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NOTES AND NEWS

RECORDS OF *ACARTIA (ACARTIURA) MARGALEFI* (COPEPODA, CALANOIDA, ACARTIIDAE) FROM THE NORWEGIAN AND BLACK SEAS

BY

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The calanoid copepod *Acartia (Acartiura) margalefi* Alcaraz, 1976 was described from samples collected in the Ría de Vigo (Atlantic Coast of Spain). Later, Alcaraz (1983) considered *A. lefevreae* Bradford, 1976 from Brest (Atlantic Coast of France) and Genoa (Italy), as identical with *A. margalefi* Alcaraz, 1976, the last-mentioned name having priority. *Acartia margalefi* has been reported repeatedly from Italian lagoons, harbours, and confined environments (Coen & Mazzocchi, 1985; Ceccherelli et al., 1987; Comaschi-Scaramuzza, 1987; Belmonte et al., 1989; Badalamenti et al., 1990; Coen & Gravina, 1992; Quarta et al., 1992), and it has recently been reported also from the English Channel (Castro-Longoria & Williams, 1996). The populations of *A. margalefi* are characterized by extreme fluctuations in abundance, either seasonal or inter-annual. In Italian coastal lakes this species disappears from the plankton for long periods (Belmonte, unpubl. data), leading to hypothesize a complex life history with the presence of a resting phase.

In the framework of a study on the European populations of small *Acartia (Acartiura)* species, the presence of *A. margalefi* is reported here from Norway and Ukraine, where this species has never been reported before.

Specimens were collected at Svartatjønn (an enclosed marine basin, Norway; fide W. T. Naess) in May 1993, and in Sebastopol Bay (northern Black Sea, Ukraine) in May 1976.

Adult specimens from both areas were analyzed under a compound microscope and compared with paratypes of *A. lefevreae* (= *A. margalefi*) from the Smithsonian Institution (Washington, D.C.) (USNM cat. no. 152629, 15 specimens). Drawings were made using a camera lucida. The study considered 14 morphological or biometrical features, as reported in fig. 1 and table I.

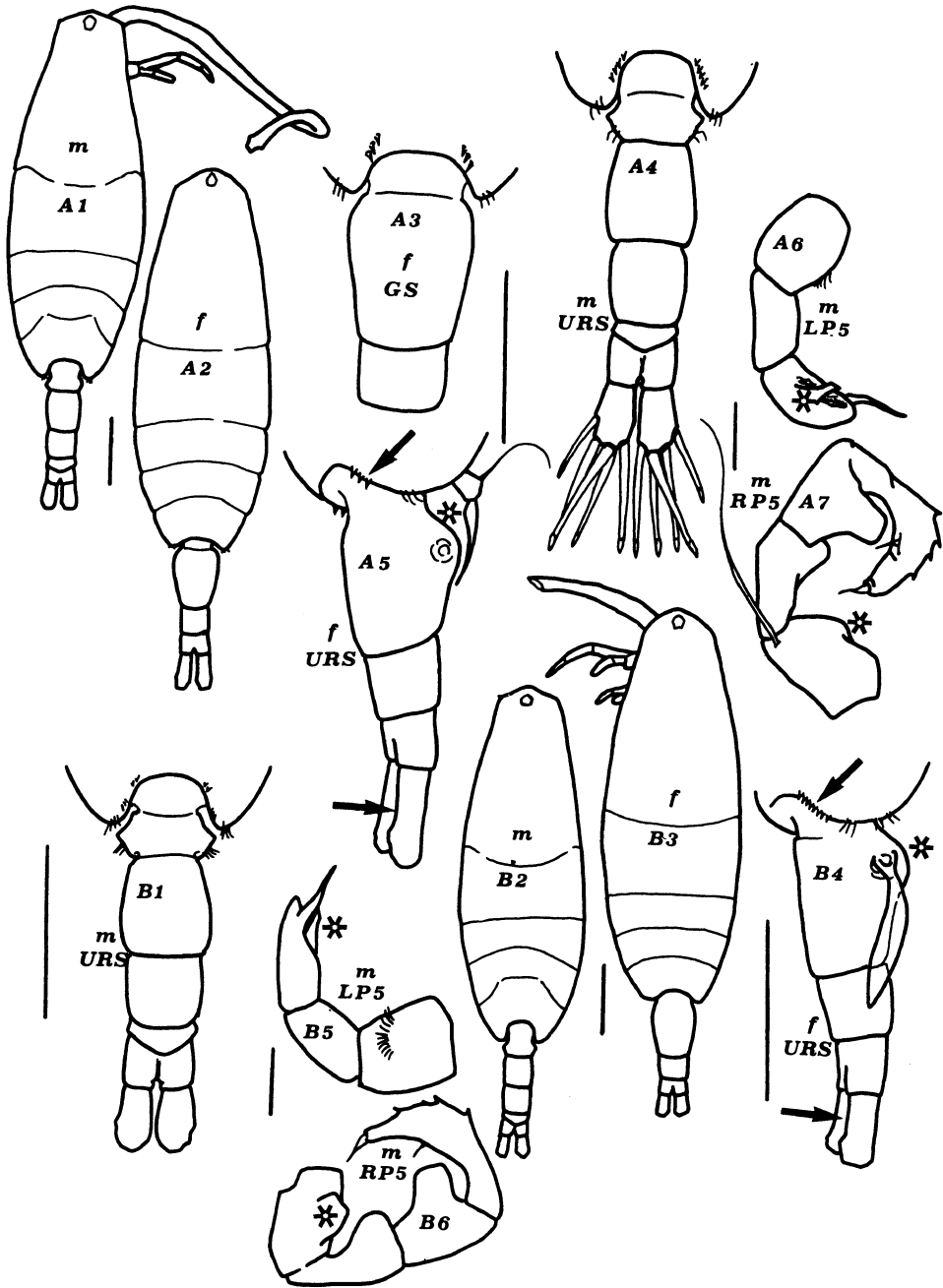


Fig. 1. *Acartia (Acartiura) margalefi* Alcaraz, 1976. Main morphological features of specimens sampled from the enclosed marine basin of Svartatjønn (Norway) (A), and from Sebastopol Bay (Ukraine) (B). A: 1, 2, 3, 4, dorsal views; 5, lateral view; B: 1, 2, 3, dorsal views; 4, lateral view. Asterisks indicate diagnostic characters; arrows indicate differences between the two populations; f, female; m, male; GS, LP5, RP5, URS, see legends of table I. Scale bars equal 100 μm (A: 1, 2, 3, 4, 5; B: 1, 2, 3, 4); or 10 μm (A: 6, 7; B: 5, 6).

TABLE I

Morphological and biometrical features of *Acartia (Acartiura) margalefi* Alcaraz populations from Svartatjønn (Norway, 1993) and Sebastopol (Ukraine, 1976). Data of control population derived from the analysis of paratypes and from the literature

Sample: Sex:	Svartatjønn		Sebastopol		Control	
	Male	Female	Male	Female	Male	Female
n° specimens:	24	14	34	26		
TL (μm)	774-821	800-864	702-839	764-850	696-900	696-910
PRS/w		2.6-2.9		2.7-2.9		2.5-2.7
PRS/URS	2.6-2.9	2.7-2.9	2.5-3.1	2.6-3.1	2.6-2.8	2.6-2.8
PRS pl s	present (3-5)	present (3)	present (1-2)	present (5-8)	present	present
GS/w		1.2-1.3		1.1-1.3		1.3-1.5
GS sw p		anterior		anterior		anterior
RFR/w	1.9-2.0	2.8-3.2	1.3-1.8	2.0-2.3	1.2-1.5	2.1-2.4
URS s		absent		absent		absent
LP5 tl	present		present		present	
RP5 3rd p	present		present		present	

Legends: GS, genital segment; LP5, left ramus of the 5th pair of thoracic legs; PRS, prosome length; RFR, right furcal ramus length; RP5, right ramus of the 5th pair of thoracic legs; TL, total length; URS, urosome length; pl s, postero-lateral spines; s, spines; sw p, swelling position; tl, toothed lamella (sensu Alcaraz, 1976); w, width; 3rd p, third prominence.

The furcal rami of Svartatjønn females were larger, and those of Sebastopol females were shorter than the furcal rami of the paratypes. In addition, more spines were noted on the prosome's postero-lateral border (up to 8 on each side) of the Sebastopol females. All other features considered corresponded to those of the paratypes and to those reported in the literature (Alcaraz, 1976; Bradford, 1976). According to Bradford (1976), the presence or absence of spines is a more important diagnostic character than their number.

On the basis of the morphological analysis and of the reasons cited above, we consider the examined specimens referable to the species *Acartia (Acartiura) margalefi*, characterized as local ecotypes based on spine number and furcal ramus length. The geographical distance between the two populations is not sufficient to consider them effectively reproductively isolated. In fact, the presence of a resting stage in the life cycle could allow them to overcome adverse conditions and/or geographical barriers (Carlton & Geller, 1993).

The present records from Svartatjønn and Sebastopol extend the geographical range of *A. margalefi* to the cold-temperate Atlantic Region and to the Pontic Provence.

Although some acartiids, such as *A. tonsa*, might have been introduced only recently into the Black Sea (Belmonte et al., 1994), in our opinion this is not the case for *A. margalefi*. Among the species of the subgenus *Acartiura*, *A. margalefi* is morphologically closest to the very common and widespread *A. clausi* Giesbrecht, 1889 (cf. Alcaraz, 1976). It might correspond to the dwarf form of *A. clausi* reported in the past from confined environments of the Mediterranean Sea (e.g., Grandori, 1913; Gurney, 1931; Steuer, 1931) and the Black Sea (e.g., Steuer, 1929; Potemkina, 1940; Prusova & Shadrin, 1986). Recently (Naess, 1991) also from Norway a "small" *Acartia* was recorded. In addition, the scattered and still scanty reports of *A. margalefi* are probably also due to the periodic absence of this species from the water column.

The patchy distribution of *A. margalefi* in space and time will be better understood by detailed studies on its biology.

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