1980)
	Waini Region, locality & district not specified; 1941.	?	?	Faran (1980)
	Region, locality & district not specified; Fox, 1941.	?	?	Faran (1980)
	Region, locality & district not specified; Giglioli, no date	?	?	Faran (1980)
	coastlands & lower estuaries in open grasslands & savannahs; Giglioli, 1944.	?	?	Giglioli (1948)
	Barima/: Barima R.-I mile.			Rambajan (1981)
	Waini	I	I	
	Demerara/: Turkeyen, Plaisance, Mahaica Beterverwagting, Buxton, Enmore, Belfield, Clonbrook, Mahaica.	IV	I	Rambajan (1981-85)

Species	Locality of capture, distribution and collector where indicated.	Admin. Div. Reg.	Div. Sub-Reg.	Recorded by
<i>An. (Nys.) aquasalis</i> Curry, 1932 (continued)	Mahaica/: Mahaicony, Abary, Berbice Belladrum, Litchfield, Fort Wellington, Rosignol.	V	2	Rambajan (1981-85)
	East Berbice/: New Amsterdam Corentyne	VI	I	Rambajan (1981-85)
	: Albion, Rosehall, Whim.	VI	2	
	: Eversham, No. 67, S/Lands.	VI	3	
	: Crabwood Creek	VI	4	
	Upper Demerara/: West Watooka, Old Berbice England, Siberia.	X	I	Rambajan (1981-85)
	Pomeroon/: Charity, Marlborough, Supernaam Somerset & Berks, Better Hope, Dartmouth, Hampton Court, Danielstown, Anna Regina, Queenstown, Suddie.	II	I	Rambajan (1981-84)
Essequibo/: Leguan, Wakanaam, West Demerara Manaka.	III	I	Rambajan (1984)	
<i>An. (Nys.) rangeli</i> Gabaldon, Cove Garcia & Lopez, 1940	Upper Demerara/: Linden; Jardine, Berbice 1946			Giglioli (1948)
	Upper Takutu/: Rupununi West-Yupukari, Upper Essequibo	IX	I	Rambajan (1981-83)
	Demerara/Mahaica: Turkeyen.	IV	I	Rambajan (1985)
<i>An. (Nys.) triannulatus</i> (Neiva & Pinto), 1922	East Berbice/: New Amsterdam; Corentyne July, 1936	VI	I	Faran (1980)
	East Demerara/: G/Town; Sept., 1945 Mahaica G/Town; Oct., 1945 G/Town; Oct., 1945 G/Town; W. Beveridge, no date	IV	I	Faran (1980)
	Mahaica/: Hyde Park; Mahaicony; Berbice July, 1941	V	2	Faran (1980)
	Upper Demerara/: Linden; Sept., 1945 Barbice	X	I	Faran (1980)

Species	Locality of capture, distribution and collector where indicated.	Admin. Reg.	Div. Sub-Reg.	Recorded by
<i>An. (Nys.) triannulatus</i> (Neiva & Pinto), 1922 (continued)	Region, locality & district not specified; G. Bevier, 1940.	?	?	Faran (1980)
	Upper Linden/: Not common on the seacoast frontlands; G. Giglioli, Berbice 1939			
	River & Rupununi	?	?	Giglioli (1948)
	Barima/: Barima R.-Ete Landing.	I	I	Rambajan (1981)
	Waini			Rambajan (1981)
	Pomeroon/: Charity			Rambajan (1981)
	Supernaam	II	I	
	Demerara/: Turkeyen, Plaisance, Mahaica			
	Beterverwagting, Buxton, Enmore, Belfield, Clonbrook, Mahaica.	IV	I	Rambajan (1981-85)
	Upper Takutu/: Rupununi West-Ambrose,			Rambajan (1981-84)
	Upper Esseq. Moco-Moco, Yupukari.	IX	I	
Upper Demerara/: Old England, Siberia.			Rambajan (1984)	
Berbice	X	I		
Cuyuni/: Mazaruni, left bank			Rambajan (1984)	
Mazaruni Essequibo R.- Bartica	VII	2		
<i>An. (Nys.) strodei</i> Root, 1926	Upper Takutu/: Rupununi Savannahs,			Giglioli (1943)
	Upper Essequibo Giglioli, 1943 : Rupununi West-Yupukari.	IX IX	? I	Rambajan (1981)
<i>An. (Nys.) nuneztovari</i> Gabaldon, 1940	Upper Demerara/: Linden; Jardine, Berbice 1946	X	I	Giglioli (1948)
	East Berbice/: Corentyne R.-Matawie & Corentyne Marebunta.	VI	6	Rambajan (1981)
	: Corentyne R.-Orealla			Rambajan (1982)
	Siparuta.	VI	6	Rambajan (1984)
	: Corentyne R.-Orealla, White Hall & Siparuta.	VI	6	Rambajan (1984)
	Upper Takutu/: Rupununi West-Yupukari.			Rambajan (1982-83)
	Upper Essequibo	IX	I	
Demerara/: Turkeyen.			Rambajan (1983)	
Mahaica	IV	I		

Species	Locality of capture, distribution and collector where indicated.	Admin. Div. Reg.	Sub-Reg.	Recorded by
<i>An. (Nys.) nuneztovari</i> Gabaldon, 1940 (continued)	East Berbice/: Eversham, No. 67.	VI	3	Rambajan (1984)
	Corentyne : Crabwood Creek	VI	4	Rambajan (1984)
	Upper Demerara/: Kwakwani; Giglioli, Berbice 1942.	X	2	Faran (1980)
	: Kwakwani; Giglioli, 1943.	X	2	Faran (1980)
	Upper Demerara/: Linden Berbice	X	I	Faran (1980)
	Region, locality & district not specified	?	?	Faran (1980)
<i>An. (Nys.) darlingi</i> Root, 1926	Widespread: Giglioli, 1943			Giglioli (1948)
	Upper Takutu/: Rupununi-Widespread.			Rambajan (1981-83)
	Upper Esseq.	IX	?	
	East Berbice/: Corentyne R.-Matawie & Corentyne Marebunta.	VI	6	Rambajan (1981)
	: Corentyne R.-White Hall & Siparuta.	VI	6	Rambajan (1982)
	Upper Demerara/: Siberia.			Rambajan (1981)
	Berbice : Itabru.	X	I	Rambajan (1984)
	Barima/: Barima R.-Ete Landing, Waini Koriabo, Savannah, 1 Mile, 3 Miles	I	I	Rambajan (1981)
	: Waini R.-Little Trootie Creek.	I	2	Rambajan (1982)
	: Manawarin R.-Shipara.	II	I	Rambajan (1982)
	Cuyuni/: Kamaira Top-Matope.	VII	I	Rambajan (1983)
	Mazaruni East Berbice/: New Amsterdam; Aiken; Corentyne no date.	VI	I	Linthicum (Thesis, 1978)

Species	Locality of capture, distribution and collector where indicated.	Admin. Div. Reg.	Div. Sub-Reg.	Recorded by
<i>An. Nys.) darlingi</i> Root, 1926 (continued)	Demerara/: G/Town; Nov., 1942.			
	Mahaica G/Town; 1945			
	G/Town; 1945			
	G/Town; 1945			
	G/Town; Sept., 1945			
	G/Town; Oct., 1945			Linthicum
	G/Town; 1945			(Thesis,
	Lusignan; Sept., 1945.	IV	I	1978)
	Siparuni/: Omai; K. Wise, no date.			Linthicum
	Potaro	VII	I	(Thesis
				1978)
	Region, locality & district not specified; G. Bevier, 1939, 1940; G. Giglioli, July 1941.	?	?	Linthicum
				(Thesis
				1978)
<i>An. (Nys.) oswaldoi</i> (Peryassu), 1922	East Berbice/: Berbice estuary	V	?	Giglioli
	Corentyne			(1948)
	: Berbice Savannah	V	2	Giglioli
				(1948)
	Potaro/: Potaro districts			Giglioli
	Siparuni	VIII	?	(1948)
	Cuyuni/: Lower Mazaruni			Giglioli
	Mazaruni	VII	2	(1948)
	Upper Takuta/: Rupununi Savannahs	IX	?	Giglioli
	Upper Esseq.			(1948)
	Upper Demerara/: Siberia.			Rambajan
	Berbice	X	I	(1983-84)
	East Berbice/: Corentyne R.-Orealla & Corentyne Siparuta.	VI	6	Rambajan
	Barima/: Moruca R.-Kumaka.			(1982)
	Waini	II	I	Rambajan
: Manawarin R.-Waramuri Id.	II	I	(1982)	
			Rambajan	
Upper Takutu/: Rupununi West-Moco-Moco,			(1981-83)	
Upper Esseq. Yupukari.	IX	I	Faran	
Upper Demerara/: Linden; Giglioli,			(1980)	
Berbice 1945	X	I	Faran	
: Linden; Giglioli,			(1980)	
1945	X	I	Faran	
			(1980)	

Species	Locality of capture, distribution and collector where indicated.	Admin. Div. Reg.	Div. Sub-Reg.	Recorded by
<i>Chagasia fajardi</i> (Lutz), 1940	Siparuni/: North Fork, Konawaruk, Potaro Region, locality & district not specified.	VIII	2	Giglioli (1948)
		?	?	Knight & Stone (1977)

ACKNOWLEDGEMENTS

I sincerely wish to thank my Entomology Technician Mr. Renford James for his kind technical assistance throughout this study. Dr. B. A. Harrison of the Walter Reed Biosystematics Unit at the Smithsonian National Museum of Natural History kindly reviewed/critiqued the manuscript.

LITERATURE CITED

- Anon, 1944. Gazatteer of Guyana, Min. Nat. Dev. & Agric., Cartographic Div., Lands & Surveys Dept., Govt. Guyana.: x-181.
- Bruce, C. O., T. D. Kingin, S. F. Yolles & A. E. Graham Jnr. 1943. Report on the species of *Anopheles* in Br. Guiana. Am. J., trop. Med. 23:1-9.
- Charles, L. J. 1959. Observations on *Anopheles (Kerteszia) bellator* D & K in Br. Guiana, Am. J. trop. Med. 8:160-167.
- Causay, O. R., M. P. Deane, O. da Costa & L. M. Deane. 1945. Studies on the incidence and transmission of filaria, *Wuchereria bancrofti* in Belem. Am. J. Hyg. 45:143-149.
- Davis, N. C. 1931. A note on malaria carrying anophelines in Belem, Para and in Natal, Rio Grande de Norte, Brazil. Riv. Malariol. 10:43-51.
- Faran, M. E. 1980. Mosquito Studies (Diptera, Culicidae). XXXIV. A revision of the *Albimanus* Section of the subgenus *Nyssorhynchus* of *Anopheles*. Contrib. Am. Entomol. Inst. (Ann Arbor) 15(7):1-215.
- Faran, M. E. & K. J. Linthicum. 1981. A Handbook of the Amazonian species of *Anopheles (Nyssorhynchus)* (Diptera, Culicidae). Mosq. Syst. 13:1-81.

- Foote, R. H. & D. R. Cook. 1959. Mosquitoes of Medical Importance. Agric. Handbook No. 152. Agric. Res. Serv., U. S. Dept. Agriculture. 158 pp.
- Giglioli, G. 1948. The transmission of *Wuchereria bancrofti* by *Anopheles darlingi* in the American Tropics. Am. J. trop. Med. 28:71-85.
- Giglioli, G. 1948. Malaria, Filariasis and Yellow Fever in Br. Guiana. The Daily Chronicle Ltd., Georgetown, Guyana.
- Gorham, J. R., C. J. Stojanovich & H. G. Scott. 1973. Illustrated key to the Anopheline Mosquitoes of Western South America. Mosq. Syst. 5:97-156.
- Horsfall, W. R. 1955. Mosquitoes. Their bionomics and relation to disease. Ronald Press, N. Y. 723 pp.
- Komp, W. H. W. 1942. The Anopheline Mosquitoes of the Caribbean Region. Nat. Inst. Hlth. Bull., No. 179. U. S. Public Health Services.
- Knight, K. L. & A. Stone. A Catalog of Mosquitoes of the World (Diptera, Culicidae), Second Ed. The Thomas Say Foundation, Entomol. Soc. Am. 6:1-611.
- Kuyp, E. Van Der. 1950. Contribution to the study of the malarial epidemiology n Surinam, Royal Inst. Indies, Amsterdam. Afdeling Tropische Hygiene No. 18.146 pp.
- Linthicum, K. L. 1978. Mosquito Studies (Diptera, Culicidae). A revision of the *Argyritarsis* Section of the subgenus of *Nyssorhynchus* of *Anopheles*. PhD. Thesis, University of California, Los Angeles. 409 p.
- Oliveira, I. de & L. M. Deane. 1984. What is *Anopheles allopha* Peryassu, 1921 (Diptera, Culicidae). Mem. Inst. Oswaldo Cruz, Rio de Janeiro. 79:509-510.
- Rambajan, I. 1981, 1982, 1983, 1984, 1985 (1981-85). Ann. Rep., Entomology/Parasitology Unit, Vector Control Services Ministry of Health, Guyana.
- Rambajan, I. 1984a. Reappearance of *Anopheles darlingi* Root, 1926 and vivax malaria in a controlled area of Guyana, South America. Trop. geogr. Med., 36:61-66.
- Rambajan, I. 1984b. A note on the distribution of *An. allopha* Peryassu, 1921 and *An. braziliensis* Chagas, 1907 in Guyana, South America. Mosq. Syst. 16:211.
- Rambajan, I. 1985. A note on *An. epicimacule* Dyar & Knab, 1906 from Guyana, South America. Mosq. Syst. 17:132.
- Root, F. M. 1926. Studies on Brazilian Mosquitoes I. The Anophelines of the *Nyssorhynchus* group. Am. J. Hyg. 6:684-717.

- Stage, H. H. & G. Giglioli. 1947. Observations on mosquitoes and malaria control in the Caribbean area. Part II. Br. Gujana Mosq. News. 7:73-76.
- Shannon, R. C. 1933. Anophelines of the Amazon Valley. Proc. Entomol. Soc. Wash. 35:117-143.
- Stojanovich, C. J. & J. R. Gorham. 1966. Illustrated key to the Anopheline Mosquitoes of Central America and Panama, C.D.C., Vector-Borne Diseases Section, Atlanta, Georgia, U. S. A. VII + 29 p.
- Ward, R. A. 1984. Second Supplement to the Catalog of the Mosquitoes of the World. Mosq. Syst. 16:231.
- Zavortink, T. J. 1973. Mosquito Studies (Diptera, Culicidae). XXIX. A review of the subgenus *Kerteszia* of *Anopheles*. Contrib. Am. Entomol. Inst. (Ann Arbor). 9(3):1-54.

