WILDERNESS ECOLOGY: THE DANAHER CREEK DRAINAGE, BOB MARSHALL WILDERNESS, MONTANA

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The specific objectives of this study were to determine what biotic communities existed in the study area prior to the influence of modern man, and to evaluate the role of wildfire in the maintenance of those early communities. There had been no previous quantitative studies, and very few subjective descriptions, of the Danaher Creek drainage so that a reconstruction of past history depended on inference from clues found 70 or more years after modern man entered the area.

Historical files of state and federal agencies were searched to determine when and how modern man began to influence the 33,000 hectare drainage. Dendrochronology methods were used to date fire scars and determine the age class structure of present forest stands, and a history of recurring fires between 1749 and 1926 was documented. The probable extent of the seven largest fires is shown on a series of maps.

Methods of community identification and vegetation analysis similar to those described by Daubenmire (1959, 1966, 1968) were used to identify 12 forest community types and 3 non-forest community types in the study area. Visual observations, sign, and trapping were used to identify animal species and to indicate the relative importance of each plant community to the various animals.

Wildfire has been a natural environmental process in the Danaher Creek drainage which has served to maintain certain fire-adapted communities, control succession on other sites, and recycle climax communities. Fires have occurred in two separate, but overlapping cycles -- a long period cycle in which plant communities succeed each other until removed by severe fires, and a short period cycle in which light fires serve to maintain the community instead of initiating a new one.

Fire may not be as important in creating and maintaining game winter ranges here as it is on sites at lower elevations and where soils and growing conditions are better. It appears that neither past fires nor their recent prevention and suppression have greatly influenced the numbers of wapiti in the drainage.

Allowing all fires resulting from natural causes to burn unchecked will restore one of the chief processes which determined the character of early biotic communities.