

A New Species of Freshwater Grunter (Pisces: Teraponidae) from New Guinea

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Abstract

A new species of teraponid, *Hephaestus lineatus*, is described from six specimens collected from freshwater streams on the Vogelkop Peninsula, Irian Jaya. It is closely related to *H. habbema* (Weber) from south-central New Guinea and *H. trimaculatus* (Macleay) from the Port Moresby region, by a higher soft anal ray count and colour pattern.

Introduction

The family Teraponidae (Theraponidae of many authors) contains approximately 45 species and is confined to the Indo-west Pacific region. Aside from a few relatively widespread marine forms most species have evolved in freshwaters of Australia-New Guinea. This area is occupied by about 30 species belonging to nine genera.

The teraponid grunters of New Guinea were reviewed by Mees and Kailola (1977), who recognised seven marine or estuarine species and 12 from freshwater, including five new species. These authors placed all of the species in the genus *Therapon*. Vari (1978), however, gave sufficient evidence for dividing the family into 15 genera, seven of which have been recorded from New Guinea. The present paper describes a new species collected by the author during a visit to the Vogelkop Peninsula at the western extremity of New Guinea in November, 1982. It belongs to the genus *Hephaestus* De Vis as recognised by Vari (1978) which contains 11 species distributed in freshwater streams of northern Australia and New Guinea.

The format and terminology used in the description follow those of Vari (1978). Counts were recorded for all specimens, but only the two largest fish were utilised for proportional data. The range of counts for the paratypes is indicated in parentheses following the data for the holotype, but only proportional data for the largest (42.3 mm SL) paratype is presented in parentheses. Type specimens have been deposited at the National Institute of Biology (Lembaga Biologi Nasional), Bogor, Indonesia and the Western Australian Museum, Perth. The abbreviations LBN and WAM are used for these respective institutions in the subsequent text.

Systematics

Hephaestus lineatus sp. nov.

Figures 1 and 2

Holotype

LBN 4947, male, 86.5 mm SL, small stream at Fruata Village, Irian Jaya (approximately 2°59'S, 132°32'E), seine, G. Allen and H. Bleher, 16 November 1982.

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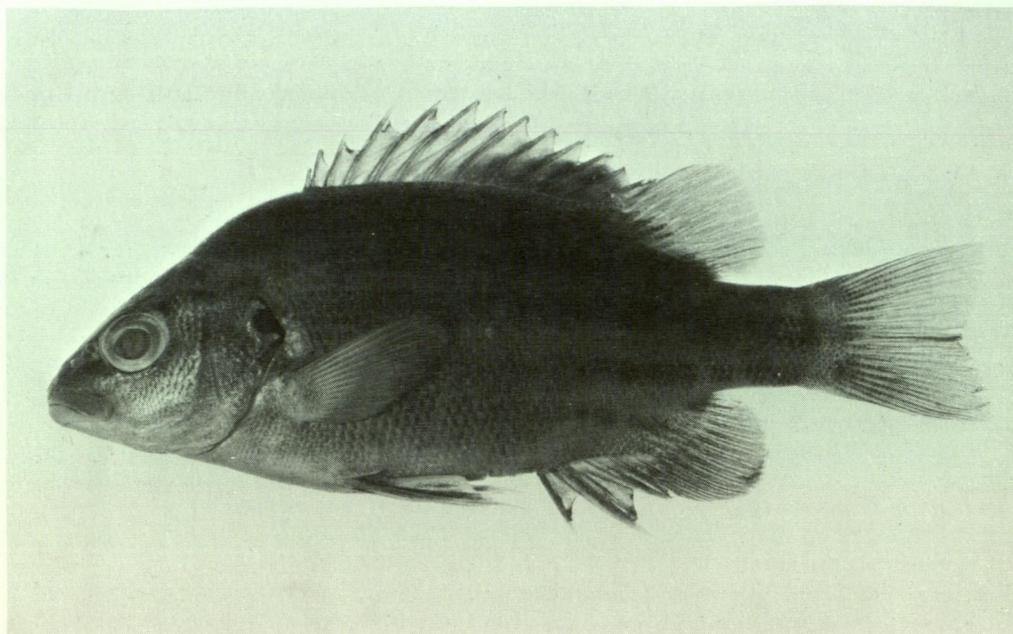


Figure 1 *Hephaestus lineatus*, holotype, 86.5 mm SL, Fruata, Irian Jaya.

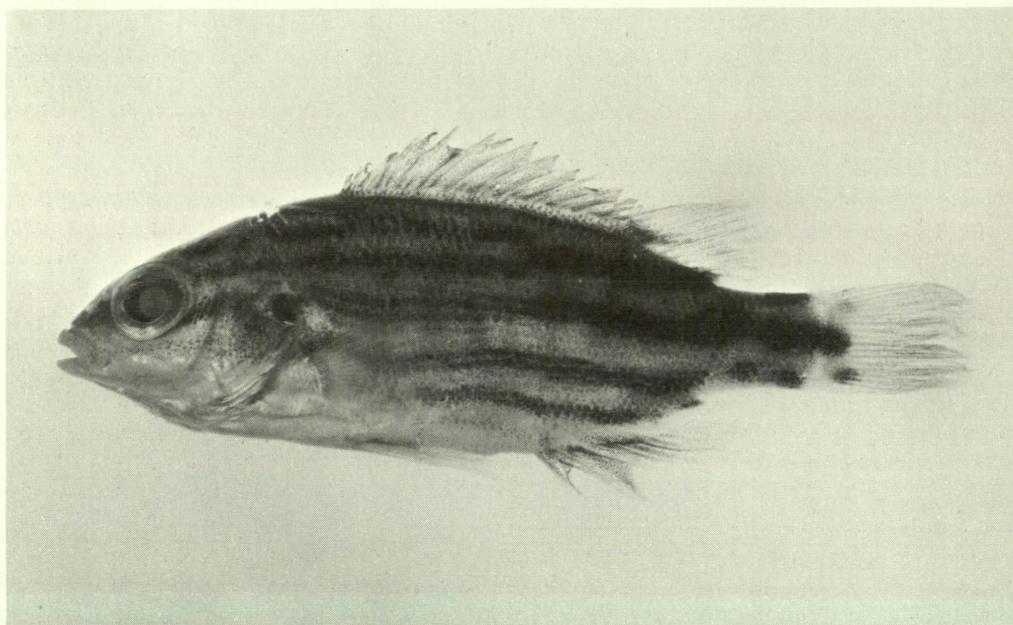


Figure 2 *Hephaestus lineatus*, juvenile paratype, 23.0 mm SL, Suswa, Irian Jaya.

Paratypes

LBN 4948, 2 specimens, 23.0-37.0 mm SL, stream at Merdai Village, Irian Jaya (approximately 1°35'S, 133°20'E), seine, G. Allen and H. Bleher, 16 November 1982; WAM P27868-002, 2 specimens, 22.0-23.0 mm SL, Auk River near Suswa Village, Irian Jaya (approximately 0°56'S, 132°15'E), seine, G. Allen and H. Bleher, 18 November 1982; WAM P27869-002, 42.3 mm SL, tributary stream of Kamundan River at Senopi Village, Irian Jaya (approximately 0°50'S, 132°56'E), seine, G. Allen and W. Tins, 18 November 1982.

Diagnosis

A species of the teraponid genus *Hephaestus* closely allied to *H. habbemai* (Weber) and *H. trimaculatus* (Macleay). It differs most notably from these two species on the basis of soft dorsal ray count (12-13 v. 10-11) and colour pattern, which consists of 5-6 longitudinal stripes on the side, narrower than intervening pale spaces, with a prominent semi-ocellated black spot on upper rear edge of operculum. In contrast the opercular spot is absent in the allied species. *Hephaestus habbemai* usually lacks stripes in mature adults with the smallest juveniles (under about 20-30 mm SL) having a pattern of five vertical bars superimposed on the 6-8 longitudinal stripes which are wider than the intervening spaces. *Hephaestus trimaculatus* generally possesses 7-8 stripes which are narrower than the intervening pale spaces.

Description

Dorsal rays XIII,12 (XIII,12 or 13); anal rays III,12 (III,12 or 13); pectoral rays 15 (14 to 16); pelvic rays 1,5; tubed lateral-line scales 54 + 4 or 5 tubed scales on caudal fin base; scales above lateral line 7; scales below lateral line 17 (17 to 18); predorsal scales to occiput 16; sheath scale rows at base of dorsal fin 2; sheath scale rows at base of anal fin 3 to 5; scale rows on cheek 7; gill rakers on first arch 7 + 13 (6 to 8 + 13 or 14); vertebrae 11 + 16 = 27.

Body moderately deep for the family and laterally compressed, greatest depth 2.6 (2.8) in SL. Head relatively short with blunt snout, its length 3.0 (2.7) in SL. Distance from dorsal origin to snout 2.4 (2.3), length of base of dorsal fin 1.8 (1.9), both in SL. Snout length 3.0 (3.5), eye width 3.6 (3.1), jaw length 3.0 (3.9), length of longest dorsal spine 1.9 (2.1), length of longest soft dorsal ray 2.0 (2.2), length of longest anal spine 2.0 (2.2), and length of longest soft anal ray 1.7 (1.8), all in head length.

Dorsal profile gradually curving, more pronounced than ventral profile. Dorsal profile convex from snout to interorbital region, then slightly concave at interorbital, but nape convex to dorsal fin origin. Ventral profile curved from tip of lower jaw to pelvic fin origin, straight from pelvic base to anus. Jaws equal or upper only slightly longer. Gape oblique. Mouth slightly protractile. Posterior of maxillary reaching to level of anterior margin of pupil or slightly beyond. Teeth conical with brown tips, outer row much enlarged followed by a band of villiform teeth. Lower jaw with a median ventral gap in lip fold. Vomer and palatines without teeth. Nostrils separated by a distance about twice greatest diameter of posterior nostril. Lacrimal with several small serrations posteriorly. Preoperculum distinctly serrate. Lower opercular spine stronger and longer than other spines, not extending beyond edge of opercular lobe. Posttemporal exposed, but covered with skin, serrate posteriorly. Supracleithrum exposed, serrate posteriorly.

Spinous dorsal fin arched, the first spine very short, fifth to seventh spines longest, those following decreasing gradually in length to penultimate which is equal or slightly less than ultimate. Longest dorsal spine slightly longer than longest soft dorsal rays. Soft dorsal fin rounded. First anal spine about two-thirds length of second anal spine, which is much

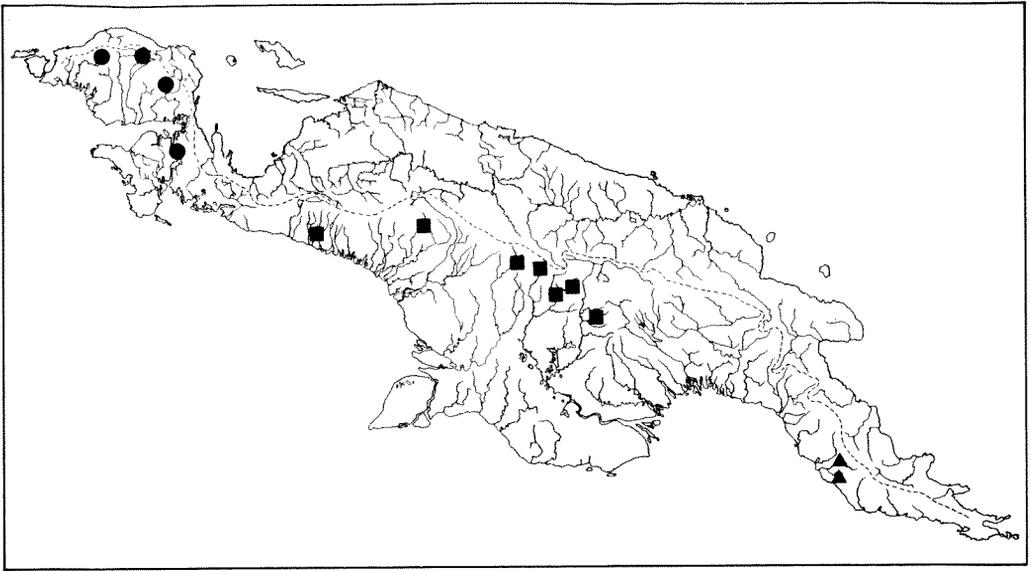


Figure 3 Map of New Guinea showing distribution of *Hephaestus lineatus* (circles), *H. habbemai* (squares), and *H. trimaculatus* (triangles).

stronger than third spine and shorter than longest soft anal rays. Pectoral fins pointed, fourth ray (from top) longest. Pelvic fins pointed, first soft ray longest and slightly filamentous, extending just beyond anus. Caudal fin emarginate.

Colour when fresh: holotype overall grey-brown, whitish on ventral portion of head, breast, and abdomen; a series of five faint, darker grey longitudinal stripes on side, stripes slightly narrower than intervening brownish areas; cheek and operculum brown; prominent, half-ocellated black spot on upper rear margin of operculum; fins light grey or slightly dusky-brown. Smallest (22.0-23.0 mm SL) paratypes generally whitish with five longitudinal stripes on side, these with dark grey or blackish margins and pale grey central area; lower half of head, breast, and abdomen silvery-white; fins translucent to slightly dusky; base of caudal fin with three blackish spots in vertical row; a prominent black spot on upper rear margin of operculum. The 42.3 mm SL paratype is similarly coloured except there is a sixth stripe positioned across the belly.

Colour in alcohol: similar to live coloration except stripes of holotype less conspicuous and ground colour of juveniles yellowish instead of white.

Remarks

Hephaestus lineatus is most closely related to *H. habbemai* (Weber) and *H. trimaculatus* (Macleay) as indicated in the above diagnosis. Vari (1978) placed *H. habbemai* in the synonymy of *H. trimaculatus*, but his analysis was based on relatively few specimens from a limited number of localities. I prefer to follow the separation of these species by Mees and Kailola (1977). They reported significant differences related to colour pattern and lateral-line scale counts. This species pair is confined to southern New Guinea *Hephaestus habbemai* is known from the Mimika and Lorentz Rivers of Irian Jaya and the Fly-Strickland system of Papua New Guinea. It generally inhabits freshwater streams in hilly terrain. *Hephaestus*

Table 1 Fin ray and gill raker counts for *Hephaestus lineatus*.

Soft dorsal rays			Soft anal rays				
12	13		12	13			
5	1		4	2			
Pectoral rays			Gill rakers				
			upper limb			lower limb	
14	15	16	6	7	8	13	14
2	3	1	3	2	1	4	2

trimaculatus is known from the Laloki River and its tributaries, the Goldie and Brown Rivers, in the general vicinity of Port Moresby. During the 1982 expedition *H. lineatus* was collected or observed underwater at a number of widespread localities on the Vogelkop Peninsula of Irian Jaya. The known distributions for this species and its nearest allies are indicated on the map in Figure 3.

The habitat generally consists of moderate flowing, clear rivers and creeks with pH and temperatures ranging between 7.4-8.5, and 24°-29°C respectively.

The name *lineatus* (Latin: 'striped or lined') refers to the characteristic colour pattern.

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