SAGEBRUSH-GRASS RANGE SAMPLING STUDIES:
VARIABILITY OF NATIVE VEGETATION AND 
SAMPLING ERROR

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SAMPLING problems constantly confront individuals who are responsible for designing and conducting studies with native range vegetation. There is, however, a marked dearth of information specifically applicable to native range lands, that deals with the variability of native plant species, and with related factors affecting sampling and sampling error.

The nature and extent of variability in native vegetation have been studied by a few investigators. Davies (8) found in Australia that natural pasturage was more variable than field crops. The total herbage yields had a standard deviation equal to 32.5% of the mean, and a slight but significant skewness to the left. Similar variations were found in Australia by Beruldsen and Morgan (2) who studied a sward of ryegrass, Kentucky bluegrass, cocksfoot, and clovers. Total herbage yields conformed closely to a normal distribution, but individual species distributions were badly skewed to the left. Blackman (3) and Ashby (1), working in England and on the continent, also found skewed frequency distributions for individual species in humid pastures.

Hanson (11), on the mixed prairie of western North Dakota, found variability in yields of total vegetation equal to 27.8% of the mean. Yields of individual species varied more than those of total vegetation and exhibited a pronounced skewness to the left. Costello and Klipple (6) reported the sampling errors for several native range types occurring in Wyoming and Colorado. Pechanec and Stewart (17) found frequency distributions distinctly skewed to the left and high variability associated with two plant species of the native sagebrush-grass range of southeastern Idaho.

The study herein reported was conducted during 1938 (a) to investigate the extent and nature of variation of native sagebrush-grass range species; (b) to examine on land of rough topography the efficiency and ease of subdivided random sampling,4 using line plot sampling units; and (c) to secure some indication of the number of sampling units needed for sampling sagebrush-grass range areas.

Knowledge of variability in the production of range forage species and of the efficiency of subdivided random sampling derived from this study is applicable to range vegetation studies in which an at-

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2Associate Forest Ecologist and Senior Forest Ecologist, respectively.
3Numbers in parenthesis refer to "Literature Cited", p. 1070.
4Subdivided random sampling (17, 5) may be defined as division of the area or population to be sampled into a number of parts so chosen that the species being studied varies less within each part than in the whole area. At least two sampling units, drawn at random, are to be secured from each part, or subdivision.