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Report No. 111

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Report on a terrain survey  
of the  
**TERU - BARAM AREA**  
4 th. Division

by  
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Soil Surveyor

HUNTING TECHNICAL SERVICES  
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Soil Survey Division  
Research Branch

May, 1966

Dept. of Agriculture  
Sarawak

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# HUNTING TECHNICAL SERVICES

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## REPORT ON A TERRAIN SURVEY OF THE TERU - BARAM AREA, FOURTH DIVISION (Survey Area 96)

by

J.R.D. WALL

May, 1966.

### 1. INTRODUCTION

This terrain survey has been delayed awaiting better quality 1:25,000 air photographs than exist at present. An attempt is made here to use the smaller scale 1:38,000 - 1:60,000 air photographs in the meanwhile, but the accuracy of the boundaries is poor, particularly of the terrain classes 1 and 4 in parts of the Teru Valley. With the completion of this survey the best agricultural land in the middle Tinjar-Teru-middle Baram area has now been examined, either on the ground or by terrain survey with the exception of small belts of land further upstream.

The air photograph examination of land was extended east of the Baram as far as the upper Apoh River at Batu Song Mountain but this part could not be mapped satisfactorily due to the inaccuracy of the topographic base map. The land in the area between the Baram and the Apoh is largely unsuitable for agriculture on the grounds of steepness of slopes and suspected poor soils, however, except for a wedge of lowlying hill land adjacent to the Apoh River. This wedge continues south from the suitable agricultural land shown on maps of survey area 62 and narrows to nothing close to the point where the upper Apoh River almost joins the Patah River at Long Nayat.

The survey area adjoins reconnaissance soil survey area 88 to the west and area 62 to the north. It covers about 192 square miles and shows that from the point of view of topography, some good agricultural land occurs in places.

The Terrain Class map accompanying the report has been compiled solely from air photograph interpretation, and classifies the topography according to various combinations of slope and the height of hills above adjacent valley land (amplitude of relief). The key to the units is shown diagrammatically on the map, and their agricultural usage is interpreted as follows:-

- Terrain Class 1 - Flat or almost flat land, topographically suitable for agriculture.
- Terrain Class 2 - Land with gentle slopes of less than 10° and rising to less than 150 feet above local base level. This type of topography is gently rolling, generally occurs at foothills or on terraces and is topographically suitable for agriculture.

- Terrain Class 3 - Land with gentle to moderately gentle slopes of up to  $20^{\circ}$  and rising to more than 150 feet above local base level. This type of topography is moderately to strongly rolling and is topographically suitable for agriculture.
- Terrain Class 4 - Land with gentle to steep slopes and rising to less than 50 feet above local base level. This type of topography ranges from being gently rolling to strongly dissected, and is topographically suitable for agriculture.
- Terrain Class 5 - Land with moderately gentle slopes of between  $10^{\circ}$  and  $20^{\circ}$ , and between 50 and 150 feet above local base level. This type of topography is moderately rolling, and is topographically suitable for agriculture.
- Terrain Class 6 - Land with moderately steep to steep slopes of  $20^{\circ}$  to  $35^{\circ}$  and rising to less than 150 feet above local base level. This type of topography is moderately dissected, and is topographically suitable for agriculture.
- Terrain Class 7 - Land with moderately steep to steep slopes of  $20^{\circ}$  to  $35^{\circ}$  and rising to more than 150 feet above local base level. This type of topography is deeply dissected and is considered topographically marginal for agriculture.
- Terrain Class 8 - Land with slopes exceeding  $35^{\circ}$ , considered to be topographically unsuitable for agriculture.

The map accompanying the report is based on photographs at scale of 1:38,000 to 1:60,000 and is subject to the same qualifications as a reconnaissance map at the same scale. These are, that although parts of the area are cultivated, and the ground with all the minor slope facets can be seen clearly on the air photographs, most areas are less clear due to a thick cover of vegetation or poor photography. Consequently a mapping unit contains in most cases many small slope facets of other units. Similarly, the process of map reduction from a photograph scale of about 1:38,000 to the final map scale of 1:50,000 causes a simplification of the units, although paradoxically the same process increases the accuracy of the boundaries.

## 2. TERRAIN OF THE AREA

Land too steep for agricultural use, namely that of Terrain Class 8, is only mapped in the northeast near the Temala River, where a long, steep-sided ridge projects sharply from the adjacent lowlying land. Terrain Class 8 land occurs elsewhere, however, but as patches too small to map separately, and largely among the Terrain Class 7 areas.

The high, steep land of Terrain Class 7 is dominant east of the Baram, in the headwaters of the Teru River and as strike-aligned groups of ridges elsewhere. The hills do not rise to great heights being largely lower than an estimated 800 feet above sea level, and in places west of the Baram, their slopes are closer to 20° than 35°.

Hills of heights and slopes classed as suitable for agriculture, namely Terrain Classes 2 - 6, are common. Terrain Class 4 land is moderately widespread west of the Teru River while Terrain Class 6 land occupies a broad belt between the Baram and middle Teru area. Parts of this belt may contain steeply sloping facets of Class 8; most of the hills are dissected into short ridges with gentle to moderately steep slopes. One group of moderately sloping high hills of Terrain Class 3 is mapped north of the Aran River.

Flat land does not extend far beyond the banks of the Baram River, except along tributary valleys, in contrast to the wide expanses alongside the Teru River. Terrain Class 1 land is extremely limited among the hilly areas.

## 3. INTERPRETATION OF THE TERRAIN CLASSES

Flat land in the Baram Valley is not thought to contain much peat soil except in isolated pockets in basins, such as near the Manyin Stream. The levees are high and contain well-drained Kayan, and Malang Family soils just to the north. It can be expected that with increasing distance upstream, particularly where tributaries draining sandstone areas emerge, that the sandier Kayan soils will become dominant. In the basins behind the levees just north of Long Laput, Bijat soils are known to be most common, and are probably equally so upstream. Thus most of the flat land adjacent to the Baram River should be usable for agriculture with the provision that seasonal flooding can be expected.

The Teru basin in contrast contains much deep peat - as indicated by the presence of peat swamp vegetation and by know soil survey work just to the north. Upstream from the Tungau Stream, however, the land is used extensively for swamp rice and the presence of peat, although suspected, would have to be confirmed by fieldwork. Nevertheless, there are thought to be large areas of Bijat, Sebandi and Mukah family gleyed clays and shallow peats suitable for wet rice cultivation in the upper Teru basin generally.

The lower, less steeply sloping hills of Terrain Classes 2 - 6 are all believed to be mainly suitable for agriculture on the basis of known shaley parent materials (Haile, 1962) and known predominantly clayey Merit and Bekenu Family soils on similar topography to the west and north. The exceptions are, the small patches of suspected terrace gravels of Terrain Class 2 on the Baram, and the Classes 5 and 6 land in the southeast corner believed to have poor soils beneath the low, fine-crowned vegetation.

The Terrain Class 7 areas probably consist of clayey Merit and Bekenu family soils largely, but with common patches of Kapit Family Skeletal soils on the steeper slope facets. The absence of landslides on the steep slopes is an indication of at least moderately coherent and stable soils.

The single ridge of Terrain Class 8 land probably contains Kapit, Bekenu, and sandier Nyalau family soils towards the ridge summit.

#### CONCLUSIONS

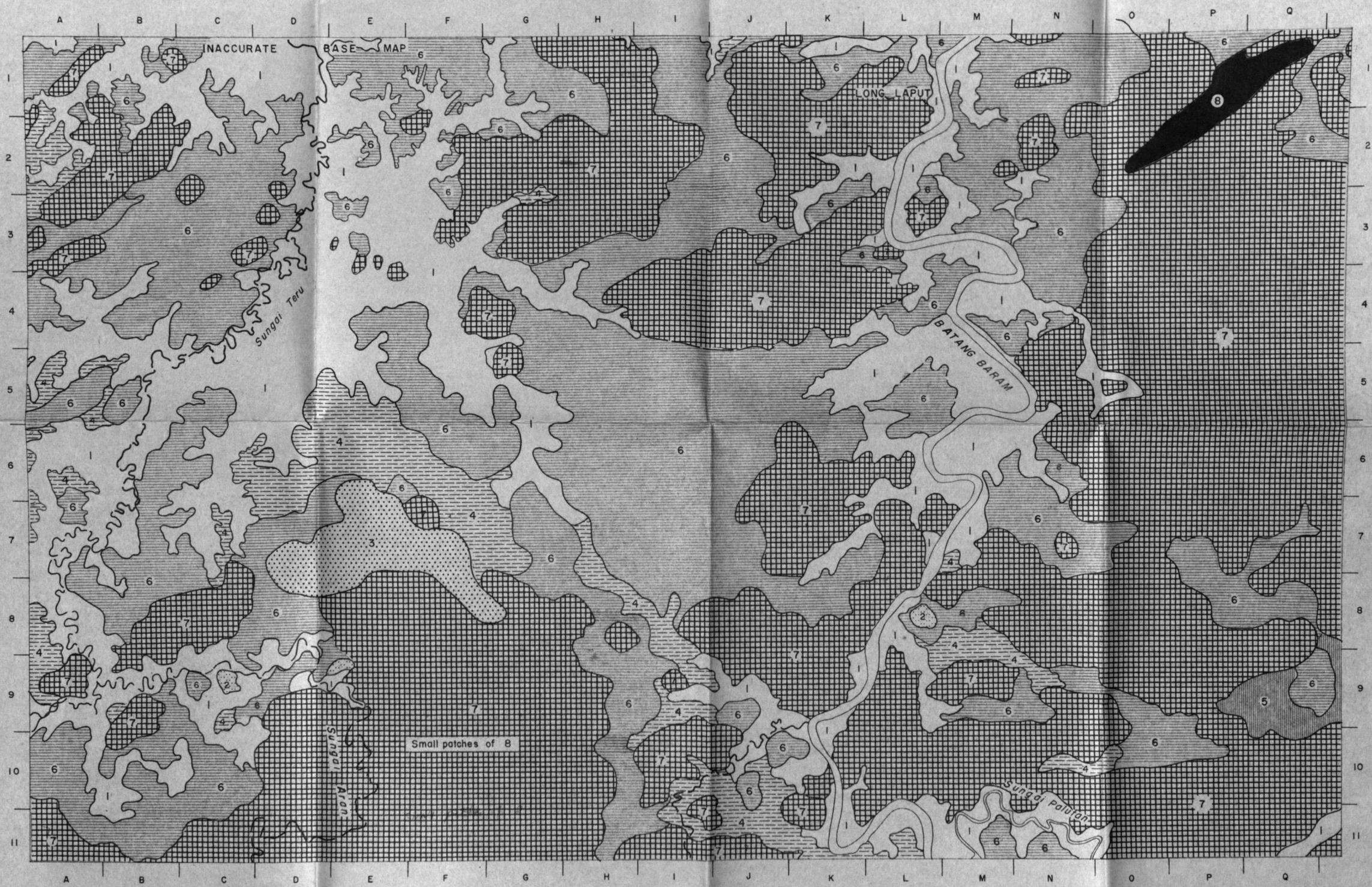
The interpretation of air photographs of this area show that land usable for agriculture exists mainly as a broad band between the middle Baram and Teru rivers on the map. In this band are low, gentle to moderately steeply sloping hills with suspected clayey Merit Family soils mainly, and in the flat alluvial land are suspected gleyed, clayey Bijat and Sebandi family soils. A reconnaissance soil survey of the general area would be worthwhile to verify these conclusions, and to determine how extensive are the Teru Valley peats, and how much of the higher Terrain Class 7 land could be used.

#### REFERENCES

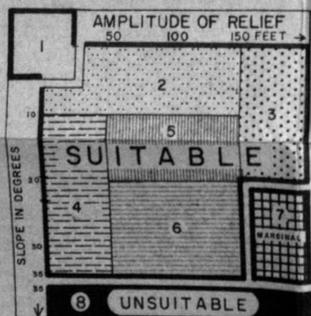
- Haile, N. (1962) - The geology and mineral resources of the Suai-Baram area, North Sarawak. British Borneo Geological Survey Memoir 13.
- Wall, J.R.D. (1965) Report on a reconnaissance soil survey of the Marudi-Linei-Long Lama area, Fourth Division. Department of Agriculture, Soil Survey Report No.62.
- Wall, J.R.D. (1966) Report on a reconnaissance soil survey of the Lower Tinjar-Bakong-Lower Baram area, Fourth Division, Department of Agriculture, Soil Survey Report No.88.

# TERRAIN MAP OF THE TERU - BARAM AREA

## 4th. DIVISION

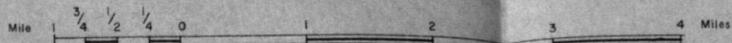


### KEY OF TERRAIN UNITS

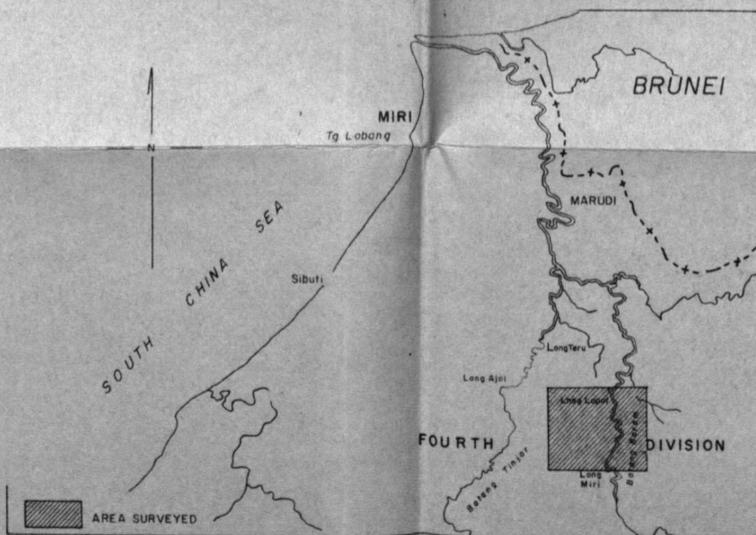


N.B. Slopes and heights in units are those that are dominant.

SCALE 1 : 50,000

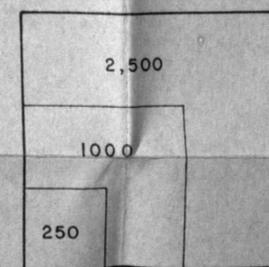


### LOCATION



### ACREAGE

### SCALE



The reference grid located on the map border has an arbitrary origin and is divided in units of one mile.

