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PEDOLOGICAL FEATURES AND LAND EVALUATION OF WADI EL-LAQITA , QINA GOVERNORATE-EGYPT.

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ABSTRACT

The instantaneous study on the soils which is located at an important part of the Eastern desert south of Qena and east of Luxor, This area was selected to represent the sediments in the Eastern desert of Egypt as a promising area for agriculture land use. The study area covered about 89500 feddens with an average 373.7 Km^2. The main objectives of this study are to identify the landscapes and their soil attributes in an area that has important situation for the environmental and demographic development in Egypt using remote sensing techniques, and to establish physiographic soil map by the visual interpretation, using the data of Landsat Enhanced Thematic Mapper (ETM) 2013 were used for delineating the physiographic units to be a base for the soil taxonomic units. The study area are characterized by six physiographic units, which are represented by sixteen soil profiles, then classified according to **USDA, 2014** as follows:

- Soils of Wadi bottom that covered by 6837.8 feddans about 28.55 Km^2, where represented by 7.64 % of total studied area, which was represented by soil profiles Nos.(1 and 2) and was included taxonomic units as follow:-

- *Typic Haplocalcids, sandy skeletal, mixed, hyperthermic*. (profile No.1).

- *Typic Calcigypsids, sandy skeletal, mixed, hyperthermic.* (profile No. 2).

- Soils of Fan and outwash plain was included 2667.1 feddans about 11.14 Km^2 which was represented by 2.98 % of total studied area and represented by soil profiles Nos. (3 and 4) and was included soil taxonomic unit of:

- *Typic Torriorthents*, sandy, mixed, hyperthermic. (profiles Nos.3 and 4).

- Soils of Young terraces, these soils were covered with 22518.2 feddans about 94.02 Km^2 representing 25.16 % of total area were represented by soil profiles Nos.(5,6,7, and 8 and it was included taxonomic units as follow:

- *Typic Haplocalcids, sandy skeletal, mixed, hyperthermic.* (profile Nos. 5 and 6).

- *Typic Calcigypsids, sandy skeletal, mixed, hyperthermic.* (profiles Nos.7 and 8).

- Soils of Old terraces, this mapping unit was occupied an area of about 51041.85 feddans with an average of 213.12 Km^2. Which was represented by 57.03 % of total studied area and represented by soil profiles Nos. (9,10,11,12,13 and 14) this unit included soil taxonomic units as follow:

- *Gypsic Haplocalcids, loamy skeletal, mixed, hyperthermic.* (profiles Nos.9 and 10).

- *Typic Calcigypsids, sandy skeletal, mixed, hyperthermic.* (profile Nos.11 and 12).

- *Typic Torripsamments, sandy skeletal, mixed, hyperthermic*. (profiles Nos.13 and 14).

- Soils of Miscellaneous land, which was covered 6435.05 feddans about 26.87 Km^2 and was represented by 7.19 % of total studied area, this mapping unit was represented by soil profiles No. (15 and 16), which included soil taxonomic unit of :

- Lithic Calcigypsids, loamy skeletal, mixed, hyperthermic**.** (profiles Nos.15 and 16).

The soils under consideration are evaluated according to their suitability for agriculture in the current situation, the results revealed that the studied soils could be categorized into two classes marginal suitable (S_3) and not suitable (N1). The limitations affected these soils are soil texture, salinity and alkalinity and $CaCO_3$%. Also, the potential suitability of these soils are predicted which could be improved to (S_3) and (N2) when their some soil limitations are remedied.

Key words: Wadi El- Laqita, Qena, GIS, physiographic units, Landsat Thermatic Mapper (ETM 7).