

The geographical distribution of *Pleurodiscus erdeli* (Pulmonata, Pleurodiscidae)

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The Pleurodiscidae contain a single genus, *Pleurodiscus* Wenz, 1919. During the Upper Oligocene and the Upper Miocene its range included Central Europe: *P. falciferus* and *P. frici* are known from Bohemia (Zilch, 1969). Its recent distribution is limited to a number of regions along the Mediterranean coast which are now isolated one from another. Each of these regions is inhabited by its own species (fig. 1): *P. balmei* (Potiez & Michaud, 1838) in Sardinia, Sicily, Malta, and Algeria (Zilch, 1969; Kobelt, 1904; Forcart, 1965); *P. klemmi* Brandt, 1958, in Lybia (Brandt, 1958); *P. sudensis* (Pfeiffer, 1846) in Crete and Cyprus (Zilch, 1969); *P. erdeli* (Roth, 1839) in Turkey, Syria, the Lebanon, and Israel (Fuchs & Käufel, 1936; Boettger, 1957).

Pleurodiscus lives in close contact with the soil, especially in niches sheltered from sunlight. Kobelt (1904) records the snail from rock crevices; Boettger (1957) observed it retreating into caves and under stones when the weather was dry. In Israel the animal is likewise found under stones as noted by Barash & Danin (1966) and by the present author. The snails are rather rare and generally found as single individuals.

In this paper an attempt is made to summarize the known localities of *P. erdeli* in order to obtain a more detailed distribution map. In the list of localities material from the Hebrew University in Jerusalem is marked HUI, and material in the author's collection as ZB. Fig. 2 shows

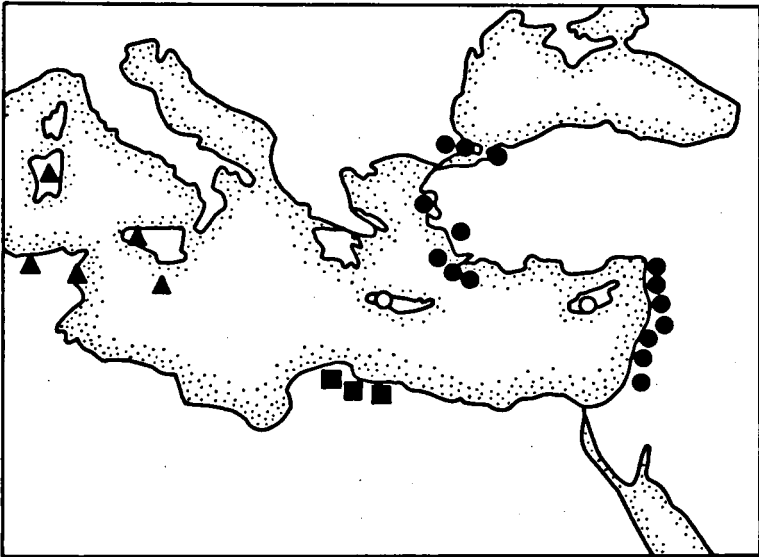


Fig. 1. Distribution of the species of the genus *Pleurodiscus*. From W to E: *P. balmei* (Pot. & Mich.) (triangles), *P. klemmi* Brandt (squares), *P. sudensis* (Pfr.) (circles), *P. erdeli* (Roth) (dots).

the known localities in Israel plotted on the soil association map by Dan et al. (1972) with the 500 mm isohyet which seems to limit the range of the species.

LOCALITIES

AEGEAN ISLES. Rhodos (Roth, 1855: 25, type locality); Kalymnos: Umgebung von Pothea, Mytilini, Kappari, Nisiros (Fuchs & Käufel, 1936: 558-559).

EUROPEAN TURKEY. Vilayet Istanbul: Istanbul (Wagner, 1937: 1046; 1938: 772); Vilayet Tekirdag: Tekirdag (Wagner, 1934: 334); Thracien (Jaekel et al., 1957: 148).

NW-COAST of ANATOLIA. Vilayet Istanbul: Beykoz (Bourguignat, 1855: 111); Arnavutköyu (Mousson, 1863: 277); Üsküdar (Wagner, 1934: 334); Büyük Ada (Retowski, 1888: 234).

W-COAST OF ANATOLIA. Vilayet Izmir: Ephesos (P. Reischütz leg., VIII.1972, ZB 238; Forcart, 1961: 176).

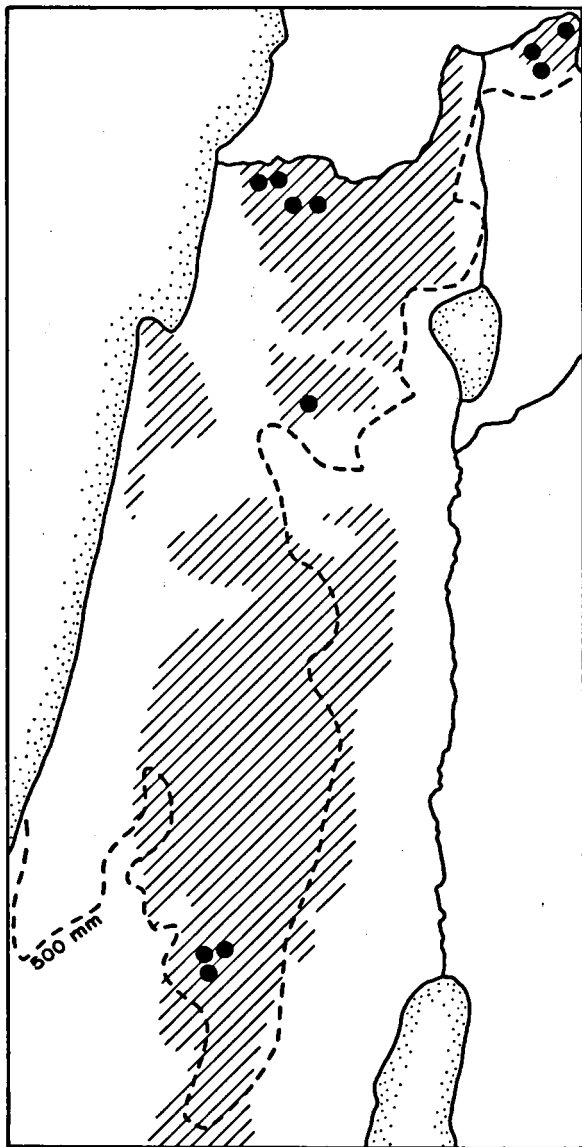


Fig. 2. Distribution of *Pleurodiscus erdeli* (Roth) in Israel (dots). The 500 mm isohyet is indicated by a broken line; "terra rossa" soils are shaded.

S-COAST OF ANATOLIA. Vilayet Hatay: Höhle ohne Namen bei Aatik im Amanus-Gebirge in 900 m Höhe; Kemikli magara ("Knochenhöhle") bei Aatik im Amanus-Gebirge; Höhle ohne Namen unterhalb des Dorfes Bityas am Musa Dag am Südende des Amanus-Gebirge; Höhle von Harbiye bei Daphne nahe Antakya (Boettger, 1957: 75); Höhle bei Narlidja nahe Antakya; Zitadellenhöhle oberhalb Antakya (Boettger, 1957: 76); Genist des Orontes bei Antiochia (Hesse, 1927: 176); Alexandretta (Pallary, 1939: 11).

LEBANON. Gebail, Tripoli, Bkerké (Pallary, 1939: 11); Beyruth (Blanckenhorn, 1889: 82; Hesse, 1927: 176).

HERMON. Ein Qunia near Sa'ar bridge, NW slope at 900 m alt., limestone, leg. Z. Bar & E. Nevo, 5.V.1971 (ZB 452); Road to Djebbel Ros junction with path to Ibrahim el-Khalil, 1200 m alt. W. slope, limestone with terra rossa, leg. Z. Bar, 25.IX.1971 (ZB 142); Mt. Hermon Raqevl Base, 1650 m alt. in crevices of Jurassic limestone, leg. Z. Bar, 18.VI.1973 (ZB 510).

UPPER GALILEE. Khirbet Zemakh, Wadi Karkara, leg. G. Haas, XII.1939 (HUI); Elon, leg. G. Haas, 28.III.1944 & 3.IV.1944 (HUI); Elon, 31.X.1950 (HUI); Elon, Wadi Karkara, leg. Z. Bar, 29.XII.1968 (ZB 162); Wadi Namer, entrance to pumping station, leg. Y. Yaron, 8.XI.1969 (ZB 144); Wadi Namer, near road junction to Adamit, leg. Z. Bar, 29.XII.1968 (ZB 154); Mi'iliya on limestone with terra rossa, under stones, leg. E. Nevo, U. Ritte, H. Sandler, and Z. Bar, 13.I.1971 (ZB 141); New Peki'in, leg. P.S. Zuriel, 12.XII.1970 (ZB 143).

LOWER GALILEE. Surroundings of Nazareth (Roth, 1855: 25; Mousson, 1861: 7).

JUDEAN HILLS. Ein Makhtush near Ein Rafa W. Jerusalem, leg. Z. Bar, 16.IV.1970 (ZB 155); Ein Rafa (HUI); Qiryat Anavim (HUI); Aqua Bella, 31.III.1943 (HUI); Environs de Jerusalem (Mousson, 1861: 7; Tristram, 1865: 532); Nataf, 10.V.1969 (HUI).

Pleurodiscus erdeli seems to occur as single and rather sparsely distributed individuals, hiding during the daytime and aestivating close to the soil in limestone crevices and under stones during the long summer. It could, therefore, often be overlooked by occasional collectors and this may well be the reason why the geographical distribution appears to be discontinuous. Nevertheless, the range of this species is probably continuous from European Turkey along the coastal regions of Anatolia, Syria and the Lebanon to Israel. The habitat is in general terms characterized by limestone hills and mountains at moderate to high altitudes (in Israel from about 300 to 1650 m); the climate is typically Mediterranean with a comparatively short rainy season and three to four completely rainless summer months; temperatures are compara-

tively high in this country (the annual average in the hills is 17°C) but vary considerably from place to place according to altitude, exposure to marine influence, predominant wind directions, etc. (Orni & Efrat, 1966). The slopes on which the snails are found point to the prevailing direction of wind and rain (N.-W. in Israel) and all localities are situated on "terra rossa" soil, typical of limestone and dolomite surfaces in Mediterranean climatic conditions of at least 500 mm average annual rainfall. The 500 mm isohyet seems, indeed, to limit the range of the species. The main molluscan associates of *Pleurodiscus erdeli* in Israel are *Pomatias olivieri* Sowerby, 1846 (Bar, 1974a), *Levantina spiriplana caesareana* (Mousson, 1854), the genus *Cristataria* Vest, 1867 (Bar, 1974), *Sphincterochila cariosa* (Olivier, 1804) (Bar, in prep.), *Jamina* (*Euchondrus*) *ledereri* (Pfeiffer, 1868) (Bar, 1973) and *J.(E.) borealis* (Mousson, 1874), *Buliminus* (*B.*) *labrosus* (Olivier, 1804) and *B. (Pene) sidoniensis* (Mousson, 1874) (Heller, 1972), and *Paramastus episoma* (Bourguignat, 1857) (Heller, 1971).

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