

Trends in Vegetation in Teton County, Wyoming

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The 1965 field season was the second of a projected five for a study concerned largely with determination of "trends" in vegetation patterns. Its objectives are (1) to study methods of determining trend or lack of it, and (2) to evaluate the prevalence, the direction, and the speed of trends found in Teton County vegetation.

The first report (Wyoming Range Management Issue No. 208) attempted to show that there are many changes occurring in the vegetation of Teton County which cannot properly be related to trend. These have been categorized into two groups: (1) stability, and (2) succession.

The work the past year was spent in an attempt to develop a deeper understanding of the concepts of "stability" and "succession" while emphasizing the usefulness of recognizing "trends". In order to do this a new type of range survey has been conceived, and will henceforth be referred to as "range survey by pattern".

With the conclusion of 15 years of range survey effort in Wyoming, there seemed to be felt a need to pull together the various facets of a rather complex subject. Since the research program has felt free to develop its own methods where needed, and equally free to borrow ideas from others when they served a useful purpose, no widely accepted system has been used. In part the concepts of the Soil Conservation Service type of range condition class surveys have been found useful in analysis. Some of the detailed data recording of the U.S. Forest Service has fitted the purpose. Similarly it was found that for range survey the extensive system of range reconnaissance used by the Bureau of Land Management had certain advantages. From all of these and from basic research in plant and animal ecology has come a synthesis of ideas, now taking form in a new but evolved system called "range survey by pattern."

The use of the term "pattern" does not mean to imply that other common concepts such as "range site", "range type", "ecosystems", "climax", "community" and the like do not serve a useful purpose but for this survey a new term seems appropriate in order to include within one survey unit, of course depending on the area, parts which may be developmental next to parts which may be climax; edaphic variation next to topographic variations, as well as other parts of a whole which may or may not represent management units. This is particularly true since management units for game may overlap but not coincide with management units for domestic stock.

Pattern may be defined as the repetition of combinations of vegetation units as dictated by the physical system. Patterns may be extensive or very limited, but generally speaking to be important in range survey, they would need to be repetition in a predictable fashion. The field identification of pattern is usually not difficult.

For elk which migrate from above treeline in the summer to lower winter ranges of entirely different aspect it must be clear that their natural range covers many different patterns. On the other hand the life history of antelope could conceivably be included within one pattern.

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Some Aspects of Plant and Animal Distribution
as Affected by Geologic Formations
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Research conducted in the summer of 1965 was a continuation of a study initiated in 1961. The study areas have been described in the 1962 Biological Research Station report.

Slow melting of snow on the study areas delayed phenological developments as much as three weeks. Plant and animal specimens were difficult to collect during most of the summer. A total of 63 northern pocket gophers (Thomomys talpoides) were collected and frozen for analytical work. Weights of the testes, the liver, heart, and the kidneys were recorded. Samples of each of the foregoing were preserved for micro element analysis. Placental scars were tabulated from the reproductive tract of each mature female. Leaves, stems and roots of Agoseris and Lupinus were collected and frozen for chemical analysis. The comparative results of the pocket gopher mound censuses for 1962, 1963, and 1965 are given in the following table.