

Abstract

Mismanagement and misuse of rangeland along with sequential severe drought have brought about depletion of large area of rangelands. It seems that severely disturbed rangelands unable to recover to satisfactory level without man intervention through employing proper restoration measures. This study aims to select favorable site for rangeland improvement practices using analytic hierarchy process (AHP) and geographic information system (GIS) in depleted rangeland. The study was carried out in Ghaen plain, southern Khorasan, Iran. Six artificial restoration measures i.e. seeding and seed broadcasting, interseeding, contour furrowing, pitting and water spreading were selected as measures for restoring degraded rangelands in the study area. Major effective criteria in selecting favorable sites for range restoration measures were adopted from reputable literatures. Questionnaire in the form of pair matrix was designed for each measure. Questionnaires were distributed among different domain experts of local universities and authorities. They were asked to assign preferred weights to effective criteria of restoration practices according to their knowledge. Final score and relative importance of criteria were calculated on the basis of geometric mean of questionnaires. Hierarchical tree structure with appropriate adaptability was generated in Expert Choice software. Favorable sites for range restoration measures were selected using facilities and functions of ArcGIS 9.3. The selected field sites were visited to check the agreement of real environment condition with proposed site for restoration practices. This study concludes that AHP along with GIS can assist range technician to select rapidly suitable site for range improvement practices with high precision.

Keywords: site selection, range depletion, range restoration, analytic hierarchical process, Ghaen Plain.



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