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LAND EVALUATION FOR SOME REPRESENTATIVE PHYSIOGRAPHIC UNITS IN THE EASTERN DESERT OF EGYPT USING REMOTE SENSING DATA

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ABSTRACT

The study area was selected to represent most of the physiographic units in the eastern desert of Egypt. It was situated east of Beni suef District in Beni Suef Governorate and North West of Sannur cave protectorate covering 169512.1 ha (403438.7 feddans). Remote sensing data of satellite TM8 acquired in the year 2016 were used for this study. The delineated physiographic units in the study area were described as follows: (a) Dissected rock lands of limestone covering 31806.5 ha; (b) Pediplain of residuum parent material underlain by limestone that with area of is dominated by soils of *Sodic Haplocalcids, loamy skeletal, mixed, hyperthermic.*; (c) Bajada of alluvial parent material occurred as coalescing pattern forming alluvial fans cover 41182.1 ha and dominated by soils of *Typic Haplocalcids, loamy skeletal, mixed, hyperthermic.*; (d) Alluvial terraces extend to 36337.2 ha including limited cultivated areas in the eastern part of the study area covering 1336.3 ha. The main soils in these alluvial terraces are *Typic Haplocalcids, coarse loamy, mixed, hyperthermic.*; (e) Wadis are forming a net of dry channels covering 32714.2 ha. The main wadi in the study area is wadi Sanur that associate with rather smaller ones such as wadi Bayad, and wadi Ghurab. The main soils in these wadis are *Typic Torrifluvents, coarse loamy, mixed (calcareous), hyperthermic.* Land utilization types were proposed to meet food requirements in Egypt for the main edible and fodder crops and oil seed crops considering the types of irrigation practices. The major limiting factors in the study area is salinity that is mostly associating with CaCO₃ and coarse fragment and sodicity. The limiting factor of soil depth is partly prevailing the pediplain. By correcting the levels of limitations of salinity and sodicity, the most profitable utilizations can be S1 for canola and olive in bajada, wadis and alluvial terraces; S2 for canola in pediplain; S2 for sesame in bajada; S2 for alfalfa, barley, cabbage, guava, maize and sesame in alluvial terraces; S2 for alfalfa, barley, cabbage, date palm, guava, maize and sesame in wadis

Key words: land evaluation remote sensing data, Physiographic units, soil classification.