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OCCURRENCE OF *Excirolana mayana* (ISOPODA: CIROLANIDAE) IN A SANDY MID- LITTORAL BEACH OF PUNTA PAITILLA, PACIFIC COAST OF PANAMA

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Abstract. Quantitative sediment samples collected on the Pacific coast of Panama, at Punta Paitilla during the 1991-1992 rainy and dry seasons in the sandy mid-littoral zone were characterized by a dominant population of *Excirolana mayana*. The *E. mayana* population was characterized by the following mean values: abundance, 169 org./m^2; total length, 3.7 mm; and wet weight, 410 mg. The occurrence of a significant population of *E. mayana* on the eastern pacific entrance of the Panama Canal is reported for the first time. This dominant population of *E. mayana* may serve for trans-oceanic comparative studies. The protection of this population in areas of continuous urban development is needed. *Received*: 17 July 2000, *accepted*: 09 November 2000.

Key words: *Excirolana mayana*, Isopoda, Cirolanidae, Eastern Pacific, Caribbean, Panama.

OCURRENCIA DE *Excirolana mayana* (ISOPODA: CIROLANIDAE) EN EL MESOLITORAL ARENOSO EN UNA PLAYA DE PUNTA PAITILLA, PACÍFICO DE PANAMÁ

Resumen. Se colectaron muestras cuantitativas de sedimento arenoso en la costa Pacífica de Panamá en el área de Punta Paitilla durante las estaciones seca y lluviosa de 1991-1992. Se determinó la predominan-

cia de una población de *Excirolana mayana*, la cual presentó los siguientes valores promedios: abundancia, 169 org./m^2, longitud promedio, 3,7 mm y peso húmedo 410 mg. Se reporta la ocurrencia de una población significante de *E. mayana* en la entrada del lado del Pacífico del Canal de Panamá por primera vez, partiendo de que es una especie predominante en el Caribe. A pesar de que el hábitat en donde se encontró esta población ha sido removido por el efecto antropogénico por la construcción de rellenos en Punta Paitilla, la posible presencia de *E. mayana* en áreas adyacentes podría utilizarse para futuros estudios transoceánicos. Es importante proteger la población de *E. mayana* en áreas de continuo desarrollo urbano. *Recibido*: 17 Julio 2000, *aceptado*: 09 Noviembre 2000.

Palabras clave: *Excirolana mayana*, Isopoda, Cirolanidae, Pacífico oriental, Caribe, Panamá.

INTRODUCTION

The isopod *Excirolana mayana* (Ives 1891) occurs in the Caribbean from Florida to Venezuela, but it was reported recently in the Pacific, from the Gulf of California to Colombia (Brusca *et al.* 1995). On the West Coast (Pacific entrance) of the Panama Canal, Brusca *et al.* (1995) first reported *E. mayana* at Playa Farfan and Uva Island, in the Gulf of Chiriquí. The objective of this study is to record, for the first time, evidence of a significant population of *E. mayana* in the Eastern Pacific side of the Panama Canal, at Punta Paitilla and to present data of ecological interest.

MATERIALS AND METHODS

We studied a sandy beach at Punta Paitilla, between the Club Unión and Playita de Boca La Caja, Panama Bay (Fig. 1). In October-November 1991 (rainy season) and February-March 1992 (dry season), 72 samples were collected in a 4.5 m^2 area using a 0.25 m^2 wooden quadrant and a 1.00 mm sieve according to Holme and McIntyre (1984). Three consecutive samplings were conducted once every 15 days, during periods of low tide with the moon in three (high, medium, and low) phases. Sampling consisted of four con-

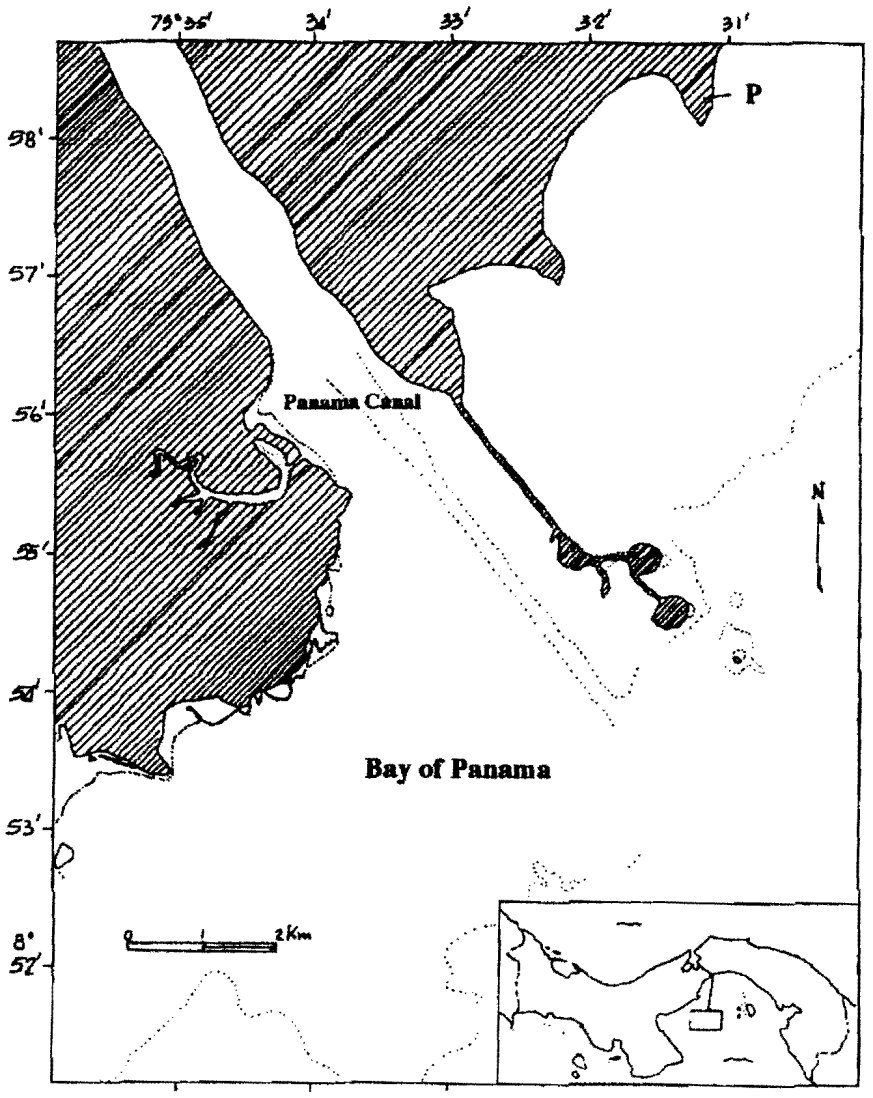

FIGURE 1. Sampling location, with inset of Panama country map: "P" indicates study site at Punta Paitilla.

tiguous repetitions within a vertical stretch of the beach. We measured abundance and total length of individuals and wet mass of the population. Data were analyzed with a three-way ANOVA test ($P \leq 0.05$) (Sokal and Rohlf 1981).

RESULTS AND DISCUSSION

Excirilana mayana (n = 572) population was characterized by the following mean values: abundance = 169 org./m^2 (59-933 ind./m^2), total length = 3.7 mm (1.6-8.3 mm) and wet mass = 410 mg (22-720 mg). According to Jaramillo (Community ecology of Chilean sandy beaches. Diss. Abs. Int., 48(7): 1880-B Abstract 1988), abundance of isopods in the different beach zones could be regulated indirectly by characteristics of the substratum. In addition, these differences may be caused by the geographical location of the studied area. Oceanographic conditions are different on both sides of the Gulf of Panama (Bennett 1965, Forsbergh 1969, D'Croz *et al.* 1991).

Excirolana mayana occupies the general habitat of *Excirolana braziliensis* (Brusca *et al.* 1995) the dominant isopod of sandy beaches in the Pacific (Dexter 1974, 1976, 1977 y 1979; Glynn *et al.* 1975). It is noteworthy that *E. mayana* was dominant in the Paitilla area over *Ancinus panamensis* (Glynn and Glynn 1974) and *Exosphaeroma* sp. (sensu Brusca and Iverson 1985) found at medium and low levels. This patterns may be due to the depredatory characteristics of this species versus the detritivorous Sphaeromatid isopods (Brusca and Iverson 1985) present in the area. *Excirolana mayana* represents nearly the entire biomass found in the high zone of the beach, an area with thick, sandy sediment (1.00 mm). We found no significant seasonal differences in abundance, mass and total length.

According to Brusca *et al.* (1995), this species is not only one of the most voracious of its kind, attacking both people and fish, but is also the largest of all isopods in the Eastern Pacific, reaching a maximum size of 15 mm. In Panama, *E. mayana* is also the largest isopods found in the sandy mid-littoral zone of the Pacific.

Unfortunately, the beach where we found the isopod population was recently destroyed due to land reclamation for construction. We suggest further research in other areas of Punta Paitilla where *E. mayana* may still exist for comparison with other populations (e.g. in the Caribbean).

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