

SICYOPTERUS AIENSIS, A NEW SPECIES OF FRESHWATER GOBY (GOBIOIDEI) FROM VANUATU, SOUTH PACIFIC

by

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ABSTRACT. - *Sicyopterus aiensis*, n. sp., a freshwater goby, is described on the basis of 30 specimens collected from streams of Vanuatu. It differs from other species belonging to the genus by a combination of characters including the number of pectoral rays, scales in the lateral series, predorsal scales, scales in a zigzag series on the caudal peduncle, number of soft rays in the second dorsal fin and live color.

RÉSUMÉ. - *Sicyopterus aiensis*, une nouvelle espèce de gobie du Vanuatu, Pacifique sud.

Sicyopterus aiensis, n. sp., un gobie dulçaquicole, est décrit sur la base de 30 spécimens collectés dans les rivières du Vanuatu. Il diffère des autres espèces du genre par plusieurs caractères incluant le nombre de rayons à la nageoire pectorale, le nombre d'écaillés en ligne longitudinale, le nombre d'écaillés prédorsales, le nombre d'écaillés en série zigzag sur le pédoncule caudal, le nombre de rayons mous à la seconde nageoire dorsale et les couleurs *in vivo*.

Key words. - Gobiidae - *Sicyopterus aiensis* - PSW - Vanuatu - New species.

During the past 25 years many freshwater gobies have been collected and identified from freshwater streams over much of the tropical Indo-Pacific. Although many new species have been described, many more freshwater gobies, in particular belonging to the Sicydiinae, await description.

The freshwater ichthyofauna of Vanuatu, situated at the east of New Caledonia, is both rich and varied but until 1998 it was poorly sampled and as a result little has been published on these animals over the centuries. Ogilvie-Grant (1884) described a species of *Sicyopterus* Gill, 1860 from Vanuatu and Fiji but Watson *et al.* (2000) concluded it to be *S. lagocephalus* (Pallas, 1770). Baker (1929) indicated the presence of some freshwater fish species from the Vanuatu in the Yoro River on the island of Espiritu Santo (Ryan, 1991; Keith *et al.*, 2000) but these were not well elaborated. In October and November 1998 the Environment Unit sponsored a survey of freshwater environments throughout the island nation of Vanuatu (Gerbeaux *et al.*, 1998). In addition to the survey of 1998 the first author in July 2002 conducted inventories of fishes occurring in freshwater streams and rivers on the islands of Ambae and Efate.

In Vanuatu the Sicydiinae are a dominant group occurring in swift and clear mountainous streams and many species are known to occur throughout this island nation. *Stiphodon astilbos* Ryan, 1986 was described from specimens collected in a freshwater stream only a few meters from the sea on Espiritu Santo and the species is so far known only from Vanuatu. *Stiphodon rutilaureus* Watson,

1996 is a widely distributed species known from Western Indonesia to New Caledonia and in the original description specimens collected from a freshwater stream on Efate were included as paratypes. Most recently the description of *Leptiptes kaaea* Watson, Keith & Marquet, 2002 included specimens collected on several islands in Vanuatu as well as New Caledonia. During the 1998 and 2002 surveys two species of *Sicyopterus* were collected, *Sicyopterus lagocephalus*, which has a broad distribution in Indo-Pacific area (Watson *et al.*, 2000), and a new species.

The purpose of this paper is to provide a description of *Sicyopterus aiensis* n. sp., a new freshwater goby known only from Vanuatu.

MATERIAL AND METHODS

Methods follow Watson (1995). All counts and measurements are taken from the right side. Measurements were taken with dial calipers and are expressed to the nearest tenth of a millimeter. Teeth were always counted to the right of the symphysis.

Abbreviations used to represent institutions and collections cited follow Leviton *et al.* (1985) and Kottelat *et al.* (1993).

These are: BLIH (Biological laboratory, Imperial Household, Tokyo) formerly LICPP, CMK (Private Collection of Maurice Kottelat, Cornol, Switzerland), FMNH (Field Museum of Natural His-

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tory, Chicago, Illinois, USA), MNHN (Muséum national d'Histoire naturelle, Paris, France), MZB (Museum Zoologicum Bogoriense, Bogor, Indonesia), NMBA (Naturhistorisches Museum, Basel, Switzerland), NMW (Naturhistorisches Museum Vienna, Austria), ROM (Royal Ontario Museum, Toronto, Canada), SMF (Senckenberg Museum, Frankfurt-am-Main, Germany), SMNS (Staatliche Museum für Naturkunde, Stuttgart, Germany), UF (Florida Museum of Natural History, University of Florida, Gainesville, Florida, USA), WAM (Western Australian Museum, Perth, Australia), ZMA (Institute of Systematics and Population Biology, University of Amsterdam, The Netherlands), ZSM (Zoologisch Staatsammlung, Munich, Germany).

Abbreviations for cephalic sensory pores follow Akihito (1986). Abbreviations used in the descriptive account follow Watson (1995), with few additions: A, anal fin; C, caudal fin (only branched rays are reported); D, dorsal fins. D1, first dorsal fin; D2, second dorsal fin; LS, scales in lateral series counted from upper pectoral base, or anteriormost scale along lateral midline, to central hypural base; P, pectoral fin; PD, predorsal midline counted from scale directly anterior to first dorsal fin insertion to the anteriormost scale; TRB, transverse series back, refers to scales counted from the first scale anterior to second dorsal fin, in a diagonal manner, posteriorly and ventrally to the anal fin base or ventralmost scale; TRF, transverse series forward refers to scales counted from the first scale anterior to second dorsal fin, in a diagonal manner, anteriorly and ventrally to the centre of belly or ventralmost scale; ZZ, zigzag series, refers to scales on the narrowest region of the caudal peduncle counted from the dorsalmost scale to the ventralmost scale in a zigzag (alternating) manner. Lower jaw teeth (called labial teeth by Watson in 1999), is the term used for teeth projecting horizontally from the lower jaw.

Some aspects of morphology and morphometrics are summarized in tables I to IV.

Comparative material

Comparative material studied has been limited to species of West Indo-Pacific area with ventral edge of upper lip smooth, or mostly smooth, and with clefts anteriorly and midlaterally. These species are *Sicyopterus lagocephalus* (Pallas, 1770), *S. sarasini* Weber & de Beaufort, 1915, *S. cynocephalus* (Valenciennes in Cuvier et Valenciennes, 1837), *S. micrurus* (Bleeker, 1853) and *S. parvei* (Bleeker, 1853). *S. macrostetholepis* (Bleeker, 1853) was considered to be a synonym of *S. lagocephalus* by Watson *et al.* (2000). Provisionally and similarly, *S. ouwensi* Weber, 1913 and *S. fuliag* Herre, 1927 are herein considered as synonyms of *S. cynocephalus*.

Specimens examined of *S. lagocephalus* and *S. sarasini* are those cited by Watson *et al.* (2000) from Pacific Ocean.

Sicyopterus cynocephalus. Indonesia, Bali. - SMF uncatalogued; male (91.1 mm SL). Flores. - UF uncatalogued; 2 juveniles (25.9-27.1 mm SL). - ZMA 121.715, 1 male, 3 females (47.7-56.7

mm SL). Kei Islands. - SMF 6590, 1 female (74.2 mm SL). - SMF 6591, 1 male, 1 female (81.1-96.0 mm SL); Grand Kei Island. Lombok. - SMF 6593, female (84.3 mm SL). Sulawesi. - MNHN A.1454 (syntypes *Sicydium cynocephalum* (Valenciennes in Cuvier et Valenciennes, 1837)), 1 male, 1 female (77.6-88.6 mm SL). - SMF 6589, 5 males, 2 females (38.2-110.5 mm SL). Sumatra. - CMK uncatalogued, 1 male (52.6 mm SL). Timor. - NMBA 5054, juvenile (30.4 mm SL). - NMBA 5055, male (37.4 mm SL). - NMBA 5056, 1 male (65.9 mm SL). - NMBA 5057, 1 male (66.3 mm SL). - NMBA 5058, 1 male (83.6 mm SL). - NMBA 5059, 1 male (77.6 mm SL). - NMBA 5060, 1 male (52.1 mm SL). - NMBA 5061, 1 male (42.4 mm SL). - NMBA 5062, 1 male (45.4 mm SL). - NMBA 5063, 1 female (50.9 mm SL). - NMBA 5064, 1 male (38.9 mm SL). - NMBA 5065, 1 female (52.4 mm SL). - NMBA 5066, 1 female (46.5 mm SL). - NMBA 5067, 1 female (40.0 mm SL). - NMBA 5068, 1 male (40.3 mm SL). - ZSM 23957, 1 female (87.3 mm SL). Wetar. - SMF 6586, 1 female (94.0 mm SL). - SMF 6587, 1 male (85.6 mm SL). - SMF 6588, 1 male (74.7 mm SL). Irian Jaya. - WAM P.31461-002, 1 female (98.9 mm SL); Ampat Islands. - WAM P.31447-003, 1 male, 3 females (79.1-93.1 mm SL); Tiawiwa River braid. Halmahera. - MZB uncat., 1 male (61.3 mm SL); Maluku (Molucca Islands).

Papua New Guinea, Bismarck Archipelago. - SMNS 7029, male (98.6 mm SL); Umboi Island. Bougainville. - WAM P. 28164-011, 1 male, 2 females (51.3-86.5 mm SL); Tekan River. Hollandia. - NMBA 3641, 3642, 4152, 2 males, 1 female (67.4-75.2 mm SL). - ZMA 112.564 (syntype *Sicyopterus ouwensi* Weber, 1913), 1 male (35.2 mm SL); Humboldt Bay. - ZMA 112.565 (syntype *Sicyopterus ouwensi* Weber, 1913), 2 females (59.6-79 mm SL); Mbai River. - ZMA 112.566, 3 males, 1 female (71.5-81.8 mm SL); Mbai river. New Britain. - WAM P.31151-003, 1 male (82.3 mm SL); Kimbe Bay. Mandi Stream. - WAM P.27833-019, 2 males (47.6-60.9 mm SL).

Philippines, Luzon. - FMNH 50950, 1 female (100.4 mm SL).

Sicyopterus micrurus. Indonesia. - SMF 6552 (Holotype: *S. zurstrasseni* Popta, 1921), 1 male: (42.0 mm SL); Wetar.

Sicyopterus parvei. Indonesia. - BLIH 9, 1 male (106.4 mm SL); central Java, Temon District.

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(Figs 1-3, Tables I-IV)

Material examined

Thirty specimens from streams of Vanuatu, totaling 18 males, 12 females, size range 37.4-108.2 mm SL, largest male 104.5 mm, largest female 108.2 mm.

Holotype

MNHN 2003-268, male (83.9 mm SL); Creek Ai (Efate island), Vanuatu, 16 Jul. 2002, P. Keith and E. Vigneux.

Paratypes

MNHN 2003-269, male (77 mm SL); Vanuatu, Shefa Province, Efate, Creek Ai; 16 Jul. 2002, P. Keith and E. Vigneux. MNHN 2003-270, female (65.3 mm SL); Vanuatu, Shefa Province, Efate, Creek



Figure 1. - *Sicyopterus aiensis*, n. sp. Holotype, MNHN 2003-268, male (83.9 mm SL); Creek Ai river (Efate island), Vanuatu, 16 July 2002, P. Keith and E. Vigneux.

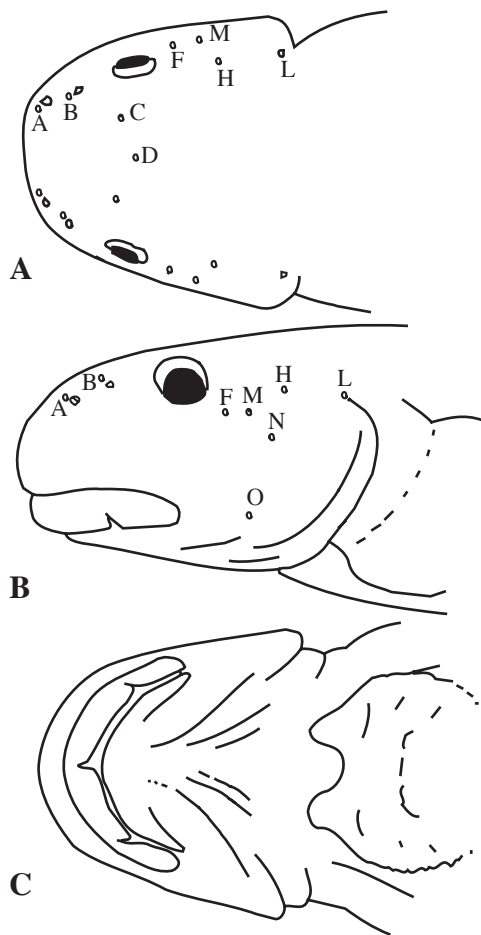


Figure 2. - Diagrammatic illustration of head in *Sicyopterus aiensis* showing cephalic sensory pore system. A: Dorsal view; B: Lateral view; C: Ventral view.

Ai; 16 Jul. 2002, P. Keith and E. Vigneux. MNHN 2003-271, female (60.6 mm SL); Vanuatu, Shefa Province, Efate, Creek Ai; 16 Jul. 2002, P. Keith and E. Vigneux. MNHN 2003-272, male (68.8 mm SL); Vanuatu, Shefa Province, Efate, Creek Ai; 16 Jul. 2002, P. Keith and E. Vigneux. MNHN 2003-273, male (64.5 mm SL); Vanuatu, Shefa Province, Efate, Creek Ai; 16 Jul. 2002, P. Keith and E.

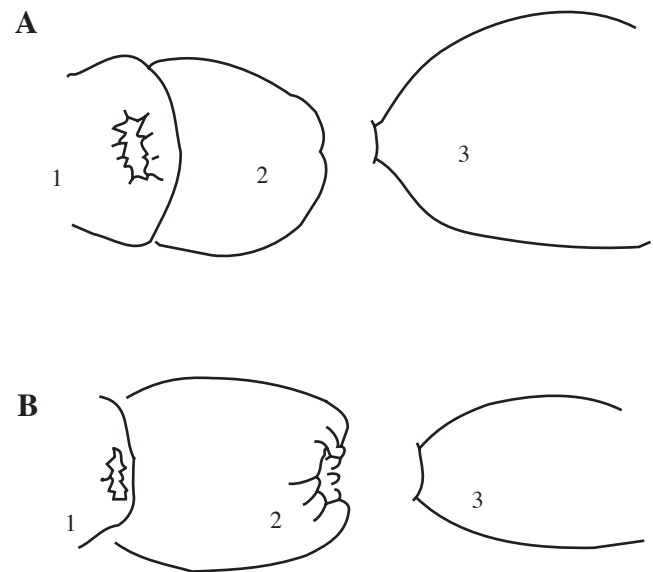


Figure 3. - Diagrammatic illustration of urogenital papilla in *Sicyopterus aiensis*: 1. anus; 2. urogenital papilla; 3. anal fin; A: Male; B: Female.

Vigneux. MNHN 2003-274, male (51.8 mm SL); Vanuatu, Shefa Province, Efate, Creek Ai; 16 Jul. 2002, P. Keith and E. Vigneux. BLIH uncat., 3 males, 3 females (37.9-74.7 mm SL); Vanuatu, Shefa Province, Efate, Creek Ai; 6 Nov. 1998, Environment Unit. SMF 29130, 4 males (37.4-93 mm SL); Vanuatu Shefa Province, Efate, Creek Ai; 19 Jun. 1998, Environment Unit. SMF 29131, 2 females (62.6-108.2 mm SL); Vanuatu, Penama Province, Pentacost, Bay Homo River; 9 Oct. 1998, Environment Unit. SMF 29132, 2 males (77.1-104.5 mm SL); Vanuatu, Penama Province, Pentacost, Lombilitit Stream; 8 Oct. 1998, Environment Unit. SMF 29133, 3 males (43.4-62.7 mm SL); Vanuatu, Penama Province, Maewo, upper Vatmbilake River; 25 Oct. 1998, Environment Unit. ROM 73455, 1 male (94.7 mm SL); Vanuatu, Shefa Province, Efate, Téouma River; 9 Nov. 1998, Environment Unit. ROM 73456, 2 females (66.6-77 mm SL); Vanuatu, Penama Province, Pentacost, Bay Homo River; 9 Oct. 1998; Environment Unit. ROM 73457, 3 females (48-84.6 mm SL); Vanuatu, Penama Province, Central Maewo, Vatmbilake River; 24 Oct. 1998, Environment Unit.

Table I. - Scale counts in *Sicyopterus aiensis* and related species.

	Lateral series																											
	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
<i>Sicyopterus aiensis</i>																		3	1	3	6	4	6	2	3	1	1	
<i>S. lagocephalus</i>			4	5	14	51	77	84	63	29	5	3	2															
<i>S. sarazini</i>									1	1	2	1	-	1	2	4	2	4	4	3	1							
<i>S. cynocephalus</i>												2	-	2	2	3	4	3	7	13	11	5	2	3	2	3	-	1
<i>S. micrurus</i>														1														
<i>S. parvei</i>																			1									

	Predorsal midline series																											
	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	
<i>Sicyopterus aiensis</i>																1	-	-	3	2	3	5	2	2	5	3	1	3
<i>S. lagocephalus</i>					5	9	43	94	94	57	21	12	3	2														
<i>S. sarazini</i>	2	1	-	1	1	1	-	-	2	2	-	3	1	4	-	2	2	1	-	1								
<i>S. cynocephalus</i>							1	-	-	-	2	2	-	1	-	5	10	5	8	7	4	6	7	2	-	1	1	
<i>S. micrurus</i>													1															
<i>S. parvei</i>																											1	

	Transverse backward series									
	14	15	16	17	18	19	20	21	22	23
<i>Sicyopterus aiensis</i>					3	5	9	5	6	2
<i>S. lagocephalus</i>	15	87	155	76	5	1				
<i>S. sarazini</i>	2	5	11	9						
<i>S. cynocephalus</i>			1	9	5	30	10	5	2	
<i>S. micrurus</i>					1					
<i>S. parvei</i>										1

	Transverse forward series																	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
<i>Sicyopterus aiensis</i>								4	4	6	8	3	2	2	1			
<i>S. lagocephalus</i>		18	18	73	139	81	19	6	1									
<i>S. sarazini</i>	1	1	-	-	-	-	1	-	1	1	2	4	7	4	4	-	-	1
<i>S. cynocephalus</i>						2	3	6	15	13	13	5	2	1	1			
<i>S. micrurus</i>									1									
<i>S. parvei</i>													1					

	Zigzag series										
	11	12	13	14	15	16	17	18	19	20	21
<i>Sicyopterus aiensis</i>						1	8	12	7	1	1
<i>S. lagocephalus</i>	1	3	24	155	91	58	4				
<i>S. sarazini</i>		1	2	9	12	1	1				
<i>S. cynocephalus</i>					15	20	19	4	1		
<i>S. micrurus</i>			1								
<i>S. parvei</i>						1					

Diagnosis

Second dorsal fin with 1 spine and 11 segmented rays. Pectoral fin usually with 21-22 rays, range 20-22. Scales in lateral series usually 62-69. Predorsal scales usually 24-33 range 21-33. Scales in zigzag series on caudal peduncle usually 17-19. Upper lip with clefts anteriorly and midlaterally. The belly is entirely covered with relatively large cycloid scales, extending from the anus almost to the pelvic base. In live males a distinctive orange coloured band from below second dorsal fin and extends onto upper half of caudal peduncle.

Description

D VI-I,11; A I,10 directly opposite to D2. C 13-14, posterior margin rounded. Pelvic disk with 1 spine and 5 branched rays on each side, fifth rays joined together over their entire length, a strong frenum between spines, disc adherent to belly between all 5 rays. P usually 21-22 (20-22), posterior margin rounded. LS usually 62-69 (62-71), ctenoid scales on flanks and caudal peduncle. TRB usually 20 (18-23). TRF usually 24-25 (22-29). PD usually 24-33 (21-33), ZZ usually 17-19 (16-21). Belly entirely covered with large cycloid scales, extending from anus, almost to pelvic base. Upper jaw with a single row of flexible tricuspid teeth, lateral cusps

Table II. - Morphometrics in *Sicyopterus aiensis* and related species expressed to the nearest whole percent of standard length.

	Jaw length									
	8	9	10	11	12	13	14	15	16	
<i>Sicyopterus aiensis</i>					4	11	9	6		
<i>S. lagocephalus</i>	1	11	47	131	101	16	-	1		
<i>S. sarazini</i>		1	12	8	3					
<i>S. cynocephalus</i>			4	9	8	24	12	5	1	
<i>S. micrurus</i>					1					
<i>S. parvei</i>								1		

	Caudal peduncle depth								
	10	11	12	13	14	15	16	17	18
<i>Sicyopterus aiensis</i>			1	4	4	12	7	-	2
<i>S. lagocephalus</i>	1	7	46	112	100	28	7	5	1
<i>S. sarazini</i>	4	2	10	7	2				
<i>S. cynocephalus</i>			6	15	21	20	3		
<i>S. micrurus</i>				1					
<i>S. parvei</i>					1				

	Caudal peduncle length								
	13	14	15	16	17	18	19	20	21
<i>Sicyopterus aiensis</i>		2	6	9	10	3			
<i>S. lagocephalus</i>	5	45	110	98	17	5			
<i>S. sarazini</i>		3	6	7	3	6			
<i>S. cynocephalus</i>	1	-	10	14	11	18	4	3	1
<i>S. micrurus</i>				1					
<i>S. parvei</i>						1			

	Body depth at second dorsal fin origin in males												
	13	14	15	16	17	18	19	20	21	22	23	24	25
<i>Sicyopterus aiensis</i>					1	-	4	6	4	2	-	-	1
<i>S. lagocephalus</i>		1	4	14	29	53	26	17	1				
<i>S. sarazini</i>	1	4	2	2	6	2							
<i>S. cynocephalus</i>			1	4	6	5	5	8	3	2			
<i>S. micrurus</i>								1					
<i>S. parvei</i>						1							

	Head length								
	20	21	22	23	24	25	26	27	28
<i>Sicyopterus aiensis</i>				3	6	10	7	4	1
<i>S. lagocephalus</i>		9	48	107	93	40	11	2	
<i>S. sarazini</i>	1	6	8	6	4				
<i>S. cynocephalus</i>		2	3	6	15	25	9	3	
<i>S. micrurus</i>					1				
<i>S. parvei</i>		1							

	Predorsal length										
	30	31	32	33	34	35	36	37	38	39	40
<i>Sicyopterus aiensis</i>				1	1	4	9	5	8	1	1
<i>S. lagocephalus</i>			1	6	22	56	96	74	32	16	1
<i>S. sarazini</i>		2	5	8	6	1	1	2			
<i>S. cynocephalus</i>	1	-	3	5	4	10	26	8	5	1	
<i>S. micrurus</i>						1					
<i>S. parvei</i>				1							

	Preanal length														
	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
<i>Sicyopterus aiensis</i>			3	1	4	4	5	4	5	5	2				
<i>S. lagocephalus</i>	1	1	5	6	25	40	52	48	42	36	26	16	4	1	1
<i>S. sarazini</i>				3	1	3	4	5	4	2	-	-	2	1	
<i>S. cynocephalus</i>	1	-	1	3	5	7	11	5	12	9	5	1	1	-	1
<i>S. micrurus</i>			1												
<i>S. parvei</i>									1						

Table III. - Fin lengths in males of *Sicyopterus aiensis* and related species expressed to the nearest whole percent of standard length.

	Second dorsal fin length																	
	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
<i>Sicyopterus aiensis</i>				1	4	1	1	1	2	2	2	-	-	1				
<i>S. lagocephalus</i>	3	4	6	13	15	20	24	29	17	3	7	1	1					
<i>S. sarazini</i>	1	1	1	-	1	-	-	2	-	1	1	3	3	1	2	-	-	1
<i>S. cynocephalus</i>	1	4	2	2	1	1	4	5	2	3	2	5	-	2				
<i>S. micrurus</i>								1										
<i>S. parvei</i>						1												

	Anal fin length																		
	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
<i>Sicyopterus aiensis</i>									3	2	4	4	-	3	1	1			
<i>S. lagocephalus</i>			1	1	2	6	3	10	24	27	24	27	10	7	4	1			
<i>S. sarazini</i>							1	-	1	1	2	1	2	1	3	2	1	1	1
<i>S. cynocephalus</i>							3	2	4	3	4	3	2	4	7	1	1		
<i>S. micrurus</i>													1						
<i>S. parvei</i>												1							

	Caudal fin length																		
	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36		
<i>Sicyopterus aiensis</i>					2	3	7	2	2	2									
<i>S. lagocephalus</i>	3	4	12	28	26	28	18	8	8	1	5	2							
<i>S. sarazini</i>					1	2	3	1	4	4	1	-	-	-	-	-	1		
<i>S. cynocephalus</i>			1	-	2	7	7	5	5	3	2	-	1	2					
<i>S. micrurus</i>						1													
<i>S. parvei</i>							1												

rounded, medial cusps shorter than lateral cusps and sharply pointed. Number of teeth (57-93) tending to increase with size of specimen. Dentary with a single straight row of conical teeth (3-7) on each side, not curved and not meeting at symphysis; anterior and posterior teeth usually caniniform, especially pronounced in males; horizontal teeth correspond in position with upper jaw teeth. Upper lip with an inverted V-shaped cleft anteriorly and a cleft midlaterally on each side. Lower lip mostly absent, rudimentary elements present as expanded and folded tissue posterior to lower jaw teeth. Rakers absent from inner edge of outer gill arch. Cephalic sensory pore system always A, B, C, D, F, H, L, M, N and O, pore D singular with all others paired, oculoscapular canal uninterrupted posterior to eye. Cutaneous sensory papillae well developed on head.

Sexual dimorphism well developed. Males with longer unpaired fins, a more bulbous snout, urogenital papilla triangular in appearance with distal tip rounded. Females with bulbous urogenital papilla with fimbriate projections around distal opening.

Colour in preservation. - Sexual dichromatism developed. Males usually greyish to brownish. Caudal fin whitish or greyish. Pelvic fins whitish. Body of females usually greyish or brownish, on belly whitish, 5-7 dusky to blackish saddles on dorsum and caudal peduncle. First dorsal fin greyish with a slightly dusky to distinctively black blotch located at the posterior. Second dorsal fin greyish. Caudal fin

greyish. Anal fin and pelvic disc whitish to greyish. Pectoral fin usually dusky.

Colour in life. - Males (Fig. 1): Body and head usually brownish dorsally and greyish ventrally. Blue eyes. Several small yellow stripes on nose. Caudal fin usually brownish with a bluish and blackish band near upper margin. Pectoral fins and second dorsal fin brownish with dorsal margin yellowish white. Anal fin whitish with dorsal margin bluish. Body sides with indistinct brown bars and blotches. The males have a distinctive orange to russet lateral band below second dorsal fin and along upper half of caudal peduncle extending close to base of caudal fin. This pattern is very different of all other *Sicyopterus* in the area. Females: Brownish body, head and fins, and with white belly. Caudal fin whitish or greyish. Anal fin with whitish or bluish distal margin. Saddles on dorsum and caudal peduncle not always apparent in life.

Ecology

Sicyopterus aiensis is usually found in moderate to swift flowing, clear, fast flowing streams with boulder-strewn bottoms. The substrate in some streams may be entirely rocky with little or no gravel. This species feeds by scraping algae from rock surfaces.

Distribution

Sicyopterus aiensis is known from the Vanuatu Islands of

Table IV. - Fin lengths in females of *Sicyopterus aiensis* and related species expressed to the nearest whole percent of standard length.

	Second dorsal fin length															
	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
<i>Sicyopterus aiensis</i>						1	1	4	1	1	2	2				
<i>S. lagocephalus</i>			3	14	28	38	34	30	15	9	2	3				
<i>S. sarazini</i>	1	-	1	1	-	-	1	1	1	2						
<i>S. cynocephalus</i>		1	-	-	2	1	3	2	6	5	3	2	1	2	-	1

	Anal fin length											
	27	28	29	30	31	32	33	34	35	36	37	38
<i>Sicyopterus aiensis</i>						1	1	-	4	3	2	1
<i>S. lagocephalus</i>	1	1	2	7	24	42	37	23	13	4		
<i>S. sarazini</i>	1	-	1	-	-	2	-	1	1	1	1	
<i>S. cynocephalus</i>			1	-	2	2	5	8	4	4	2	

	Caudal fin length										
	19	20	21	22	23	24	25	26	27	28	29
<i>Sicyopterus aiensis</i>					1	2	4	4	1		
<i>S. lagocephalus</i>	3	9	26	28	33	30	18	5	-	-	1
<i>S. sarazini</i>					3	3	2				
<i>S. cynocephalus</i>				2	4	7	7	7	2		

Efate, Pentacost, and Maewo where it lives in general with *S. lagocephalus*.

Etymology

The name of the species is derived from the name of the river Ai, Efate island, where the main specimen were caught in Vanuatu.

Affinities

The males of *Sicyopterus aiensis* have a distinctive orange lateral band beginning below the second dorsal fin and extending onto the upper half of the caudal peduncle and both sexes have a dusky to blackish blotch or spot with an upper red part at the posterior base of the first dorsal fin (this spot is less visible on aged specimen). This pattern is unique among all other *Sicyopterus* in the area. The squamation of *S. aiensis* appears closest to *S. cynocephalus* but differs in having more predorsal midline scales (usually 24-33 versus 13-30), more pectoral rays (21-22 versus usually 20-21), more scales in zigzag series (usually 17-19 versus 16-18), and a shorter caudal peduncle length (14-18 versus 15-21 (%SL)). The belly is entirely covered with relatively large cycloid scales, extending from the anus almost to the pelvic base whereas *S. cynocephalus* has cycloid scales restricted to posterior two-thirds of the surface area in this region between pelvic base and anus.

Sicyopterus aiensis differs from *S. lagocephalus* in having more predorsal midline scales (usually 24-33 versus 11-20), more scales in lateral series (usually 62-71 versus 47-57), and more pectoral rays (21-22 versus 18-20). *S. aiensis* differs from *S. sarazini* in having more predorsal midline scales (usually 24-33 versus 0-26), more scales in

zigzag series (usually 17-19 versus 13-15), and more pectoral rays (21-22 versus 18-19). *S. aiensis* differs from *S. parvei* in having VI, I-11 in the dorsal fins versus VI, I-10, fewer predorsal midline scales (usually 24-33 versus 33), and more pectoral rays (21-22 versus 20). *S. aiensis* differs from *S. micrurus* in having more pectoral rays (21-22 versus 19) and more scales in lateral series (usually 62-71 versus 58). *S. micrurus* appears to be a rare endemic of the Greater Sunda Islands in Western Indonesia (Watson *et al.*, 2000).

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