6- SUMMARY

El - Qaa plain (in the western part of south Sinai) extends from Wadi Feiran at the North to Ras Mohamed at the South, and boardering by the Gulf of Suez at the west and by the plateau at the east. The studied area has been sh in the sentral part of El- Qaa plain.

Aerial photointerpretation techniques have been used in studying and classifying the soils of studied area. Four main geomorphological units were recognized, they are :

1- Coastal plain (C): Low ripple sand dunes and marine foreshore plain.

2- El-Qaa plain (P): This main land type consists of five submain land type ;

(P_1): Upper slope, moderately dissected, gently sloping, stony and gravelly surfaces.

(P_2): Lower slopes, slightly dissected, almost level, sand sheet cover on the surface.

(P_3): Wadi bottom.

(P_3): Ridges

(P_5): Rock outcrops.

3- Fans and outwash plain (G): This main land type was divided into :

(G_1): Moderately dissected, deposits derived from igneous and metamorphic materials.

(G_{11}): Alluvial fans.

(G_{12}): Alluvial coalescing fans.

(G_2): Strongly dissected, deposits derived from sedimentary materials.

(G_{21}): Alluvial fans.

(G_{22}): Alluvial coalescing fans.

(G_2):; Outwash plain.

(G_{31}): Moderately dissected, gently sloping to sloping.

(G_{32}): Strongly dissected, sloping, with rock out crops.

4- The Miscellaneous land: This mainland type is divided into :

(M_1): Moderately dissected, igneous and metamorphic rocks, relatively high hills with elongated valleys.

(M_2): Strongly dissected, sedimentary rocks, elongated relatively low hills.

(m_{21}) Straight steep to moderately steep slope.

(M_{22}) Concave slope.

Twenty four soil profiles were taken to represent the soils of the different geomorphological units.

Field and laboratory investigation reveal the presence of two soil orders, namely Entisols, and Aaridisols. Two sub-groups of the Entisols, and one sub-group of Aridisols were identified in the studied area. The Entisols include Typic Torriorthents, Calcic Torriorthents and Lithic Torriorthents, while the Aridisols have Typic Calciorthids, only.

The sub-group Typic Torriorthents of Entisols, contains five families and six soil series.

The five families are :

1- Sandy skeletal, mixed, phyperthermic, calcareous.

2- Sandy skeletal over sandy, mixed, hyperthermic, calcareous.

3- Sandy sover sandy skeletal, mixed, hyperthermic, calcareous.

4- Coarse loamy over sandy, mixed, hyperthermic , calcareous.

5- Coarse loamy skeletal over sandy skeletal, hyperthermic, calcareous.

The sub-group Calcic Torriorthents contains one family and one series.

1- Coarse loamy, mixed, hyperthermic.

The six series of the sub-agroup Typic Torriorthents are:

1- Abu- Saweira sandy:

Undulating gently sloping, moderately to deep profiles soils of plains and alluvial fans, sandy over loamy sand, the rest of the profile is sandy skeletal.

2- Safariat gravelly sand :

Gently undulating, gently sloping, deep profile, alluvial fans, gravelly sand over sandy skeletal

3- Wadi Araba gravelly sand :

Gently undulating, gently sloping, Wadi bottom, deep profile, loamy sand over sandy skeletaly structureless , massive; calcareous.

4- Wadi Mahash sandy :

Almost flat, gently sloping, Wadi bottom, deep profiles, gravelly loamy sand massive over sandy skeletal , calcareous.

5- Isla sandy loam :

Undulating to gently undulating; sloping to moderately steep; they are of concave slope of plateau with deep profile, loamy sand structureless massive over sand to the depth of 70 cm then gravelly layer.

6- Qurein sandy loam :

Almost flat to gently undulating, sloping, soils of convex ridges and slightly dissected slope of El-Qaa plain, deep profile, sandy clay loam to loamy sand structureless over gravelly loamy sand structureless massive.

The series of the sub-group Calcic Torriorthents is :

1- Hemma sandy clay loam :

Gently undulating, gently sloping, Wadi bottoms ; moderately deep profile, sandy clay loam structureless massive, over clay loam to sandy clay loam structureless massive, extremely hard and then, there is a gravelly layer after 70 cm depth.

The sub-group of Lithic Torriorthents contains one series which is :

Gently undulating, sloping; alluvial fans, shallow profile (Lithic contact), gravelly loamy sand structureless massive, over gravelly and stony layer (fragmental).

On the other hand, the sub-group Typic Calciorthids of the order: Aridisols, contains nine different families and ten series; the families are :

1- Clayey, carbonatic, hyperthermic.

2- Coarse laomy, over sandy, mixed, hyperthermic.

3- Coarse loamy, mixed, hyperthermic.

4- Sandy, siliceous, hyperthermic.

5- Sandy skeletal over fragmental, hyperthermic.

6- Sandy skeletal over sandy, siliceous, hyperthermic.

7- Sandy skeletal, siliceous, hyperthermic

8- Sandy over coarse loamy, siliceous, hyperthermic.

9- Sandy over clayey, mixed, hyperthermic.

The 10 different series are :

1- Wadi El-Aawag silty clay :

Gently undulating to rolling, gently sloping, deep profile of alluvial fans and moderately dissected slope of El- Qaa plain, silty clay, strong medium angular and sub-angular blocky, hard.

2- Ras Gara sandy loam :

Almost flat, gently sloping, deep profiles of coastal plain, sandy loam, massive.

3- Wadi Hibran sandy loam:

Undulating, gently sloping to sloping, many coarse gravel on the surface, deep profile of outwash plain, sandy loam , single grains, loose.

4- Qabeliat sandy loam :

Gently undulating to undulating, sloping to moderately steep, moderate fine to coarse gravel on the surface, deep profile of strongly dissected of outwash plain with rock out crops, **loamy sand, structureless**, massive, hard, over sand to the depth of 70 cm, and gravelly layer from 70- 120 cm.

5- Hammam Musa sandy :

Undulating, sloping to moderately steep, deep profile of pediment plain, alluvial fans, and moderately dissected slope of El- Qaa plain, sand to loamy sand , structureless.

6- Naqus gravelly sand :

Undulating, gently sloping, many gravel, stones and boulders on the soil surface, deep profile of pediment plain, gravelly loamy sand, over sandy skeletal.

7- Umm - Gadar loamy sand :

It almost flat, gently sloping, deep profile of alluvial fans; almost of the soil profiles is gravelly loamy sand to loamy sand, structureless, massive.

8- Abu- Garf sandy :

It almost flat, gently sloping, deep profile of Wadi bottom, loamy sand, structurelss, massive over gravelly loamy sand structureless, massive gravelly layer after 100 cm depth.

9- Wigran sandy :

It almost flat to gently undulating, deep profile of slightly dissected of El- Qaa plain and Wadi bottom, sandy, single grains, loose, over loamy sand, structure-less, massive.

10- Ras Raya sandy loam :

It almost flat, gently sloping,deep profile of coastal plain soils, sandy loam structureless massive, over sandy to loamy sand over silty clay loam.