THE GENUS *EURYDICE* (CRUSTACEA : ISOPODA) IN THE AEGEAN SEA, INCLUDING *E. LONGISPINA* SP. NOV.

by

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Résumé

Le genre *Eurydice* (Crustacé Isopode) en Mer Egée, avec *E. longispina* n. sp.

Des échantillons récoltés sur les plages sableuses et dans les eaux côtières de l'Ile de Chio, comprenaient sept espèces d'*Eurydice*, parmi lesquelles *E. longispina*, espèce jusqu'alors inconnue. Une description complète de *E. czerniavsky* est également donnée avec de courtes notes descriptives sur d'autres espèces peu connues et des discussions sur leur position systématique.

Des échantillons qualitatifs montrent que *E. czerniavsky* et *E. pontica* se limitent aux plages exposées, tandis que *E. longispina* et *E. rotundicauda* préfèrent les côtes plus abritées. Le genre s'étend de la zone intertidale aux eaux du large, avec une répartition des espèces correspondant d'une manière caractéristique à la profondeur de l'eau, *E. pontica*, limitée au bord, *E. dollfusi* s'étendant aux profondeurs de 1 à 2 m, *E. spinigera*, de 1 à 10 m et *E. inermis* au-dessous de 10 m.

L'écologie et la distribution géographique de ces espèces sont discutées en rapport avec les travaux d'autres auteurs dans la Méditerranée et la Mer Noire.

While studies on the distribution and systematics of *Eurydice* have been carried out in the Black Sea and Mediterranean (Bacesco 1948, 1949a, b; Monod 1926, 1930, 1953; Soika 1955a, b; Torelli 1932), there appears to be no record of this genus from the Aegean. The present collections were made during the University College of Swansea's marine biological expedition to the Greek island of Chios (25°35' N, 38°30' W) in August 1967. A total of seven species were obtained, including several little known species and one which is new to science. From extensive samples collected on sand beaches by wading and by diving, the bathymetric distribution and ecological preference of each species were ascertained. A full description of *Eurydice longispina* sp. nov. is given, together with brief notes on other little known species.

Methods

Samples were obtained from three beaches on Chios, which were selected to cover a wide range of exposure to prevailing winds and wave action. Volissos beach on the north west coast of the island was the most exposed, facing the prevailing summer winds which may

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CAHIERS DE BIOLOGIE MARINE
Tome X - 1969 - pp. 15-29

be strong at times, Komi, in the south west, received the full force of the winter storms and was classed as intermediate in exposure, whilst the most sheltered beach was at Karfas, a partly enclosed bay on the east coast, facing the Turkish mainland less than five miles away.

On each beach, samples were taken at nine comparable stations along transects extending from 1.5 m above M.T.L. to 1.5 m below that level. A 25 cm^2 area of sand was taken to a depth of 15 cm for each sample, and all animals retained after washing through a 1 mm mesh sieve were collected and preserved. Shallow sub-littoral samples were collected using an aqua-lung and sieved on the shore. Deeper stations (4-12 m) were sampled using a dredge and are not comparable, quantitatively, with those of inshore stations. Collections were made at night, using an 80 watt mercury vapour bulb enclosed in a water-proof housing, and were standardised by fishing for 15 minutes on each occasion.

SYSTEMATICS

Eurydice pontica (Czerniavsky).

Helleria pontica Czerniavsky, 1868, p. 87, pl. 7, fig. 5.

Eurydice gracilis Bovallius, 1886, p. 12, pl. 2, fig. 24.

Slabberina agata Sowinsky, 1894, p. 52.

Eurydice pulchra Bacesco, 1940, p. 761.

Eurydice pontica Bacesco, 1948, p. 108, 109, 117, fig. 2a, 3c-f, 46, 5a; Pl. I, fig. 3 and 9; Monod, 1953, p. 278, fig. 2 and 4; Soika, 1955b, p. 51.

Material from Chios agreed closely with the description given by Bacesco (1948). The appendix masculina figured here for the first time appears to be highly characteristic for this species (Fig. 1, c).

Distribution. Most previous records are from the Black Sea (Bacesco 1948), although Monod (1953) recorded it from Le Racou (Pyr.-Or.) in the Mediterranean. Present material was found intertidally in sand at Komi and Volissos on Chios.

Eurydice dollfusi Monod.

Eurydice dollfusi Monod, 1930, p. 170-171, fig. 25D, 26B, 29B, 30B, C; Bacesco, 1948, p. 109; Monod, 1953, p. 277, fig. 5-6; Soika, 1955b, p. 47, fig. 6.

FIG. 1

a. *Eurydice rotundicauda* epimera 6 and 7; b. *Eurydice dollfusi* (Chios) appendix masculina; c. *Eurydice pontica* appendix masculina; d. *Eurydice czerniavsky* appendix masculina; e. *Eurydice affinis* appendix masculina; f-l. *Eurydice czerniavsky:* f. antennule, male; g. antennal peduncle, male; h. antennule, female; i. antennal peduncle, female; j. epimera 6 and 7; k. peraeopod 7; l. telson and uropod.

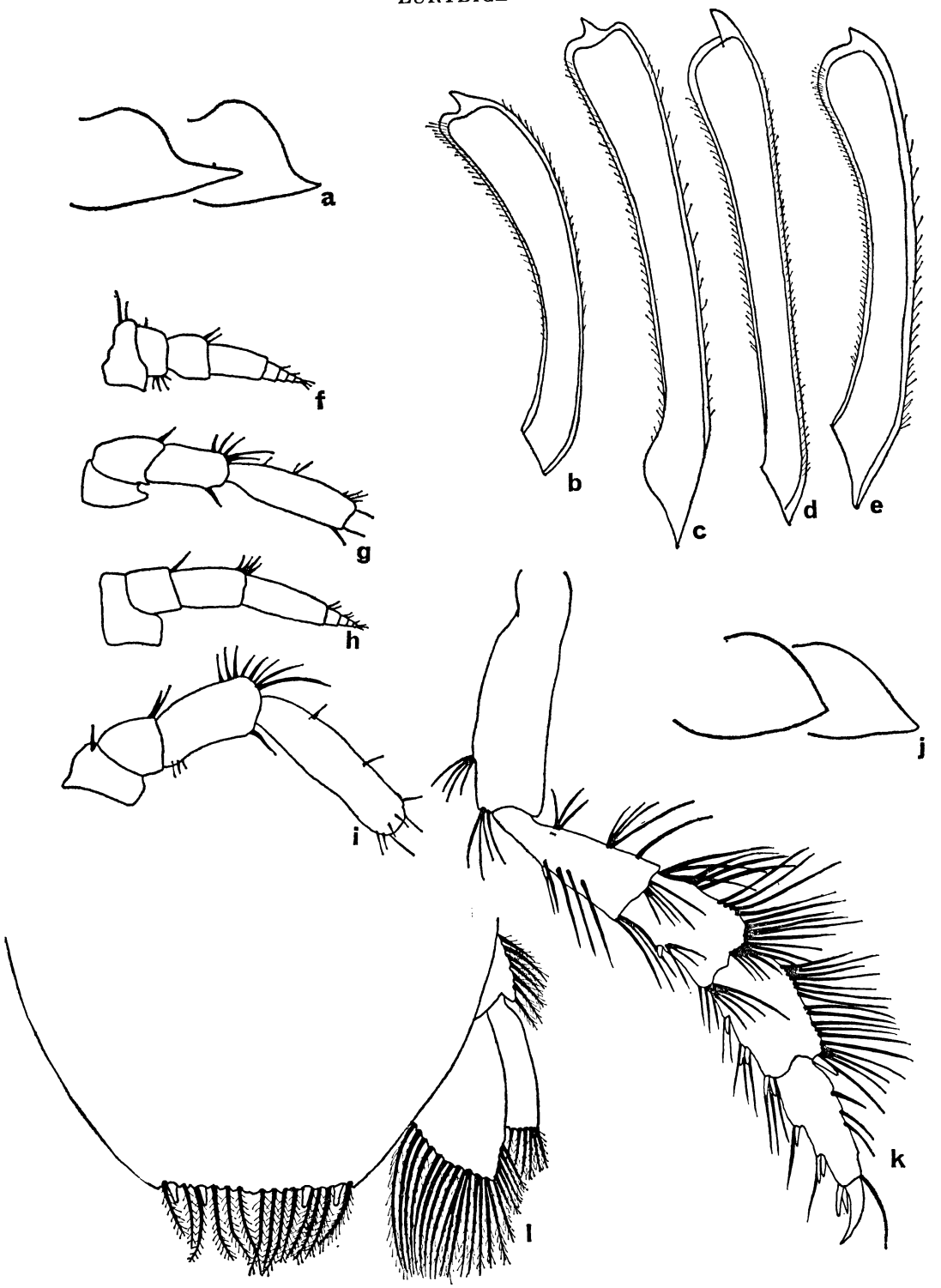

FIG. 1

Eurydice dollfusi maris-nigri, Bacesco, 1948, p. 112, fig. 2c, 3a, b, c, g, 5c, d, 4a, pl. I, fig. 4 and 10.

Over thirty specimens of this species were collected on Chios, comprising males, ovigerous females, and juveniles. The material is almost identical with the type description, differing only in the shape of the appendix masculina (Monod 1930, p. 173, fig. 30, c). The appendix masculina of *E. dollfusi* from Chios (Fig. 1, b), characterised by a deeply scalloped tip, appears to be identical with that of *E. valkanovi* (Bacesco 1949b, p. 16, fig. 33, a), a species which differs from the Chios material only in having fewer plumose setae on the telson border. Whilst retaining *E. valkanovi* as a valid species until more material is available, it should be acknowledged that *E. dollfusi* is an extremely variable species (Soika 1955a) and that with more material the former species may prove to be within the range of variation of the latter.

Distribution. This species has been taken both intertidally and sublittorally throughout the Mediterranean, Adriatic, and Black Sea. In the last named locality it is considered to be a separate subspecies *E. dollfusi-maris-nigri* (Bacesco 1948).

Eurydice rotundicauda Norman.

Eurydice rotundicauda, Norman, 1906, p. 169, pl. VI, fig. 4-7; Tattersall, 1911, p. 210, fig. 62-64.

This species is represented in the samples by a single ovigerous female measuring 3.5 mm and carrying ten ova, taken at M.T.L. in the sand at Karfas. The strongly pointed processes on the hind margins of the 6th and 7th epimeral plates (Fig. 1, a) of this species are similar to those of *E. dollfusi.* However, the broad, equally rounded telson, with its serrated hind margin lacking spines and lateral teeth (Norman 1906), at once distinguishes this species from all other European forms. This species seems to be extremely rare, this being only the third recorded occurrence, whilst the male is as yet unknown.

Distribution. The type specimen was described from the "Eastern North Atlantic" as the exact location was unknown (Norman, 1906). Since then it has been taken once in intertidal sand at Arguin, France (Salvat 1962).

Eurydice spinigera Hansen.

Eurydice spinigera, Hansen, 1890, p. 367, pl. V, fig. 4, pl. VI, fig. 1; Hansen 1905, p. 357; Tattersall, 1911, p. 204, fig. 37-41; Monod, 1930, p. 169, fig. 28, c; Torelli, 1932, p. 76; Bacesco, 1948, p. 110, fig. 1; Soika, 1955b, p. 51.

The largest and most abundant species of *Eurydice* present on Chios, with ovigerous females up to 7.0 mm in length and containing 25-30 ova.

Distribution. Sublittoral or ocasionally at L.W.S. on Atlantic shores

(Jones and Naylor 1967). Also recorded widely from the Mediterranean, Adriatic and Black Sea.

Eurydice inermis Hansen.

Eurydice inermis, Hansen, 1890, p. 366, pl. V, fig. 3, a-f; Hansen, 1905, p. 369, pl. 35, fig. 3, a-c; Tattersall, 1911, p. 209, fig. 56-61.

This species is similar to *E. rotundicauda,* except that the serrated margin of the telson is narrow and not equally rounded and the epimeral plates 6 and 7 bear only minute processes (Hansen 1890) which are distinct from the strongly developed processes seen in *E. rotundicauda* (Fig. 1, a). The peraeopods of *E. inermis* are densely covered with chromatophores, a feature also characteristic of *E. spinigera* (Wolff 1967), which enables these sublittoral species to be separated immediately from the intertidal species, in which chromatophores are restricted to the body.

Distribution. Recorded widely from the Atlantic and Mediterranean and also from the Straits of Messina (Torelli 1932). Bacesco (1948) reports its absence from the Black Sea, after careful searching.

Eurydice czerniavsky Bacesco (Fig. 1, d, f-1).

Eurydice czerniavsky, Bacesco 1948, p. 120, pl. 1, fig. 1-3.
Eurydice affinis, Hansen 1905; Monod, 1953, p. 277.

Identification. Present material agrees with that of Bacesco (1948) who gave a brief description and photographs of a new *Eurydice* discovered at Banyuls. He reserved for this form the specific name *czerniavsky,* but, until it was established as a good species, he proposed to call the form *Eurydice pontica-affinis,* as it appeared to be intermediate between *E. pontica* and *E. affinis* Hansen. Monod (1953) considered that this form was probably con-specific with *E. affinis* but stated that more material from the Mediterranean and Atlantic was required before finally deciding the question. Material from Chios included a large number of specimens identical with the form *E. pontica-affinis* and a comparison with *E. affinis* from the British Isles and *E. pontica* from the Aegean shows that the present material is sufficiently distinct for it to be established as *Eurydice czerniavsky* Bacesco (see below).

Description. *Eyes* large, distance between them (when viewed dorsally) not exceeding the length of the eye.

Antennulae.—Male: (Fig. 1, f). Third peduncular article thickened and less than the combined length of articles one and two, but greater than the length of the second peduncular article. First flagellar article elongate, but less than the combined length of the two distal peduncular articles and just longer than the combined length of the four distal articles of the flagellum. Female: (Fig. 1, h). Third peduncular article greater than the combined length of peduncular articles one and two. First flagellar article extremely elongate, greater than the length of the third peduncular article and twice as long as the combined length of flagellar articles two to four.

Antennae (Fig. 1, g, i), with basal article much shorter than the

combined length of the proximal articles, the penultimate article being greater than half the length of the fourth article and bearing a small group of spines on te outer border (5 in males, 7 in females).

Antennal flagellum with eighteen articles in the adult, reaching to the seventh peraeon segment in the female and to the second abdominal segment in the male.

Appendix masculina slender and straight, with large pointed terminal process (Fig. 1, d).

Epimera 1-5 with rounded posterior free borders, epimeron 7 (Fig. 1, j) not rounded but drawn out into a posterior triangular point with a rounded tip. Epimeron 6 less triangular in shape but again bearing a blunt point. Peraeopod 7 (Fig. 1, k) rather broad, with article 4 longer than broad and sub-equal to article 5, but longer than article 3; numerous setae present, especially on the outer margin.

Telson (Fig. 1, l) with hind margin slightly less than half its total breadth, armed with two pairs of moveable spines, each bearing a tiny lateral seta. Plumose setae present, varying in number and distribution from six to fourteen, according to the size and age of the specimen. Uropodal endopod, when directed parallel with the axis of the animal, reaches only to the hind margin of the telson.

Colour: black and brown chromatophores present on both dorsal and ventral surfaces of the body, but absent from the peraeopods.

Length: of adult male 3.5 mm; of adult female 5.5 mm.

Remarks. This species is very closely allied to both *E. pontica* and *E. affinis,* but these species still remain readily distinguishable. *E. pontica* is immediately recognisable by the characteristic rounded borders of epimera 6 and 7, the relatively slender peraeopod 7 which bears few setae and the serrated edge of the spine opposing the dactyl of each peraeopod (Bacesco 1948).

E. affinis may be separated from *E. czerniavsky* on the shape of epimera 6 and 7, which are rounded, with small posterior processes in the former species (Hansen 1905, Soika 1955b), and never approach the triangular condition seen in the latter species (Fig. 1, j). As has been seen, the uropoda of *E. czerniavsky* do not reach beyond the telson while those of *E. affinis* are considerably longer and extend for some way behind the posterior margin of the animal. A further distinctive character is that *E. affinis* lacks chromatophores from the ventral surface but has yellow chromatophores on the abdomen (Jones & Naylor 1967). Finally, the appendix masculina, in agreement with Hansen (1905), is characteristic for each of the three species (Fig. 1, c, d, e).

Apart from these major distinctions there are many minor features distinguishing the species, involving the relative length of peduncular and flagellar regions of antennules and antennae, size of eyes, and numbers and arrangement of plumose setae on the telson border. (Bacesco 1948, Hansen 1905). *E. czerniavsky* also appears to occupy a wider range of habitats than either *E. affinis* or *E. pontica,* as it was abundant both intertidally and sublittorally at Komi beach, Chios, down to a depth of 12 metres.

Distribution. Originally described by Bacesco (1948) from Banyuls.

Eurydice longispina, n. sp. (Fig. 2, a-f).

Description. Female 3.5 mm.

Eyes of medium size, distance between them (when viewed dorsally) just exceeding the length of the eye.

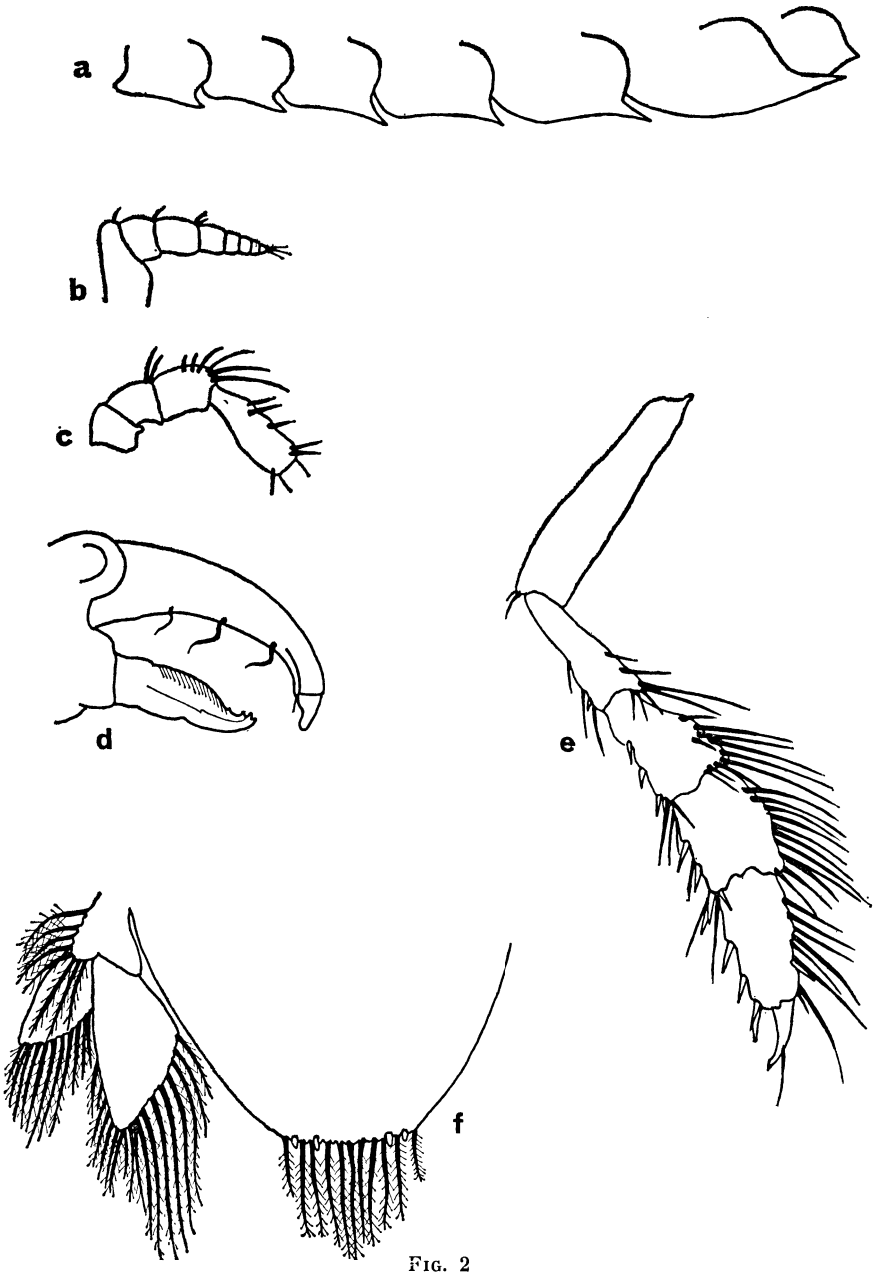

FIG. 2

Eurydice longispina sp. nov.

a. epimera 1-7; b. antennule, female; c. antennal peduncle, female; d. dactyl and terminal spine of propus of peraeopod 1-6; e. peraeopod 7; f. telson and uropod.

Antennulae (Fig. 2, b) short, tapering evenly to a point, without undue thickening of the peduncular articles. Third peduncular article largest, equal to the combined length of the flagellar articles 2-4, but only slightly longer than the second peduncular article. Flagellar article 1 at least twice as long as any other but shorter than peduncular article 3; terminal tuft of short setae on the flagellum.

Antenna (Fig. 2, c) peduncle with penultimate article about half as long as the terminal one and bearing six well developed setae on its outer margin. *Antennal* flagellum with fourteen segments in the adult female, reaching to the fourth peraeon segment.

Thoracic epimera with hind margins all drawn into well developed sharp-pointed processes (Fig. 2, a), that of each segment except the seventh being larger than the one in front, the sixth being very long.

Peraeopods 1 - 6 with terminal spine on the propus approximately two thirds of the length of the dactyl (Fig. 2, d), which therefore appears chelate. The spine on the propus is much reduced, never more than half the length of the dactyl in all other European species of *Eurydice.*

Peraeopod 7 broad and strongly built, with the fourth article longer than broad but just shorter than the fifth (Fig. 2, e). Spines on the anterior border of the peraeopod few, but strongly produced.

Telson with posterior margin slightly convex, one third of the total breadth (Fig. 2, f) and bearing two pairs of very small spines. Plumose setae on the telson border long and ranging from six, on juveniles to twelve, on adults. Uropods with exopods just reaching to the posterior border of the telson.

Colour: black and brown chromatophores on dorsal and ventral surfaces of the body, not on the peraeopods.

Remarks. Although there was no male present among the six specimens recorded here, the size and shape of the epimeral processes enable this species to be separated immediately from all other European *Eurydice* except *E. spinigera* (see Hansen 1890, 1905), with which it is closely related. *E. longispina* may, however, be distinguished on the details of the telson (Fig. 2, f), spines on the fifth article of the peraeopods, distribution of chromatophores and relative lengths of antennule and antenna articles. In addition, the terminal processes of epimera 1 to 6 of *E. longispina* are more strongly produced than those of *E. spinigera,* while peraeopod 7 is narrower and with longer spines on the anterior border than in the latter species.

Distribution. Six specimens, including two ovigerous females, were taken in shallow sublittoral sand samples at Karfas, Chios.

ECOLOGY

Environment.

Since at any one time, water, temperatures, salinities, and tidal range (15 cm) remain relatively constant around the coasts of Chios, the main variable on the three beaches relates to the range of exposure to wind and wave action. Shepard (1950) has shown that the beach

gradient varies according to wave steepness so that wherever large storm waves occur, the beach gradient will be flattest. A comparison of the profiles of the beaches studied (Fig. 3) shows that, in fact,

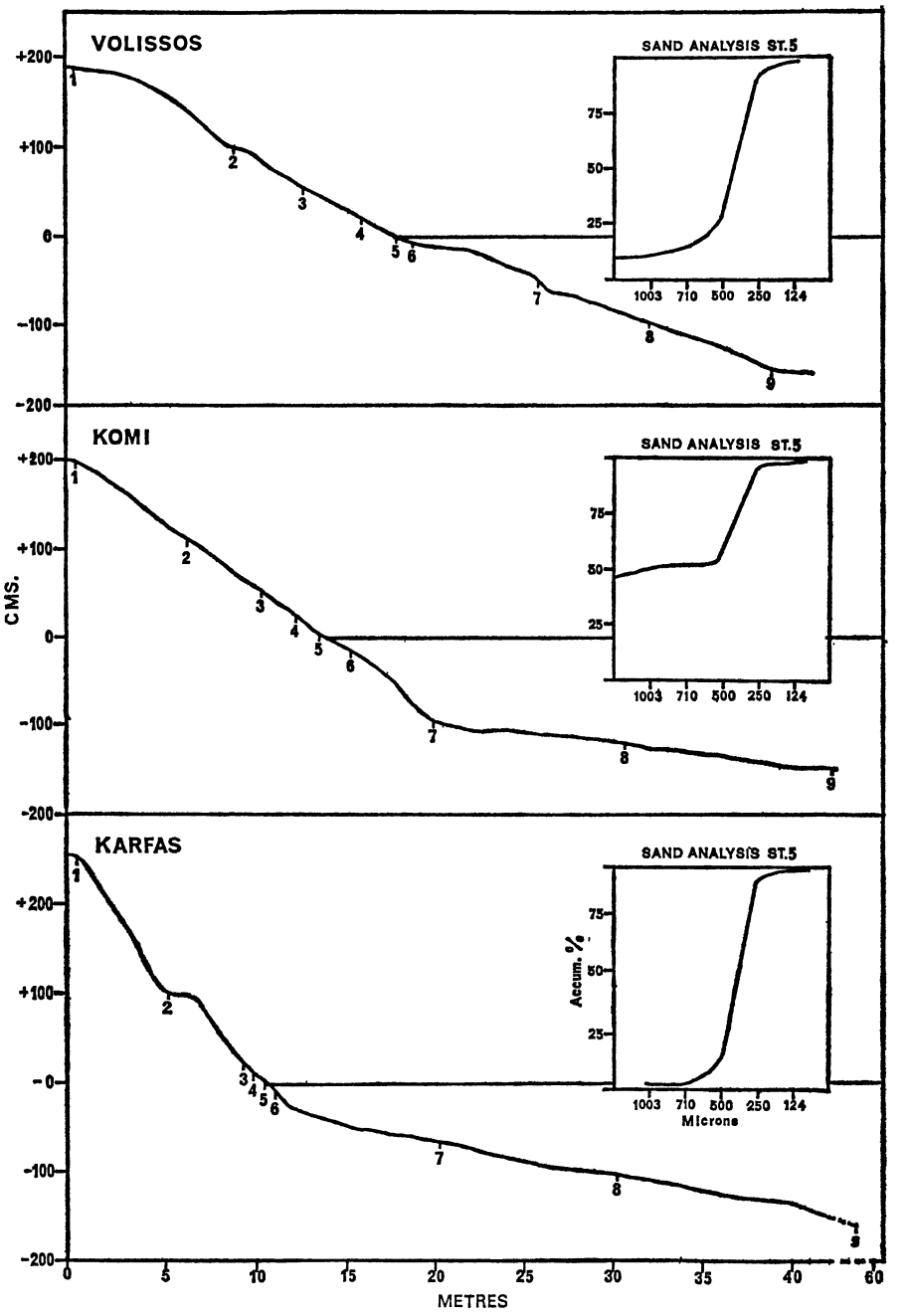

FIG. 3

Beach profiles and cumulative percentage curves for particle size at Station 5 (MTL) on each beach (semi-logarithmic plots).

Volissos has the shallowest gradient whereas the sheltered beach of Karfas is relatively steep. Furthermore, analysis of sand samples taken from M.T.L. on each beach (Fig. 3) supports the exposure scale applied to these beaches. The median particle diameters of the sand samples were .390 mm, 1.0 mm, and .470 mm, for Karfas, Komi and Volissos respectively, indicating increased wave action on the latter shores, as particle size related directly to the wave energy present (Trask and Johnson 1955, Trask 1956).

The fauna.

Although total numbers are few, the number of species inhabiting the intertidal and sublittoral sand (Tables 1 and 2) compares favou-

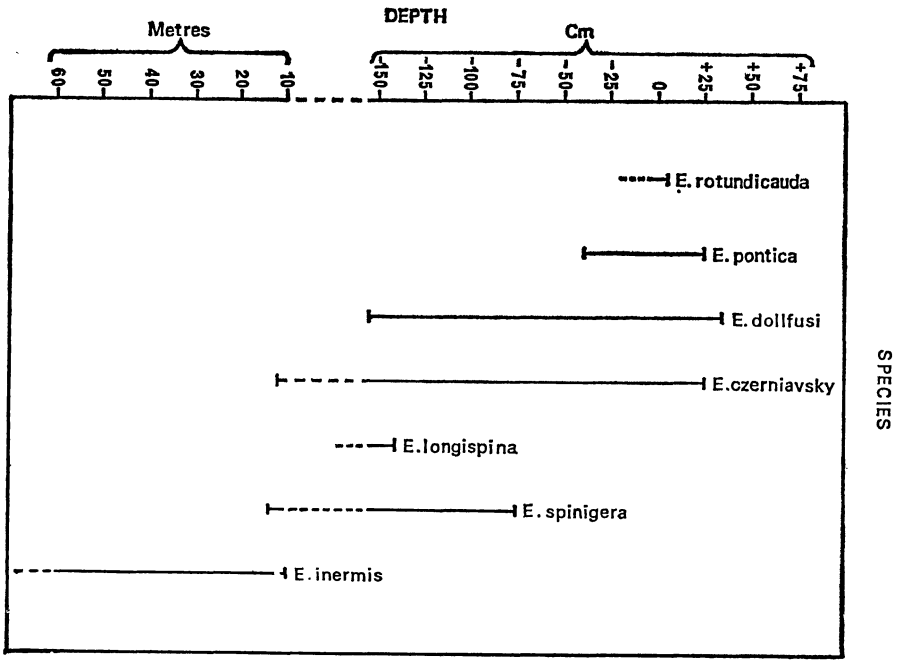

FIG. 4
Depth distribution of the species of *Eurydice* in the coastal waters of Chios.

rably with that recorded from similar environments in the Mediterranean (Soika 1955a). The characteristic sand beach annelids *Ophelia* and *Nerine* were present intertidally, whilst the amphipods *Bathyporeia* and *Pontocrates* were representative of the sublittoral fauna (Table 1). The genus *Eurydice*, however, formed the major part of the sand fauna both in abundance and in numbers of species. The distribution of the seven species of *Eurydice* found on Chios varied both from beach to beach, with noticeable differences between the exposed and sheltered shores (Table 1), and also according to the depth of water over which they were found (Table 2) and (Fig. 4). While *E. longispina* and *E. rotundicauda* were only found on the sheltered beach at Karfas, *E. pontica* and *E. czerniavsky* appeared to favour the more

TABLE 1.

LOCALITY	KARFAS									KOMI									VOLISSOS								
EXPOSURE	SHELTERED									SEMI-EXPOSED									EXPOSED								
STATION NUMBER	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
HEIGHT IN RELATION TO M.T.L. (CMS)	+250	+100	+ 20	+ 10	0	− 10	− 70	−100	−150	+200	+115	+ 50	+ 20	0	− 20	−100	−120	−150	+190	+100	+ 60	+ 20	0	− 10	− 50	−100	−150
Eurydice rotundicauda	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Eurydice longispina	—	—	—	—	—	—	—	—	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Eurydice czerniavsky	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	2	1	—	—	—	—	—	—	—	—	—
Eurydice pontica	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	2	1	—	—	—
Eurydice dollfusi	—	—	—	2	11	—	4	2	3	—	—	—	—	—	—	2	1	—	—	—	—	—	—	1	—	—	3
Eurydice spinigera	—	—	—	—	—	—	5	10	1	—	—	—	—	—	—	1	5	3	—	—	—	—	—	—	—	—	5
Ophelia radiata barbaqui	—	—	—	2	—	—	—	—	—	—	—	—	9	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Nerine bonnieri	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	—	—	—	—	—	—	—	—	4	—	—	—
Bathyporeia guilliamsoniana	—	—	—	—	—	—	4	18	30	—	—	—	—	—	9	18	30	50	—	—	—	—	—	2	—	—	3
Pontocrates arenarius	—	—	—	—	—	—	—	—	8	—	—	—	—	—	—	1	2	1	—	—	—	—	—	—	—	—	—
Urothoe grimaldii	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—
Gastrosaccus spinifer	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Jassa ocia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Corophium acherusicum	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

exposed shores. Moreover *E. rotundicauda, E. pontica, E. czerniavsky* and *E. dollfusi* appeared intertidally, while *E. longispina, E. spinigera* and *E. inermis* were restricted to the sublittoral (Fig. 4).

A summer breeding season similar to that already described for other members of the genus (Salvat 1966) is indicated for *Eurydice* in the Aegean, with ovigerous females of all the species occurring during August.

Net hauls taken along Komi beach and offshore during the day failed to reveal the presence of any *Eurydice* in the plankton. Similar hauls taken at night, however, contained large numbers of all the species previously taken in sand and dredge samples, indicating a nocturnal activity cycle similar to that described for other Mediterranean and Black Sea *Eurydice* (Bacesco 1948, Soika 1955a).

DISCUSSION

The vertical zonation shown for the seven species of *Eurydice* found on Chios (Fig. 4) appears to be in agreement with their distribution reported by other authors elsewhere. *E. pontica,* the most typical intertidal species, was found from 0 to -10 cm in sand on Chios and is also restricted to intertidal sand in the Black Sea (Bacesco 1948), although in the latter area it has also been taken at night in shallow waters (4-8 metres). The vertical distribution of *E. dollfusi*

TABLE 2.

	SAMPLING POSITION : Depths (M.) below M.T.L.					
	−4		−12		−60	
Species present	Surface plankton	Benthos	Surface plankton	Benthos	Surface plankton	Benthos
Eurydice rotundicauda	—	—	—	—	—	—
Eurydice longispina	—	—	—	—	—	—
Eurydice pontica	—	—	—	—	—	—
Eurydice dollfusi	1	—	—	—	—	—
Eurydice spinigera	33	10	8	1	—	—
Eurydice czerniavsky	28	3	3	1	—	—
Eurydice inermis	—	—	120	6	7	—

appears to be more extensive, this species having been taken both intertidally and in sand from 150 cm below M.T.L. on Chios and elsewhere throughout the Mediterranean (Soika 1955b). The last author also reports taking *E. dollfusi* 50 cm above M.T.L. at Vasto, in a locality of greater tidal range than at Chios. *E. czerniavsky,* although appearing intertidally on Chios, must be regarded as a predominately sublittoral species, it was taken from sand at 10 m depth and was attracted to a surface light over 12 m of water (Table 2).

The vertical distribution of *E. rotundicauda* is more difficult to

define. The type specimen was dredged on the Porcupine expedition 1869, but no details of depth or locality are given (Norman 1906). However, since this species has been taken on the beach at Arguin (Salvat 1962) and found breeding intertidally on Chios in the present investigation, it seems most likely that it is an inshore form.

The vertical ranges of *E. spinigera* and *E. inermis* are similar to those described for the same species in British waters (Jones & Naylor, 1967), where they occur below tidemarks. *E. spinigera* appears to be particularly abundant in the immediate sublittoral in the eastern Mediterranean, the large numbers taken in samples at Chios agreeing with those caught in the Black Sea by Bacesco (1948), who found this species to be the dominant animal in night plankton. The new species *E. longispina* also appears to be restricted to the sublittoral, but more information is required to determine the vertical distribution of this species.

As a result of ecological studies on a wide range of beaches throughout the Mediterranean, Soika (1955) proposed that the beach could be divided into three zones, supralittoral, mesolittoral and infralittoral, each characterised by a typical fauna. His mesolittoral (intertidal) zone, was subdivided into a superior mesolittoral zone characterised by the annelid *Ophelia,* and an inferior mesolittoral zone, characterised by the annelid *Nerine,* together with *Eurydice.* Whilst the distribution of these annelids on Chios (Table 1) was in agreement with the subdivision of the intertidal zone proposed by Soika, despite the much narrower tidal range, the genus *Eurydice* ranged from intertidal to offshore waters depending upon the depth distribution of individual species. It appears therefore that, whilst some animals may be good indicators of the specific zones of sandy beaches, it is difficult to use a genus such as *Eurydice* where several species may be present, each with its own distinct pattern of zonation.

Although the offshore species of *Eurydice* are fairly cosmopolitan and are present throughout most European seas, the intertidal species are more restricted in their geographical ranges (Jones & Naylor 1967; Soika 1955a). Many of the intertidal and immediate sublittoral species are restricted to relatively narrow vertical zones (Fig. 4) and to fairly specific grades of sand (Table 1), with some species favouring exposed beaches and others preferring sheltered conditions with fine sand. Despite their periodical swimming, such isolating factors seem to have permitted fairly extensive speciation in *Eurydice* and there are now fifteen known European species within the genus. Present results conform with the views of Soika (1955b), who has suggested that the colonisation of the Mediterranean region by the genus *Eurydice* began with the sublittoral form *E. spinigera* and the two intertidal species *E. dollfusi* and *E. affinis,* all from the Atlantic. The sublittoral species *E. spinigera* maintains its identity throughout the Mediterranean, Adriatic, Aegean and Black Seas, and its lack of speciation, except into *E. longispina* in the Aegean, is probably related to the uniformity of its benthic habitat. Another offshore Atlantic species, *E. inermis,* is also widespread in the Mediterranean, Atlantic and Aegean. In contrast, the intertidal species *E. dollfusi* and *E. affinis,* have undergone extensive speciation in these areas. Thus, *E. dollfusi* from the Mediterranean and Aegean is closely related to *E. dollfusi-*

maris-nigri and *E. valkanovi* from the Black Sea and, as has been seen, there are also some differences between Aegean *E. dollfusi* and the same species in the Mediterranean proper. Similarly, *E. affinis,* which extends as far as the Adriatic, is closely related to *E. czerniavsky* in the Aegean, a form intermediate between Mediterranean *E. affinis* and Black Sea *E. pontica.*

Acknowledgements

I am grateful to Dr. E. Naylor for his helpful advice, to Professor E.W. Knight-Jones for the provision of laboratory facilities and to the N.E.R.C. for financial support. My thanks are also due to the Chios Committee who provided generous support for the expedition.

Summary

Collections from sand beaches and coastal waters of Chios included seven species of *Eurydice,* of which *E. longispina* is new to science. A full description of *E. czerniavsky* is also given, with brief descriptive notes of other little known species and discussions of their systematic positions.

Qualitative sampling revealed that *E. czerniavsky* and *E. pontica* were restricted to exposed beaches, whilst *E. longispina* and *E. rotundicauda* favoured a more sheltered shore. The genus extended from the intertidal zone to offshore waters with individual species showing characteristically limited ranges according to the depth of water over which they were found, *E. pontica* being limited to the water's edge, *E. dollfusi* extending to depths of 1 or 2 m, *E. spinigera* from about 1 to 10 m and *E. inermis* over 10 m. The ecology and geographical distribution of these species is discussed in relation to the work of other authors in the Mediterranean and Black Sea.

Zusammenfassung

Die Gattung *Eurydice* (Crustacea Isopoda) in Aegeansee mit *E. longispina* sp. nov.

Die Sammlungen aus Küstenwässer und Sandstrande bei Chios schlossen sieben *Eurydice* Spezies ein, denen *E. longispina* wissenschaftlich ganz neu ist. Eine volle Beschreibung des *E. czerniavsky* wird auch gegeben, zusammen mit kurzen, schildernden Bemerkungen über andere wenigbekannte Spezies und mit Erörterungen ihrer systematischen Stellungen.

Qualitatives Probenehmen zeigte dass *E. czerniavsky* und *E. pontica* an blossgelegten Strande beschrankt waren, während *E. longispina* und *E. rotundicauda* zogen beschutztere Seeufer vor. Die Gattung erstreckte sich von der Zone zwischen den Ebben und Fluten bis in den vom Seeufer entfernten Wasser. Individuelle Spezies zeigten charakteristisch begrenzte Bereiche, je nach der Tiefe des Wassers worüber sie sich befanden. *E. pontica* ist am Wasserand eingeschrankt, *E. dollfusi* erstreckt sich bis in den Tiefen von 1 oder 2 m, *E. spinigera* erstreckt sich von ungefähr 1 bis 10 m, und *E. inermis* über 10 m. Die Ökologie und geographische Verteilung dieser Spezies werden in Verhältnis zur Arbeit andere autoren, uber die Mittelmeer- und Schwarzmeer-Gebiete, diskutiert.

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