Soil Potential Ratings for Livestock Grazing

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The Soil Conservation Service (SCS) developed a procedure for assigning soil potential ratings for livestock grazing (Using data from the San Juan County Area in northwestern New Mexico). This area has a total area of 2,182,520 acres, about 85% of which is rangeland. Much of the rangeland is in large ownership units of over 25,000 acres. The area is a high plateau. Elevation ranges from 4,800 to 7,200 ft. Average annual air temperature ranges from 48 to 55°F. Average annual precipitation ranges from 6 to 13 in. with about half falling during the summer. Over much of the area the potential natural plant community has deteriorated because of historical excessive use.

This area was chosen as the pilot project for the following reasons:
1. It has the diversity desired for a pilot study.
2. A soil survey for the area has recently been published.
3. It contains about 1.85 million acres of rangeland.
4. The rangeland productivity and characteristic vegetation are tabulated in the soil survey publication.
5. The kinds of mapping units include associations, complexes, and consociations.

A committee consisting of an economist, an engineer, two range conservationists, and two soil scientists was assigned the task of developing this procedure.

At first glance, the concept of soil potentials seemed easy to apply to livestock grazing. In practice it was difficult. The committee discussed several approaches and finally agreed upon the following as the basis for a potential rating system:

In order to reach the potential of a mapping unit for livestock grazing, a high level of range management is necessary; range management requires that range management practices be applied. Therefore, the relative difficulty of applying these practices must be considered in assigning soil potential ratings.

With this in mind, the standard formula for deriving soil potentials was changed to read:

Soil Potential Index (SPI) is equal to the performance index minus the restrictive feature index minus the continuing limitation index.

Performance Index

The total annual production in pounds per acre of dry weight for each component part of each mapping unit has already been documented and is tabulated in the publication. The plants that made up the potential natural plant community and the percentage composition are also given.

To develop a Performance Index for rangeland soils in the area, the com-