Range condition classification based on quantitative characteristics of vegetation

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Introduction

key words rangeland monitoring; condition classification; canopy cover.

Change in range condition classes over time are usually the basis for monitoring management effectiveness (Dyksterhuis, 1949). Several approaches have been proposed to monitor the range condition classes in relation to a bench mark usually called climax stage. In this paper, six factors were described for determination range conditions. This method was developed by FAO in Iran (FAO, 1971). These factors included: (1) canopy cover, (2) litter frequency, (3) plant vigour, (4) soil protection percentage, (5) plant composition, and (6) production percent in relation to climax. The advantage our method is the possibility of creation R package to determine condition classes.

Material and Methods

To describe the range condition, vegetation data were collected in 20 plots of 25x60 cm by permanently established *F*-shaped (Fig. 1). Estimations were made for total aerial cover of all species in quadrate, separate cover and seedling number of each species, litter, rock, and bare soils percentages. All six measured vegetation factors were rated as excellent (80-100), good (70-79), fair (50-59), poor, and very poor (<30). The rates of range condition classes were 0-20 for 0-100 % of covers, 0-100 for 100-0% bare soils, 0-10 for 0-100 litter frequencies, 0-20 for plant composition of palatability classes of 100-300%, 0-15 for plant vigour of 100-300% of palatability classes, and 0-15 for 10-100 % of climax production.

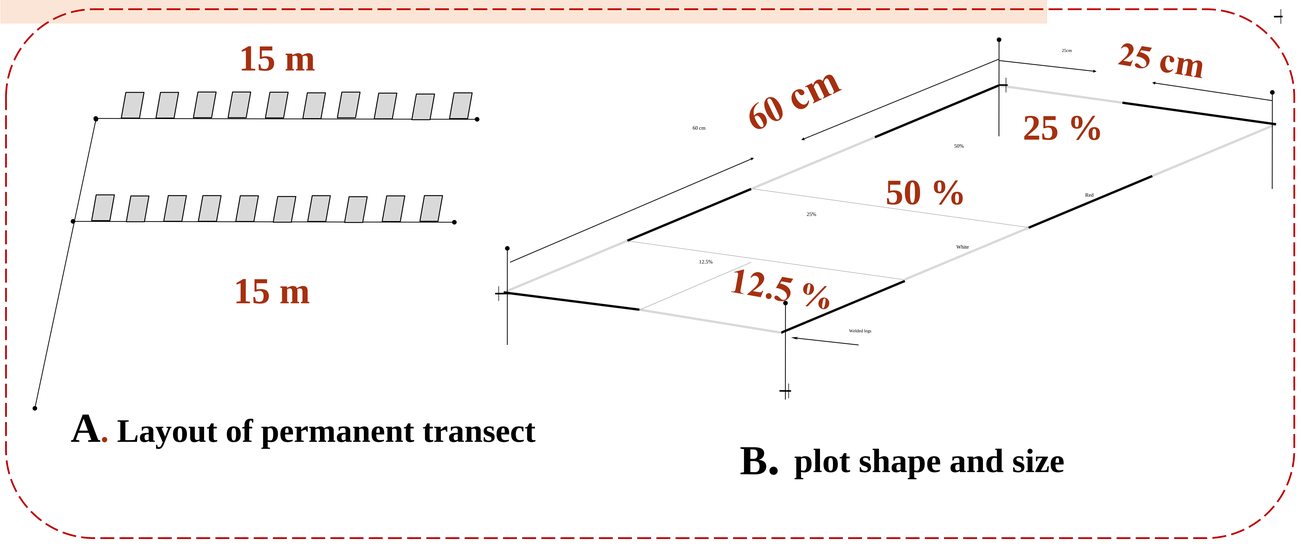

Fig.1. Layout of permanent transect (A) and plot shape and size (B).

Result

By using linear equations, the total score of 49.54 was within class of 50 to 69 and rated as fair condition.

Discussion and Conclusions

The original scores of the factors (FAO, 1971) were not equally rated and causing non-linearity functions, so our ratings were revised to make linear relationships between cover, litter, etc. and scores. The *F*-shaped transect is fitted to monitor steppe vegetation pattern. However, for desert regions a large scale transect is needed (Wilson, et al., 1984).

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