

A Second Indo-Pacific Species of *Thrissina*

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The anchovy genus *Thrissina* Jordan et Seale, 1925, has been viewed as "monotypic according to all modern authors" (Whitehead et al., 1966: 116), including the recent review by Wongratana (1980) of Indo-Pacific clupeoid fishes. According to this view there is a single species, *T. baelama* (Forsskål, 1775), widespread from eastern Africa to Samoa and from Australia to China. The basis for recognizing the genus was (and still is) the absence (or very low number) of pre-pectoral scutes: "ventral scutes weak, developed from ventrals to anal only, these almost hidden by the scales" (Jordan and Seale, 1925: 30); "scutes small and almost hidden by scales, and there are none in front of pectorals" (Jordan and Seale, 1926: 375).

Whitehead et al. (1966: 118), however, called attention to the occurrence of "one or two pre-pectoral scutes . . . in . . . specimens of *Thrissina baelama*, but not in those from the Red Sea (type locality) or from the Gulf of Aden, Mauritius, and the Cocos Keeling Islands. The presence of such scutes may indicate a distinct form or subspecies of *T. baelama*, but more specimens are required."

Subsequent study of specimens of *Thrissina* has confirmed the supposition of Whitehead et al., and has shown the existence of two species: *T. baelama* (Forsskål), without pre-pectoral scutes and geographically widespread in the sense of the traditional view (but so far unrecorded from Australia); *T. encrasicholoides* (Bleeker, 1852), with one or sometimes two pre-pectoral scutes and somewhat more narrowly distributed, known so far from Ceylon, India, Indonesia, Queensland, Celebes, and Philippines.

Identification of specimens of the two species is most easily performed by noting the presence or absence of pre-pectoral scutes. Damaged specimens, however, are apt to have the pre-pectoral scutes lost with the scales, as apparently is the case for the lectotype of *Engraulis encrasicholoides* Bleeker (designated by Whitehead et al., 1966: 117, from among 45 Bleeker specimens in the Leiden Museum, representing combined

lots from Timor, Indonesia, and Celebes).

Another useful character is the relative size and shape of certain jaw bones (Fig. 1), which are best viewed after slight drying of the specimens. In *T. baelama* the supramaxillary bones are shorter, and the rear part of the maxillary is longer and more acutely pointed. But there is intraspecific variation in these features, and they may prove insufficient to permit identification of all specimens.

Certain meristic characters aid in separating the two species: branched anal rays, precaudal/caudal vertebrae, and lower gillrakers (Table 1). There is overlap in the ranges of all characters. Anal rays and vertebrae show little geographical variation, but gillrakers show some geographical variation in both species. In *T. encrasicholoides*, specimens from Ceylon and India have a higher number than specimens from elsewhere. In *T. baelama*, specimens from the western Indian Ocean, and others from the Central Pacific (Guam, Fiji), have a higher number than specimens from the central part of the range. Further collecting and study may warrant further taxonomic subdivision of *T. baelama*.

Of Bleeker's 45 specimens in the Leiden Museum, 30 prove to be *T. encrasicholoides*; and 15, *T. baelama*. Other mixed lots occur in museum collections and suggest that the two species have similar habits and occur together throughout the range of *T. encrasicholoides*. Bleeker's original description (1852) was based on 14 specimens, 86~120 mm, from "Timor

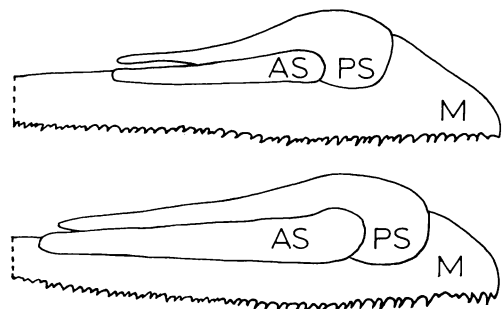


Fig. 1. Posterior part of the upper-jaw bones, lateral view of left side. Above, *Thrissina baelama*; below, *T. encrasicholoides*. AS, anterior supramaxillary; M, maxillary; PS, posterior supramaxillary. Drawn from specimens of about 85 mm standard length.

Table 1. Some meristic characters of *Thrissina encrasicholoides* (A~D and Total ↑) and *T. baelama* (Total ↓ and E~J).

Rows	Vertebrae																																
	Branched anal rays								Precaudal							Caudal						Total			Lower gillrakers								
	24	25	26	27	28	29	30	31	12	13	14	15	16	17	23	24	25	26	27	28	39	40	41	18	19	20	21	22	23	24	25	26	
A	1												1			1						1				1							
B		9	13	5								10	18	1	2	16	11				1	28				5	12	1					
C	1	8	9	6	3							4	22	2	3	21	4				1	27			1	19	20	1					
D		1		4									6			5	1				5	1					1	3	2				
Total ↑	2	18	22	15	3							14	47	3	5	43	16				2	61	1		1	25	32	3	3	2			
Total ↓			2	16	27	30	8	1	3	71	30	1					1	29	67	7	2	96	6	3	39	57	21	17	26	53	11	1	
E			1	1	5	5	2	1	1	10	4							3	11	1		14	1		7	8							
F			1	12	14	15	1		2	40	19	1					1	19	38	3	2	57	2	3	32	44	6						
G				2	4	2				5	3							3	4	1		7	1			1	3	2	5	2	1		
H					3	1	2			5	1							1	4	1		5	1			4	12	11					
J				1	1	7	3			11	3							3	10	1		13	1					4	21	51	10	1	

Rows: A, lectotype of *Engraulis encrasicholoides* Bleeker (designated by Whitehead et al., 1966: 117); B, Bleeker specimens (Leiden) identified as *Thrissina encrasicholoides*; C, *T. encrasicholoides* from Philippines, Celebes, Indonesia, Queensland; D, *T. encrasicholoides* from Ceylon and India (Vishakhapatnam); E, Bleeker specimens (Leiden) identified as *T. baelama*; F, *T. baelama* from Thailand, Indonesia, Hong Kong, Philippines, New Guinea, Palau, Cocos-Keeling; G, *T. baelama* from Guam and Fiji; H, *T. baelama* from Red Sea and Gulf of Aden; J, *T. baelama* from Tanganyika, Mauritius, Zanzibar, Comoros, Madagascar.

kupang, Batavia, Surabaya, Kammal, in mari.” Noteworthy in the description is the number of anal rays: “2/24 ad 2/26”. The lectotype is the only Leiden specimen with 24 branched anal rays—the low end of the range for *T. encrasicholoides*. Thus, this specimen possibly is one of those upon which Bleeker based his description, which, in view of the low number of anal rays, would seem to refer only to specimens of *T. encrasicholoides*.

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インド・太平洋産の *Thrissina* 属 2 種

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カタクチイワシ科の *Thrissina* 属は、これまで *T. baelama* (Forsskal, 1775) 1 種のみを含むものと考えられていた。しかし、Whitehead et al. (1966) が示唆したように、*T. baelama* とされている標本の中には、pre-pectoral scute を欠く分布の広い 1 種 (*T. baelama*) と、1~2 個の scute をもつ、セイロン、インド、インドネシア、クイーンズランド、セレベス、フィリピンから報告されている 1 種 (*T. encrasicholoides* (Bleeker, 1852)) の 2 種が含まれていることが判明した。両種はこの形質のほかに、顎骨の形態、臀鰭分枝軟条数、脊椎骨類、鰓耙数（下枝）でも区別が可能であるが、これらの形質には種内変異あるいは種間の重複がある。