THE STUDY AREA

The study area is a part of south-west Sinai (Fig.1) embodying a number of habitats and vegetation types. For the purpose of the present study, the area is divided into four sectors, viz.

1- The coastal plain sector.

2- Ayoun Musa sector.

3- Wadi Sudr sector.

4- El-Heitan sector.

1- The coastal plain sector :

The coastal plain extends along the Gulf of Suez from Suez up to Ras-Mohamed. This is bounded by the Gulf and Red Sea from the west and the plateaus or mountains from the east.

The coastal plain may be divided into the littoral salt marsh and the inland (salt non-affected) plain.

a) The littoral salt marsh :

This part of the coastal plain is affected by the saline water of the Gulf of Suez. This effect may be through (a) inundation during high tides, (b) lateral seepage of water underground and (c) sea spray. Other ecological factors include the depth and texture of the soil and relief.

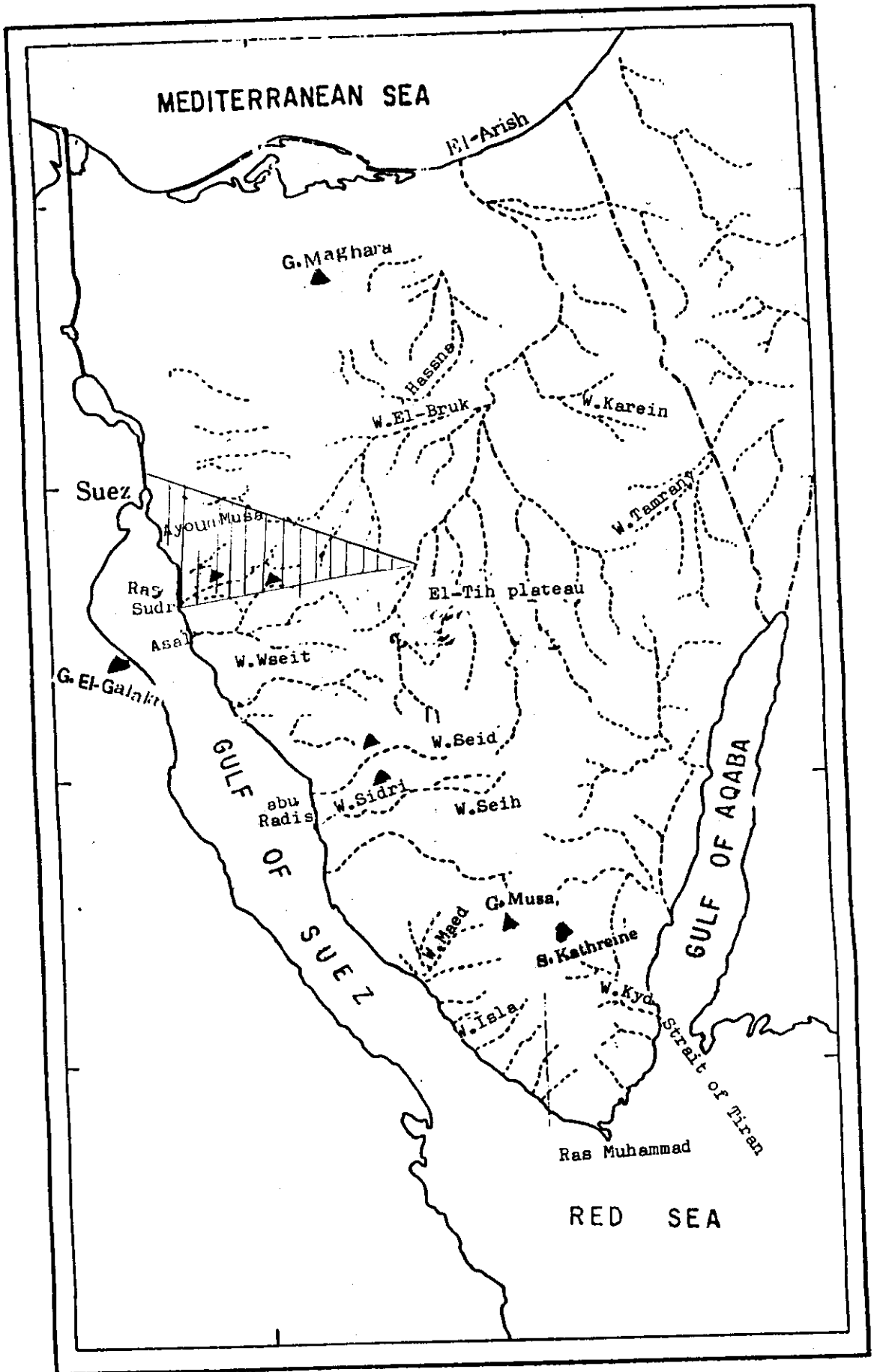

Fig. (1): Location map showing study area.

b) Inland coastal plain :

The inland coastal plain lies to the east and at a higher level than the littoral salt marsh. This plain is dissected by the downstream and deltaic parts of the principal wadis pouring into the Gulf of Suez. The soil in the inland plain is sandy and may be covered with gravel and little stone in some parts. Localized low sand dunes are occasionally encountered. The water table is relatively deep and the soil is non-saline.

2- Ayoun Musa sector :

Ayoun Musa is a settelment in a depression of the coastal plain at about 24 km south of Suez. In that part, the coastal plain is very broad. There is a series of 12 wells arranged in one straight line parallel to the Gulf of Suez and at about 4 km from it. Some of the wells are mere shallow ponds while others are deep and lined with masonry **(Migahid et al., 1959).**

Accordingly, the following habitat types are encountered at Ayoun Musa :

a) Swamps :

The flow of springs water is associated with Swampy conditions. Around some of the springs there are pools of clear, but brackish water. Some of the springs are only slightly brackish, while others are slightly saline.

b) Salt marshes :

As a result of intense evaporation, Swamps are gradually transformed to salines or salt marshes. At first the level of underground water is shallow, thus forming wet salt marshes. Some of these wet salt marshes are subjected to aeolian sand deposition and are gradually converted to dry salt marshes.

3- Wadi Sudr sector :

Wadi Sudr extends for about 60 km, with a width varying in different segments, ranging from few meters to some tens of meters, covering about 780 sq.m.

The headwaters of Wadi Sudr start at the foot-slopes of Somar El-Raha massifs at elevations ranging from 700 m. to some 870 m above sea level. These massifs constitute a portion of the water divide separating the western basins (Gulf of Suez drainage basins) from the northern ones (Mediterranean sea basins). These headwaters erode their courses in persistent fractured limestone and chalk (upper Cretaceous), so narrow, meandered, and steep walled channels were originated **(Hasanein, 1989)**.

Two principal tributaries of Wadi Sudr join together to form the main trunk of the Wadi. One of these tributaries trends in the northwest direction upstream from Sudr spring (Ain Sudr), while the other extends in

the northeast direction and is locally called Wadi Tisar EL-Malih.

Downstream from the connection, Wadi Sudr main trunk stretches in a zigzag course towards south-west, north-south and finally to south-west. Through this stretch, the Wadi becomes narrow, impassable, almost with exposed bedrock.

Along its course, Wadi Sudr receives numerous small northeast tributaries draining the southern steep cliff of Gebel EL-Raha. In additon, long north-northwest and east-west cahannels join its master stream. These channels drain the foot-slopes of Gebels Umm Hamth (+ 830 m.) and Sinn Bishr (+ 618 m.). Westwards from the dissected tableland, Wadi Sudr cuts into the low hills of the Miocene shales, marls and evaporites, so its channel becomes wide and flat. Further westwards, the Wadi debouches into the Gulf of Suez where a wide east-west delta of about 120 sq.km is developed. This delta is covered by a thick veneer of loamy deposits which are locally cultivated by olive trees and vegetables. At the extreme western margin, Wadi Sudr delta is developed into salt marshes and salty flats occasionally with thin indurated salt crust, **Hasanein (1989).**

4- El-Heitan sector :

This is an extension of about 65 sq. km. The eastern portion is a stretch of about 45 sq. km oriented in east-west direction and cutting across a series of rocky ridges and mountains. The western stretch up to El-Shatt is predominated by sand dunes and sandy plains. Throughout this extension, the following habitats were recognized.

a- Shallow water courses : these cut across the mountains and ridges and are covered with alluvial and aeolian deposits.

b- Main affluent wadis : These are much more developed than the shallow water courses. They have deeper soils and more water resources. The wadis are bounded in certain portions by rocky hills.

CLIMATE

The general features of the climate of the study area may be approximated from the average of 8 years records (1976-1983) at Ras Sudr station and obtained from the Egyptian Meteorological Department (Tables 1 and 2) and illustrated in Fig. (2).

The monthly mean temperature ranges between 13.24°C (January) and 28.35°C (July). Thus January is coolest month, while July is the hottest one. It is clear from table (1) that temperature increases gradually from 14.9°C (February) to 28.35°C (July) and decreases again from 28.1°C (August) to 13.24°C (January).

The relative humidity attains a maximum average of 62.37% in October and a minimum of 52% in May. The data presented in table (1) reveal that the relative humidity fluctuates during different seasons. February, April, May and June attain relatively low values, while September, October and November have relatively high values. Generally, the evaporation is greater during summer than in winter. It varies from 7.13 mm/day in November to 16.5 mm/day in July.

Egypt including the study area is characterized by one rainy season. Most of the rain falls during the period