APPLICATION OF HISTRICAL GROUND DATA, SATELITE DATA AND INTEGRATION OF GPS AND GIS FOR RANGE MONITORING IN ARID RANGELANDS

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Abstract:

Plant composition, canopy cover, yield, range condition and grazing capacity permanently change due to climatic variation and management activities. Information will be obtained from monitoring in the long term and will help government agencies, range holders and application of new technologies. Of course providing such information need to use satellite, GPS and GIS in conjunction with ground data. In this research rangelands of arid areas of Iran were considered. Project was started in 17 provinces from 1997 by 2007. In each province the main vegetation communities were selected. In each community one site for regular data collection was established. Within each site four parallel 400 m transect were established. Cover and yield of the sites were measured within 60 two square meter quadrats. Satellite data for estimating vegetation parameters for duration of study have been obtained. Coordinates of each quadrat was measured by GPS and map of quadrats along transects was produced by using a GIS software to correspond ground samples to their relative pixels. Range condition assessment was done using the four factorial methods and photo was taken from photo point within each site. According to the results, range ecosystems in arid regions have fragile conditions. Vegetation cover was low, small production and poor range conditions. Desirable species were absent in vegetation composition and moderate or low desirable species were abundance and biological balance had been lost because of sever grazing. GPS and GIS facilitated application of satellite data and photos helped enterprising data.

Key words: Cover, yield, range condition, remote sensing, GPS and GIS.