

THE ENVIRONMENTAL PATTERNS-ECOLOGY

TILE ENVIRONMENTAL PATTERNS—ECOLOGY BASIS OF MAPPING UNITS, AND THE METHODS USED

The Principles

To successfully manage land for any purpose it is necessary to understand the inter-relationships between the components of the environment.

The environmental variables can be thought of as those which are independent of outside influence, viz. rock type (soil-parent materials), climate, topography and the passage of time, and those which are dependent on the foregoing, viz. the plants, and animals and the soil. The independent variables which cannot, as a rule, be altered by man limit the types of dependent variables which can develop and persist. The dependent variables are more susceptible to change and are those with which land management is primarily concerned.

Because of the interdependence of the environmental variables it is not wise to consider them separately in management planning. The relationships are often complex, however it is usually found that one of the independent variables exerts a dominant influence over the distribution of the dependent variables. Thus the consistent variation of that one independent variable within an area uniform with respect to the others, results in a pattern of variation in the dependent variables which can be defined and used.

If the distribution of such independent variables can be mapped, the areas so delimited are units within which the environment varies in a predictable way and which may be interpreted for management purposes.

Differences in rock type and in topography have been used as the basis for the mapping of the variation in the environment in the Park. The mapping units have been called land units in conformity with the definition of Gibbons and Downes (1964 p. 16).

The Methods

The topographic units which significantly influence the distribution patterns of the soils and vegetation and to a certain extent micro-climate, were recognised during the field work and were subsequently mapped from stereo-interpretation of aerial photographs.

The boundary between granite and the sedimentary rocks has been accurately located in the field only in the vicinity of the main road. Elsewhere photo-interpretation has been used to indicate the boundary.

Difficulty was experienced in transferring mapped boundaries from the aerial photographs onto the base map because of the variations in photo-scale produced by the great changes in elevation in the landscape. This was accentuated where ground reference points on the photos could not be located on the base map. Thus, in parts of the area where large differences in elevation occur, the mapped boundaries may not be accurate.

One of the dominant features of the Park is the abundance of exposed rock. As this may be of importance in management planning (road location, high run-off potential, high erosion hazard on areas adjacent), an attempt has been made to indicate those areas where rock outcrops predominate. Where the rock is much fractured, shrubby growth in the fissures may tend to obscure the rockiness on the aerial photographs. Thus, it is expected that not all extremely rocky areas will have been mapped.

The Land Units

The land units are numbered from 1 to 9 and are listed below:

- Land unit 1 .. Basins on granite.
- Land unit 2 .. Basins on sedimentary rocks (Ordovician greywackes and shales).
- Land unit 3 .. Hills at high elevations on granite, very rocky.
- Land unit 4 .. Hills at high elevations on granite, not very rocky.
- Land unit 5 .. Hills at intermediate elevations on sedimentary rocks.
- Land unit 6 .. Slopes of granite, very rocky.
- Land unit 7 .. Slopes of granite, not very rocky
- Land unit 8 .. Slopes of sedimentary rocks.
- Land unit 9 .. High-valley plains.