

— farm adviser, forest logger, drainage contractor, etc. Interpretation can be either manual or by using the computer storage facilities in the future.

As units of land capability are groupings of land inventory units which are capable of growing the same kind of crops, pasture or forest species, the worksheets allow comparison of yields between a variety of land uses — *e.g.*, forest production is expressed in site index with (pastoral) farming described in stock units per hectare for each capability unit. Other examples relevant to forestry application deal with physical limitations to management such as excessive wetness and degree of topography.

The information presented is in a clear and concise form, allowing anyone without previous knowledge of land use capability work to interpret the mass of information on the worksheets. It is useful also to the more experienced user as a source of information as to uses and services available for interpretation. The photographs add to the attractiveness of the publication and are helpful in some (but not all) instances. However, the line drawings and enlarged sections of worksheets which are used as examples are very helpful.

A glossary at the back of the booklet defines some of the terms which may not be familiar to some users.

A most important footnote regarding interpretation of the scale of the worksheets is added at the end of the text. The scale of 1 : 63 360 limits application to exercises appropriate to that scale, and where answers sought depend on finer scale definition, specific exercises need to be undertaken.

Publication of this booklet to accompany the worksheets makes the Land Use Capability classification available to a wide range of users many of whom have long recognised the need for nationally consistent criteria on which to describe the country's physical land resources.

R. M. PRIEST

SLOPE-STABILITY AND GEOLOGICAL INVESTIGATIONS AT MANGATU STATE FOREST, by Maxwell Gage and Robin D. Black. Forest Research Institute, N.Z. Forest Service Technical Paper 66. 1979. 37 pp., 13 figs., 19 plates, 2 fold-out maps.

The rapid extension of dual-purpose protection-production forests in the erosion-prone eastern Raukumara Ranges poses a number of interesting problems for future forest managers. Questions such as which forest areas, if any, should be left unlogged to

protect sensitive slopes, where should future logging roads be located to avoid rejuvenation of slope movements on areas stabilised by forest cover, and what logging methods should be employed to prevent undue disturbance on potentially unstable areas, require answers to ensure that management for production and protection remain compatible objectives.

Using various geological and geomorphic criteria Gage and Black have classified the lands within and surrounding Mangatu State Forest into a number of terrain categories.

1. Stable surfaces on Tertiary rock
2. Stable surfaces on Cretaceous-to-Paleocene rock
3. Very deep slumps in Tertiary rock
4. Older flows and moderately deep slumps in Cretaceous-Paleocene rock
5. Younger flows and moderately deep slumps in Cretaceous-Paleocene rock
6. Active flows, slumps and eroding gullies
7. Debris fans and flood plain accumulations
8. Stream terraces and dissected fans

Terrain categories 1 to 6 are in order of decreasing stability as indicated by the underlying geological characters, the type and extent of mass movements and evidence from volcanic ash deposits. The terrain classification provides a substantial basis for the planning of future forest activities. Gage and Black indicate that increasing precaution and care should be observed in the logging and roading on terrain types 1 through to 4. They further recommend that the future of type 5 lies in management for protection rather than for timber production and that type 6 should be managed only for protection more or less indefinitely.

Gage and Black consider a wide range of geological and historical factors in an attempt to account for present-day land forms and the high intensity of erosion processes. Their synthesis of this information enables them to present a geomorphic hypothesis which helps elucidate the evolution of local land forms and to place in perspective the complex set of factors which have led to present-day slope stability problems. The paper is also important because it introduces new approaches and new ideas in landscape classification which have more practical value for land management than most traditional N.Z. landscape classifications currently in use. The paper should be of great value to geologists, pedologists and particularly forest managers.

C. L. O'LOUGHLIN