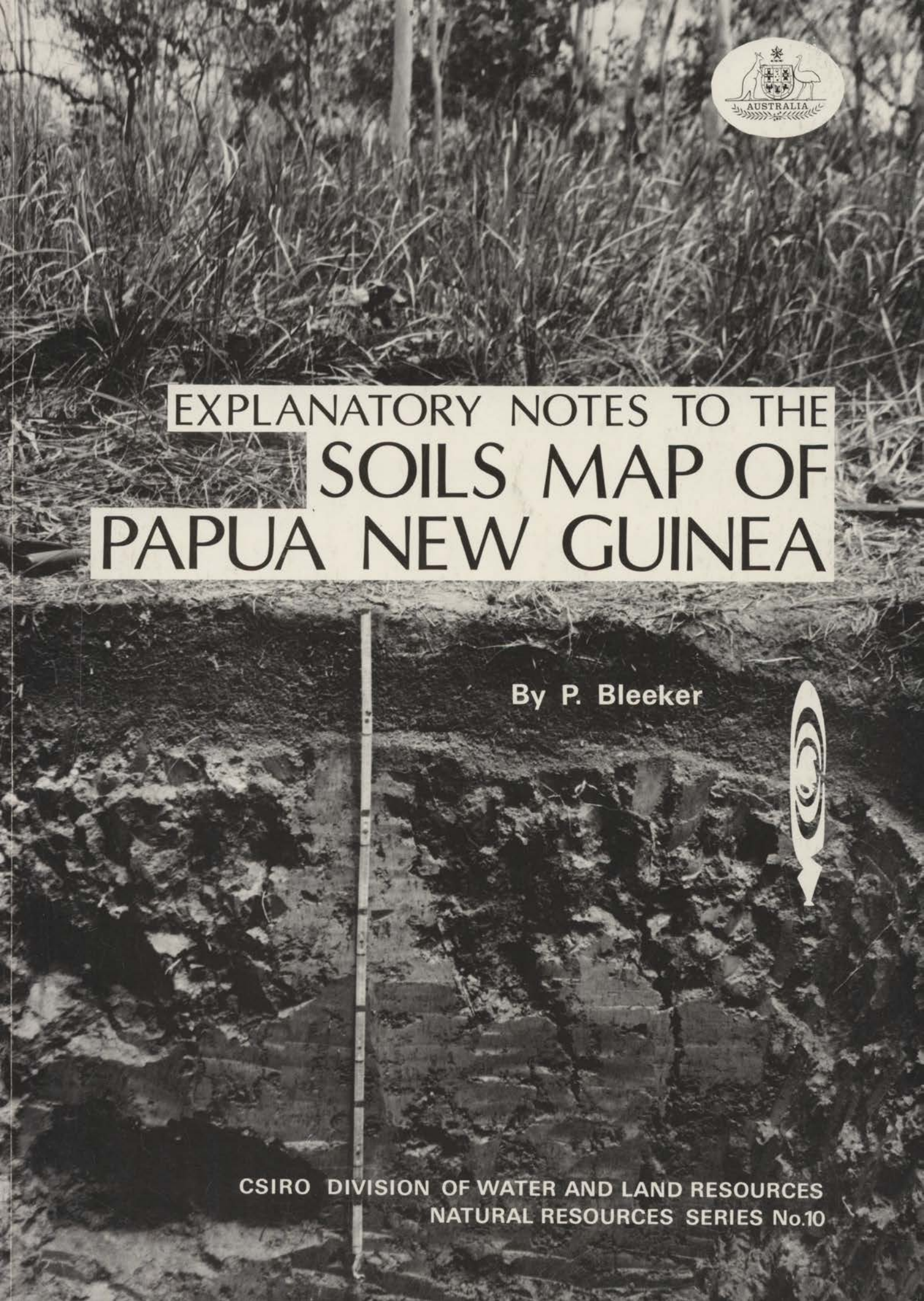

EXPLANATORY NOTES TO THE SOILS MAP OF PAPUA NEW GUINEA

By P. Bleeker

CSIRO DIVISION OF WATER AND LAND RESOURCES
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Cover

Haplustalf developed on the crest of a broad bench in the Safia Area, Northern Province. Parent material: sedimentary rocks. Rainfall 1000-1500 mm p.a. with strong seasonality. Vegetation: Eucalypt savanna with Imperata and Coelorachis grassland.

Photograph: P. Bleeker

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ABSTRACT

The 1:1 million soil map and accompanying explanatory notes provide a broad overview of the distribution of soils in Papua New Guinea.

The soils are classified at great group level according to the USDA Soil Taxonomy and are mapped as soil associations. Each soil association is described in terms of its associated landform, rock type, climate and vegetation. Information relating to several other attributes important for land evaluation, namely slope, texture, salinity, flooding, depth, rockiness and anion fixation, is also provided.

This report and the accompanying map were prepared while the author was a member of the Division of Water and Land Resources. He has since transferred to the Division of Tropical Crops and Pastures, CSIRO, St. Lucia, Queensland, 4067.

CONTENTS

1. INTRODUCTION

In May 1981 a co-operative research project was undertaken between CSIRO, Division of Water and Land Resources, and the Papua New Guinea Department of Agriculture and Livestock (formally Primary Industry) to assess the potential of the natural resources of PNG for the development of village based food and cash crop production. During this project a large database, called PNGRIS (PNG Resource Information System), was developed which provides an inventory of natural resources, land use and population distribution (Bellamy 1986; CSIRO 1987).

The gathering of information for land evaluation involved the mapping at scale of 1:500 000 and description of approximately 4600 land areas called Resource Mapping Units (RMUs) in terms of their natural resources including soils and soil attributes. The soil classification adopted for the inventory was the USDA scheme of Soil Taxonomy (U.S. Dept of Agriculture 1975). This system is internationally accepted and has been used in both PNG (Bleeker 1983) and the neighbouring Solomons Islands (Wall *et al.* 1979).

Given the need for comprehensive, world wide soil resource inventories (Sombroek 1986; USAID 1986), it was decided to prepare a 1:1 million soil map of Papua New Guinea based on the information provided by the inventory. Apart from giving a broad scale overview of the soil distribution in PNG, this map can be used for several other purposes including national development planning and determining broad agricultural research strategies. In addition, by using an internationally accepted soil classification system, the map may also indirectly improve communications between soil scientists within Asia and the Pacific.

2. DATA SOURCES

Using the PNGRIS inventory, data provided for each of the 4562 RMUs were grouped into approximately 600 classes, each having a similar suite of soils. The second stage involved the amalgamation of these 600 classes in more generalized assemblages of soils called soil associations. This resulted in a total of seventy-two soil associations which are shown on the map. These associations, in turn, have been combined into twenty-two, more generalized, major groupings which have similar characteristics and are indicated on the map by different colours.

3. MAPPING

3.1 General

Great soil groups tentatively identified in PNG and listed in the map legend are given in Table 1, together with their distribution and correlation with previously named soil groups as identified in the CSIRO Land Research Series (1964-1976) publications.

Soils classified as predominant (PD) on the map are estimated to cover more than 80% of the total area. Dominant soils, indicated by the letter D, by definition cover 50-80% and subdominant soils (SD) 20-50% of the soil association mapped. Soils estimated to cover less than 20% of the mapping unit are not listed in the legend. Therefore, many soils assessed to have only a local distribution are unlikely to appear in the map legend. Generalized descriptions of each great soil group listed in Table 1 are provided below, starting with the soil order Entisols. For more detailed information the reader is referred to the Soil Taxonomy (U.S. Dept of Agriculture 1976) and Bleeker (1983).

3.2 Entisols

Entisols are recently formed soils.

3.2.1 Aquents

Poorly drained to swampy alluvial soils, which do not have diagnostic horizons within 2 m of the surface and the exchange complex is not dominated by amorphous material. They have either sulfidic material within 50 cm of the mineral soil surface or are permanently saturated with water and typically have grey or bluish matrix colours at < 50 cm.

Sulfaquents are Aquents that have sulfidic material within 50 cm of the mineral soil surface. They are permanently saturated with water and normally associated with mangrove swamps and brackish water. Soil reaction is near neutral to alkaline but becoming extremely acid after drainage

Table 1. Great soil groups described in the legend (modified after Bleeker 1983)

Order	Suborder	Great group	Distribution	Major previously named soil group
Entisols	Aquents	Sulfaquents	Common	Saline Peats and Muds, Mangrove soils
		Hydraquents	Very common	Young Alluvial soils, very poorly drained Alluvial soils
		Fluvaquents	Very common	Alluvial soils, Young Alluvial soils, Recent Alluvial soils
		Psammaquents	Common	Recent Alluvial soils
	Psamments	Tropopsamments	Common	Coarse textured Beach soils
		Ustipsamments	Very local	Coarse textured Beach soils
	Fluvents	Tropofluvents	Common	Young Alluvial soils, Recent Alluvial soils, coarse textured Beach soils
		Ustifluvents	Local	As for Tropofluvents
	Orthents	Troporthents	Very common	Lithosols, Skeletal soils, Slope soils
		Cryorthents	Very local	As for Troporthents
		Ustorthents	Very local	Colluvial soils
Histosols	Folists	Cryofolists	Very local	Alpine Peat and Humus soils
		Tropofolists	Common	Peat soils, Alpine Peat and Humus soils
	Hemists	Sulfihemists	Very local	Saline Peats and Muds
		Tropohemists	Common	Peat soils, Organic soils, Bog soils
	Fibrists	Tropofibrists	Common	Peat soils, Organic soils, Bog soils
Inceptisols	Aquepts	Andaquepts	Local	Humic Olive Ash soils, Unweathered Sandy Volcanic soils with black topsoils
		Tropaquepts	Common	Gleyed Plastic Heavy Clay soils, Dark soils of Heavy Texture, Gleyed Pelosols
	Andepts	Cryandepts	Very local	Humic Brown Clay soils (on volcanic ash)
		Hydrandepts	Very common	Humic Brown Clay soils (on volcanic ash), Latosolic Andosols
		Eutrandepts	Very common	Moderately to little weathered Brown Ash soils Unweathered Sandy Volcanic soils with black topsoils, Brown Loams
		Dystrandepts	Common	Moderately to little weathered Brown ash soils, Brown Loams
		Vitrandepts	Very common	Unweathered Sandy Volcanic soils with black topsoils
		Durandepts	Very local	Brown Loams with an ash pan
	Tropepts	Humitropepts	Very common	Humic Brown Clay soils
		Ustropepts	Local	Brown Clay soils
		Eutropepts	Very common	Brown Forest soils, Dark Alluvial soils, Shallow Dark Clay soils, Reddish Clay soils
		Dystropepts	Very common	Strongly weathered Red and Brown Clay soils, Acid Red to Brown Clay soils, Acid Brown Forest soils, Uniform Red and Yellow Clays, Reddish Clay soils
Vertisols	Uderts	Pelluderts	Local	Alluvial Black Clay soils, Black Earths, Grumusols
	Usterts	Pellusterts	Very local	Dark Cracking Clay soils, Grumusols
Mollisols	Aquolls	Argiaquolls	Local	Dull Meadow Podzolic soils, Meadow Podzolic soils

Table 1 - Page 2

Order	Suborder	Great group	Distribution	Major previously named soil group
Mollisols (cont.)		Haplaquolls	Common	As for Argiaquolls but also poorly drained old Alluvial soils and Gleyed Pelosols
	Rendolls	n/a	Very common	Rendzinas, Limestone soils
	Ustolls	Natrustolls	Very local	Shallow Black Earths, Texture Contrast soils
		Argiustolls	Very local	Texture Contrast soils, Brown Clay soils
		Haplustolls	Very local	Dark Cracking Clay soils, Beach soils
		Hapludolls	Very common	Young Alluvial soils, well-drained old Alluvial soils, Old Alluvial soils, Alluvial Black Clay soils
Alfisols	Aqualfs	Plinthaqualfs	Common	Meadow Podzolic soils, Meadow soils
		Tropaqualfs	Common	As for Plinthaqualfs but also Gleyed Plastic Heavy Clay soils and Weathered Gleyed soils
	Ustalfs	Haplustalfs	Local	Texture contrast soils, Brown clay soils
	Udalfs	Tropudalfs	Very common	Dull Meadow Podzolic soils, Brown Forest soils, Immature brown soils on sedimentary rocks
Ultisols	Aquults	Paleaquults	Very local	Podzolised Gley Laterites, Lateritic and Gleyed Latosols
		Plinthaquults	Common	Meadow Podzolic soils, Podzolic Lateritic soils, Podzolised Gley Laterites
		Tropaquults	Common	Meadow soils, Meadow Podzolic soils, Gleyed Plastic Heavy Clay soils, Lateritic and Gleyed Latosols
	Humults	Palehumults	Local	Humic Brown Clay soils, Latosolic Andosols
		Plinthohumults	Local	Lateritic and Gleyed Latosols
		Tropohumults	Common	Humic Brown Clay soils, Humic Brown and Red Latosols, Strongly Weathered Red and Brown Clay soils
	Udults	Paleudults	Local	Lateritic soils, Podzolic Lateritic soils
		Plinthudults	Common	Red and Yellow Earths, Meadow Podzolic soils
		Tropudults	Common	Acid Red to Brown Clay soils, Dull Meadow Podzolic soils
Oxisols	Orthox	Haplorthox	Very local	Acid Red to Brown Clay soils

Fluvaquents are poorly to very poorly drained alluvial soils typically found on the flood plains of the major rivers. Organic carbon content is relatively high (>0.2%) at least to a depth of 1.25 m or decreases irregularly with depth

Psammaquents are sandy textured soils with grey or mottled grey colours

3.3.2 Psamments

Well to imperfectly drained soils that have a texture of loamy fine sand or coarser to a depth of 1 m or to rock, whichever is shallower. They have less than 35% gravel or coarse fragments.

Tropopsamments are moderately well drained sandy soils that have some weatherable minerals. Mean annual soil temperature is 8°C or higher and the soils remain moist during most of the year

Ustipsamments are moderately well drained sandy soils that have some weatherable minerals. Mean annual soil temperature is 8°C or higher and the soils are dry in some or all parts for less than 90 days (cumulative) in most years

3.2.3 Fluvents

Well to imperfectly drained alluvial soils on slopes of < 25% (11°) that have organic carbon contents which decrease irregularly with depth or remain above 0.2% to 125 cm. They have a texture of loamy fine sand or finer at depths below 25 cm.

Tropofluvents are moderately well drained, stratified alluvials with textures of loamy fine sand or finer. Soil temperature is 8°C or higher and the soils remain moist during most of the year

Ustifluvents are moderately well drained, stratified alluvials with textures of loamy fine sand or finer. The soils are dry in some or all parts for at least 90 days (cumulative) in most years

3.2.4 Orthents

Soils without any diagnostic horizons formed on recent erosional surfaces. They overlie rock at 25 cm or shallower or have more than 35% coarse fragments at less than 1 m depth, or have loamy or finer textures in some horizon between the A horizon and a depth of 1 m or a rock surface. They occur on slopes greater than 25% (11°) or have organic carbon contents that decrease regularly with depth or reach a level equal to or less than 2% at 1.25 m depth. Characteristics associated with wetness are absent.

Troporthents are Orthents that have mean annual soil temperature of 8°C or higher and the soils remain moist during most of the year

Cryorthents are Orthents that have a mean annual soil temperature of less than 8°C

Ustorthents are Orthents that have a mean annual soil temperature of 8°C or higher, and the soils are dry in some or all parts for less than 90 days (cumulative) in most years

3.3 Histosols

Histosols are organic soils.

3.3.1 Folists

Organic (peat) soils that are never saturated with water for more than a few days and have rock, stones or boulders at a depth of less than 1 m.

Cryofolists are freely drained soils of the high mountains with a mean annual soil temperature between 0 and 8°C

Tropofolists are freely drained soils with a mean annual temperature of 8°C or higher

3.3.2 Fibrists

Little decomposed organic (peat) soils in which the plant remains are not easily destroyed by rubbing and their botanical origin can be readily determined. They are saturated with water for six months or more of the year.

Tropofibrists are Fibrists that have a mean annual soil temperature of 8°C or higher

3.3.3 Hemists

Moderately decomposed organic soils (peat) in which the botanic origin of two-thirds of the materials cannnot be readily determined. They are permanently saturated with water and have a bulk density between 0.1 and 0.2 g cm^{-3}.

Sulfihemists are Hemists which have an horizon that has both a pH < 3.5 and jarosite mottles within 100 cm of the surface

Tropohemists are Hemists with a mean annual soil temperature of 8°C or higher

3.4 Inceptisols

Inceptisols are moderately weathered soils without contrasting horizons.

3.4.1 Aquepts

Slightly to moderately weathered soils that have characteristics associated with wetness or a sodium saturation of 15% or higher in more than half the soil to a depth of 50 cm, and a water table within 1 m of the surface at some time of the year.

Andaquepts are Aquepts formed on volcanic ash having a low bulk density, black topsoils and mottled grey subsoils

Tropaquepts are generally fine textured soils with dark topsoils and greyish mottled subsoils that have a mean annual soil temperature of $8^{o}C$ or higher

3.4.2 Andepts

Moderately weathered, freely drained soils formed on volcanic ash and containing appreciable amounts of allophane that has a high exchange capacity. They have low bulk densities (< 0.85 g cm^{-3}) and lack the characteristics associated with wetness.

Cryandepts are cold soils of the high mountains that have a mean annual soil temperature between 0 and $8^{o}C$

Hydrandepts are Andepts that have clays which dehydrate irreversibly into aggregates of silt, sand and gravel size

Eutrandepts are Andepts that have a base saturation greater than 50% in some sub-horizon between 25 and 75 cm and are thixotropic in some horizons between 25 cm and 1 m

Dystrandepts are similar to the Eutrandepts except that base saturation is less than 50% in all horizons between 25 and 75 cm

Vitrandepts are little or unweathered Andepts that have gravelly or sandy textures and lack thixotropic properties, but moisture retention is higher than might be expected in soils with these textures

Durandepts are Andepts that have a hardpan within 1 m of the soil surface

3.4.3 Tropepts

Relatively young moderately well drained soils which have a mean annual soil temperature of $8^{o}C$ or higher with less than $5^{o}C$ difference in mean temperature throughout the year. They have moderately high bulk densities (> 0.85 g cm^{-3}) and are low in amorphous clay minerals.

Humitropepts are Tropepts that have 12 or more kg m^{-2} organic carbon in the soil to a depth of 1 m and less than 50% base saturation in some horizon between depth of 25 cm and 1 m

Ustropepts are Tropepts that are dry in some part of the profile for at least 90 days (cumulative) in any year and have at least 50% base saturation in all horizons between 25 cm and 1 m in depth

Eutropepts are Tropepts which have a base saturation of 50% or more in all horizons between depths of 25 cm and 1 m and do not dry out in all parts for more than 90 days (cumulative) in most years

Dystropepts are Tropepts which have < 12 kg m^{-2} of organic carbon of soil to a depth of 1 m or have a base saturation of less than 50% in some horizon between 25 cm and 1 m

3.5 Vertisols

Vertisols are shrinking and swelling clay soils.

3.5.1 Uderts

Clay to heavy clay soils that have cracks which remain open for less than 90 days cumulative or are less than 1 cm wide at a depth of 50 cm.

Pelluderts are dark grey to black soils that have a chroma, moist, of less than 1.5 dominant in the matrix of all sub-horizons

3.5.2 Usterts

Clay soils that have cracks that remain open for 90 days (cumulative) or more in most years and typically occur in strongly seasonal climates.

Pellusterts are dark grey to black soils that have a chroma, moist, of less than 1.5 dominant in the matrix of all sub-horizons

3.6 Mollisols

Soils with thick dark base rich topsoils, and which do not have adeptic properties of less than 35 cm depth.

3.6.1 Aquolls

Poorly to very poorly drained soils with gleyed and/or prominently mottled subsoils.

Argiaquolls are Aquolls which have coarser textured surface horizons and a mean annual soil temperature which is 8°C or higher

Haplaquolls are similar to the Argiaquolls but lack the coarser textured surface horizons

3.6.2 Rendolls

Soils formed in humid regions on calcareous parent material which have a less than 50 cm thick dark surface horizon, directly overlying rock or partly decomposed, disintegrating material.

Rendolls are so similar that they have not been subdivided into great groups

3.6.3 Ustolls

Moderately well drained soils which are found in areas with strongly seasonal climates. Ustolls are dry in some or all parts of the soil for at least 90 days (cumulative) in most years.

Natrustolls are Ustolls which have coarser textured surface horizons and high exchangeable sodium content

Argiustolls are Ustolls which have coarser textured surface horizons

Haplustolls are Ustolls that lack either coarser textured surface horizons, or high exchangeable sodium content, or the accumulation of carbonates of gypsum in the upper 1 m of the soil profile

3.6.4 Udolls

Moderately well drained soils found in humid climates. Mean annual soil temperature is 8°C or higher and the soil profile does not dry out for more than a total of 90 days (cumulative) in any year. Calcium rich horizons are absent in the top 50 cm.

Hapludolls are Udolls that lack coarser textured surface horizons

3.7 Alfisols

Moderately weathered soils with finer textured base rich subsoils.

3.7.1 Aqualfs

Poorly to very poorly drained soils showing characteristics associated with wetness, namely, mottles or iron-manganese concretions, or a chroma of 2 or less immediately below the topsoil.

Plinthaqualfs are Aqualfs that have plinthite that form a continuous layer or constitutes 50% of the matrix in some sub-horizon within 1.25 m of the surface

Tropaqualfs are Aqualfs that have a mean annual soil temperature of 8°C or higher

3.7.2 Ustalfs

Moderately well drained soils that have a mean annual soil temperature which is 8°C or higher and the soil is dry in some or all parts for 90 days (cumulative) or more in most years.

Haplustalfs are Ustalfs that lack high exchangeable sodium content and the prominent red colours of the other great soil groups

3.7.3 Udalfs

Moderately well drained soils of humid climates that have a mean annual soil temperature of 8°C or higher and the soil does not dry out in some or all parts for more than 90 days (cumulative) in most years.

Tropudalfs are Udalfs that at a depth of 50 cm have less than 5°C difference in mean summer and mean winter soil temperature

3.8 Ultisols

Soils with coarser textured surface horizons and subsoils with low base saturation.

3.8.1 Aquults

Poorly to very poorly drained soils that are saturated with water at some time of the year and have a chroma, moist, of 2 or less together with mottles or iron-manganese concretions. Mean annual soil temperature is 8°C or higher.

Paleaquults are Aquults with relatively uniform textured subsoils in which the clay content does not decrease by more than 20% from its maximum within 1.5 m of the surface

Plinthaquults are Aquults which have plinthite which forms a continuous layer or constitutes more than half the matrix within 1.25 m of the surface

3.8.2 Humults

Moderately well drained, humus-rich soils that have a mean annual soil temperature which is 8°C or higher.

Palehumults are Humults with relatively uniform textured subsoils in which the clay content does not decrease by more than 20% from its maximum within 1.5 m from the surface

Plinthohumults are Humults that have plinthite that forms a continuous layer or constitutes at least 50% or more of the volume of some sub-horizon within 1.25 m of the surface

Tropohumults are Humults that at a depth of 50 cm have less than 5°C difference between mean summer and mean winter soil temperatures

3.8.3 Udults

Moderately well drained, humus-poor soils found in humid climates. Mean annual soil temperature is 8°C or more and the soil does not dry in some or all parts for more than 90 days (cumulative) in most years.

Paleudults are Udults with relatively uniform textured subsoils in which the clay content does not decrease by more than 20% from its maximum within 1.5 m from the surface

Plinthudults are Udults that have plinthite that forms a continuous phase or constitutes more than 50% of some horizon within the upper 1.25 m of soil

Tropudults are Udults that have less than 5°C difference between mean summer and mean winter soil temperatures

3.9 Oxisols

Strongly weathered soils with a very low subsoil cation exchange capacity.

3.9.1 Orthox

Well drained soils that have (within 2 m of the soil surface) a mean annual soil temperature of 8°C or less and the soil does not dry out in any part for more than 90 days (consecutive).

Haplorthox are Orthox that have a cation retention capacity of greater than 1.5 meq per 100 g clay and a base saturation of less than 35% in some part of the subsoil

3.10 Soil and terrain attributes

In addition to the soil association, information relating to several other attributes important for land evaluation are shown on the map, namely slope, texture and phase of the dominant soil of the mapping unit (Table 2).

Slope classes, indicated by a letter (a, b, c or d), are important for the assessment of factors such as erodibility hazard, accessibility and the use of agricultural machinery. Texture classes, shown by a number ranging from 1 to 5, refer to the upper 25 cm of the dominant soil and are relevant to tillage, and water retention and root development.

Five soil phases are recognized and are indicated by a letter; s = salinity, f = flooding, d = depth, r = rockiness and a = anion fixation. Phases are factors which are significant to the use or management of the land but are not necessarily diagnostic for the separation of the great soil groups themselves. A soil phase is identified on the map when over 50% of the mapping unit is covered by soils which follow the criterion of the soil phase. When more than one phase occurs within the mapping unit the phase listed first in Table 2 takes priority. For instance, a mapping unit having saline soils which are subject to flooding will be indicated by a code s only.

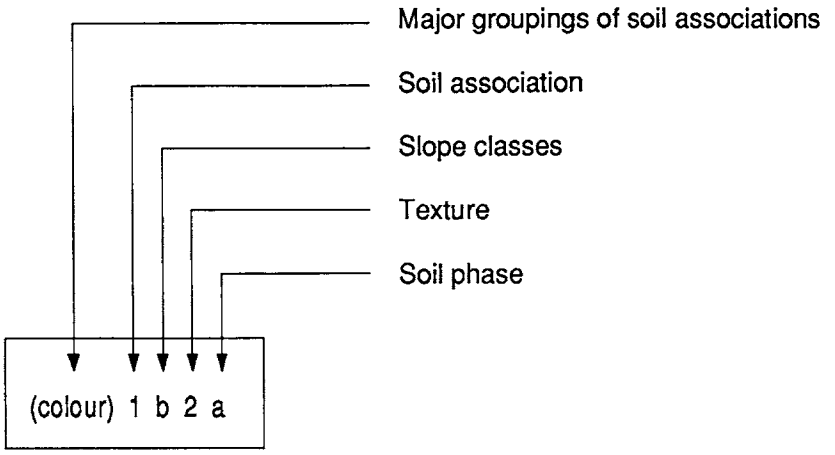
Saline phases have soils with horizons at less than 100 cm below the surface which are assessed to be either weakly or moderately to strongly saline. Areas covered by saline phases are given in Table 3 according to province and indicate that only about 1.7 % of the total area of PNG is likely to have salinity problems. As can be expected, the most extensive areas are found along the Gulf of Papua (Western, Gulf and Central provinces) with its very large stands of mangroves or estuarine areas.

Areas (by province) in which more than 50% of the mapping unit is subject to inundation or tidal flooding are given in Table 4. Almost 17% of the total area of PNG is subject to inundation or tidal flooding. The most extensive areas occur along major rivers, such as the Fly and Sepik Rivers (Western and East Sepik Province), or coastal areas such as the Gulf of Papua (Gulf Province)[1].

[1] It should be noted that areas subject to tidal flooding may be saline as well.

Table 2. Soil and Terrain attributes as presented on map

REFERENCE CODE FOR THE SOILS MAP



SOIL ASSOCIATION

Soils are tentative equivalents of the soils taxonomy and are indicated as follows:

PD = predominant >80%
D = dominant 50 - 80%
SD = subdominant 20 - 50%

SLOPE CLASSES

a = level <2° (3.5%)
b = gently sloping 2 - 10° (3.5 - 17%)
c = moderately sloping 10 - 20° (17 - 34%)
d = steeply sloping >20° (>34%)

TEXTURE

1 = coarse
2 = medium
3 = fine
4 = very fine
5 = peat

SOIL PHASES

s = Salinity
f = Flooding
d = Depth
r = Rockiness
a = Anion fixation

When more than one phase occurs within a mapping unit the phase listed first above takes priority. For instance, a mapping unit having saline soils which are subject to flooding will be indicated by a code 's'.

Table 3. Areas* (by Province) assessed to be covered by weakly or moderately to strongly saline soils

Province	Area		% of total PNG
	km^2	%	
Western	2200	2.3	0.49
Gulf	3050	9.0	0.66
Central	1050	3.5	0.23
Milne Bay	300	2.1	0.07
Northern	200	0.9	0.05
Southern Highlands	-	-	-
Enga	-	-	-
Western Highlands	-	-	-
Chimbu	-	-	-
Eastern Highlands	-	-	-
Morobe	<50	0.1	tr
Madang	-	-	-
East Sepik	300	0.7	0.06
West Sepik	<50	0.1	0.01
Manus	-	-	-
New Ireland	250	2.6	0.05
East New Britain	<50	tr	tr
West New Britain	150	0.7	0.03
North Solomons	350	3.7	0.08
Total	8000		1.74

*Rounded to nearest 50 km^2

Table 4. Areas* (by Province) assessed to be subject to inundation or tidal flooding

Province	Area		% of total PNG
	km^2	%	
Western	31 200	32.1	6.79
Gulf	10 355	30.6	2.25
Central	2 950	9.9	0.64
Milne Bay	600	4.3	0.13
Northern	3 100	13.8	0.67
Southern Highlands	350	1.4	0.08
Enga	100	0.8	0.02
Western Highlands	<50	0.4	tr
Chimbu	-	-	-
Eastern Highlands	-	-	-
Morobe	900	2.7	0.20
Madang	3 850	13.4	0.84
East Sepik	18 800	43.0	4.10
West Sepik	3 950	11.0	0.86
Manus	100	5.7	0.03
New Ireland	100	1.3	0.03
East New Britain	250	1.7	0.05
West New Britain	1 300	6.3	0.28
North Solomons	700	7.5	0.15
Total	78 600		16.92

*Rounded to nearest 50 km^2

The soil depth phase refers to soils which have a layer restricting root growth at 25 cm or less and are shown on a province basis in Table 5. A total of 9.5% of PNG is considered to be covered by shallow soils, the largest areas being found in the Morobe and Southern Highlands Provinces. The occurrence of shallow soils is mostly related to the presence of rugged terrain in combination with one (or more) of the following: limestone (Southern Highlands and Morobe), high altitude (Enga) and relatively low rainfall (Eastern Highlands).

Soils characterized by a rockiness phase are either moderately (3-15%), very (15-30%) or extremely (>30%) rocky/stony and are assessed to cover 16.8% of the total area of PNG (Table 6). Since rockiness and soil depth are often related, soils having a rockiness phase are again most widespread in the Enga, Southern Highlands, and Morobe Provinces. However, moderately rocky/stony soils are also common on steeply sloping and/or high altitude terrain underlain by consolidated rocks.

Table 7 gives the areas by province in which soils are subject to anion fixation. Anion fixation is widespread in PNG, covering an estimated 35.1% of the total landmass. It refers to soils with moderate to high phosphorus (P) fixation capacities or a low rate of nitrogen mineralization.

3.11 Distribution of the Mapping Units

The percentage distribution of the soil associations in Papua New Guinea are given in Table 8. In Tables 9-27 (presented at the end of these Explanatory Notes), the distribution of the soil associations by province is shown. These figures have been rounded off to the nearest 50 km^2. In the discussion of the mapping units in the next section (4) the reader is referred to these tables for more detail.

P-fixation is very common in provinces covered by extensive volcanic ash deposits such as the North Solomons, Western Highlands, Enga, Chimbu and Northern Province. However, high P-fixation capacities are also found in very acid, strongly weathered soils such as occur in the Western and Manus Province. Low rates of nitrogen mineralization are much less common than high phosphorus fixation rates in PNG and are found most frequently in areas covered by organic soils.

Table 5. Areas (by Province) assessed to have soils which are <25 cm deep

Province	Area		% of total PNG
	km^2	%	
Western	1 200	1.2	0.26
Gulf	4 050	12.0	0.88
Central	4 000	13.4	0.87
Milne Bay	1 600	11.3	0.35
Northern	2 000	8.9	0.44
Southern Highlands	5 650	22.1	1.23
Enga	2 200	18.6	0.48
Western Highlands	600	6.7	0.13
Chimbu	850	14.1	0.19
Eastern Highlands	2 450	22.3	0.53
Morobe	7 750	23.1	1.69
Madang	4 200	14.6	0.91
East Sepik	1 550	3.5	0.34
West Sepik	1 750	4.9	0.38
Manus	-	-	-
New Ireland	550	5.7	0.12
East New Britain	700	4.6	0.15
West New Britain	2 500	12.0	0.54
North Solomons	200	2.1	0.04
Total	43 800		9.53

*Rounded to nearest 50 km^2

Table 6. Areas* (by Province) assessed to be moderately, very, or extremely stony/rocky

Province	Area km^2	Area %	% of total PNG
Western	3 300	3.4	0.72
Gulf	6 400	18.9	1.39
Central	6 750	22.5	1.47
Milne Bay	2 800	19.8	0.61
Northern	4 550	20.2	0.99
Southern Highlands	9 300	36.4	2.02
Enga	4 850	41.0	1.05
Western Highlands	1 150	12.9	0.25
Chimbu	1 150	19.1	0.25
Eastern Highlands	2 850	25.9	0.62
Morobe	11 400	34.0	2.48
Madang	3 750	13.1	0.82
East Sepik	2 650	6.1	0.58
West Sepik	3 250	9.0	0.71
Manus	200	9.5	0.04
New Ireland	2 600	27.0	0.57
East New Britain	4 750	31.4	1.03
West New Britain	5 050	24.3	1.10
North Solomons	650	7.0	0.14
Total	77 400		16.84

*Rounded to nearest 50 km^2

Table 7. Areas* (by Province) assessed to have soils subject to anion fixation problems

Province	Area km^2	Area %	% of total PNG
Western	57 300	59.0	12.47
Gulf	5 100	15.1	1.11
Central	8 000	26.7	1.74
Milne Bay	2 250	15.9	0.49
Northern	10 650	47.3	2.32
Southern Highlands	11 000	43.0	2.39
Enga	5 950	50.3	1.30
Western Highlands	5 950	66.9	1.30
Chimbu	3 150	52.3	0.68
Eastern Highlands	4 500	40.9	0.98
Morobe	6 850	20.4	1.49
Madang	3 740	13.1	0.82
East Sepik	11 150	25.5	2.43
West Sepik	5 900	16.4	1.28
Manus	700	33.4	0.15
New Ireland	2 850	29.6	0.62
East New Britain	1 800	11.9	0.39
West New Britain	7 000	33.7	1.52
North Solomons	7 600	81.5	1.65
Total	161 450		35.13

*Rounded to nearest 50 km^2

Table 8. % distribution of soil associations*

Major landform subdivision	Major grouping of soil association	% area of PNG	Soil association	Area km^2**	Area %
PLAINS AND VALLEYS	Land dominated by waterlogged undifferentiated soils	1.2	Sulfaquents SD, Hydraquents SD, various Histosols SD	5 550	1.2
	Land dominated by waterlogged or very poorly drained undifferentiated soils		Hydraquents SD, Fluvaquents SD, various Histosols SD	46 450	10.1
		12.0	Hydraquents D or SD, Fluvaquents D or SD	5 600	1.2
			Hydraquents D or SD, Fluvaquents SD, Tropofluvents SD	3 350	0.7
	Land dominated by poorly drained undifferentiated soils		Fluvaquents PD	2 400	0.5
			Fluvaquents D or SD, Tropofluvents SD Locally Tropaquepts or various Histosols SD Near volcanoes various Andepts SD; on raised coral Rendolls and/or Eutropepts SD	19 050	4.1
		5.7	Fluvaquents D or SD, Ustifluvents D or SD. Locally Ustipsamments or Pellusterts SD	1 600	0.4
			Fluvaquents SD, Tropopsamments or Tropofluvents SD, Psammaquents SD	1 200	0.3
			Fluvaquents SD, Haplaquolls SD, Tropofluvents or Hapludolls SD. Near volcanoes various Andepts	1 800	0.4
	Land dominated by well to imperfectly drained undifferentiated soils		Tropofluvents SD, Hapludolls SD, Fluvaquents or Psammaquents SD	2 600	0.6
		0.9	Tropofluvents SD, Hapludolls SD, Tropopsamments or Troporthents SD	1 000	0.2
			Tropofluvents SD, Hapludolls SD Pelluderts SD	450	0.1
	Land dominated by shallow and/or coarse textured undifferentiated soils often subject to seasonal moisture stress	0.2	Ustipsamments or Tropopsamments SD, Ustorthents or Troporthents SD, various Aquents SD	1 000	0.2
	Land dominated by organic soils		Tropofibrists or Tropohemists D, Hydraquents or Fluvaquents SD. Under mangrove Sulfihemists SD	3 900	0.9
		1.4	Tropofibrists D, Psammaquents SD	650	0.1
			Tropofibrists SD, Tropaquepts or Fluvaquents SD. Locally Haplaquolls or Andaquepts SD	1 850	0.4
	Land dominated by soils with thick, dark topsoils and undifferentiated soils subject to seasonal moisture stress	0.5	Haplustolls SD, Ustipsamments or Ustifluvents SD, Ustorthents SD. Locally Hapludolls or Natrustolls SD	2 500	0.5

Table 8 - Page 2

Major landform subdivision	Major grouping of soil association	% area of PNG	Soil association	Area km^2**	Area %
	Land dominated by strongly weathered poorly drained soils with finer textured subsoils		Plinthaquults D or SD, Plinthudults SD Locally Paleaquults SD	7 000	1.5
			Plinthaquults SD, Plinthaqualfs SD Plinthudults SD	2 550	0.6
		2.5	Plinthaquults SD, Plinthaqualfs SD, Argiaquolls SD. Locally Plinthohumults or Tropofluvents SD	850	0.2
			Piinthaquults SD, Dystropepts SD, Paleaquults SD	950	0.2
	Land dominated by strongly weathered imperfectly drained soils with finer textured subsoils		Plinthudults D, Plinthaquults SD	17 000	3.7
		4.1	Tropudults D or SD, Plinthaquults SD, Tropudalfs SD	1 800	0.4
LOW MOUNTAINS AND HILLS	Land dominated by shallow undifferentated soils subject to seasonal moisture stress		Ustorthents SD, Ustropepts SD, Pellusterts SD. Locally Haplustolls SD	600	0.1
		1.7	Ustorthents D or SD, Ustropepts D or SD, Haplustalfs SD. Locally Argiustolls SD	5 850	1.3
			Ustorthents D or SD, Ustropepts or Eutropepts D or SD, various Udolls or Tropudalfs SD	1 450	0.3
	Land dominated by slightly to moderately weathered ash soils with black topsoils		Eutrandepts SD, Dystrandepts SD, Dystropepts or Eutropepts SD. Locally Hydrandepts SD	1 600	0.4
		0.7	Eutrandepts SD, Dystrandepts or Vitrandepts SD, Hapludolls SD. Locally Andaquepts, Tropaquepts or Tropaqualfs SD	1 450	0.3
	Land dominated by slightly weathered generally coarse textured ash soils		Vitrandepts D or SD. Eutrandepts D or SD	5 850	1.3
			Vitrandepts SD, Eutrandepts SD, Durandepts SD	2 150	0.5
		3.2	Vitrandepts SD, Eutrandepts SD, Troporthents SD	3 450	0.7
			Vitrandepts SD, Eutrandepts SD, Hapludolls SD. Locally various Aquents or Fluvents SD	3 150	0.7
	Land dominated by slightly to moderately weathered soils with altered B-horizons		Eutropepts D, Troporthents SD	4 250	0.9
			Eutropepts SD, Troporthents SD, Tropofolists SD	1 100	0.2
		2.8	Eutropepts SD, Troporthents SD, Hapludolls SD. Near volcanoes various Andepts SD	3 300	0.7
			Eutropepts SD, Troporthents SD, Tropudalfs SD	4 100	0.9

Table 8 - Page 3

Major landform subdivision	Major grouping of soil association	% area of PNG	Soil association	Area km²**	Area %
	Land dominated by moderately weathered soils with altered B-horizons		Dystropepts SD, Eutropepts SD, Troporthents SD	56 100	12.2
			Dystropepts SD, Eutropepts SD, Rendolls SD	4 100	0.9
			Dystropepts SD, Eutropepts SD, Tropaquepts SD	8 900	1.9
		22.4	Dystropepts SD, Eutropepts or Troporthents SD, Hapludolls SD. Near volcanoes various Andepts SD	5 700	1.2
			Dystropepts SD, Eutropepts or Troporthents SD, Tropudalfs, Tropudults or Tropohumults SD	23 500	5.1
			Dystropepts SD, Eutropepts SD, various Orthox SD	4 500	1.0
	Land dominated by moderately to strongly weathered soils with altered B-horizons		Dystropepts D, Haplorthox SD	9 800	2.1
			Dystropepts D, Paleudults SD	2 700	0.6
		5.6	Dystropepts SD, Haplorthox SD, various Udults or Humults	11 250	2.4
			Dystropepts SD, Haplorthox SD, various Andepts SD	2 100	0.5
	Land dominated by shallow, dark, weakly acid to neutral soils		Rendolls SD, Troporthents SD, Eutropepts SD. Near volcanoes various Andepts SD	27 950	6.1
		8.6	Rendolls SD, Troporthents SD, various Tropepts SD	1 900	0.4
			Rendolls SD, Troporthents SD, Tropudalfs SD	8 200	1.8
			Rendolls SD, Eutropepts SD, Tropaquepts, Pelluderts, and various Entisols or Histosols SD	1 400	0.3
	Land dominated by moderately weathered soils with finer textured subsoils		Tropudalfs D or SD, Eutropepts or Dystropepts SD, various Aqualfs or Aquepts SD	4 050	0.9
		1.4	Tropudalfs D or SD, Eutropepts or Dystropepts SD, various Udolls SD	1 700	0.4
			Tropudalfs SD, Hapludolls SD, various Orthents or Rendolls SD	850	0.2
	Land dominated by moderately weathered soils with finer textured subsoils which are subject to seasonal moisture stress	<0.1	Haplustalfs D, Argiustolls and/or Halustolls SD	200	<0.1
	Land dominated by strongly weathered soils with finer textured subsoils		Plinthudults SD, Dystropepts SD, Paleudults or Tropudults SD	32 150	7.0

Table 8 - Page 4

Major landform subdivision	Major grouping of soil association	% area of PNG	Soil association	Area km^{2}**	Area %
		7.3	Plinthudults SD, Dystropepts SD, Tropaquepts SD	650	0.1
			Plinthudults and/or Tropudults SD, Dystropepts SD, Tropudalfs SD	650	0.1
HIGH MOUNTAINS	Land dominated by undifferentiated, shallow and organic soils		Troporthents or Cryorthents D or SD, Tropfolists or Cryofolists D or SD	4 750	1.0
		1.8	Troporthents or Cryorthents SD, Tropofolists or Cryofolists SD, Cryandepts or Hydrandepts SD	3 700	0.8
	Land dominated by moderately weathered ash-soils with thick dark topsoils		Hydrandepts D or SD, Dystrandepts D or SD. Locally Andaquepts or various Histosols	2 450	0.5
		0.9	Hydrandepts D. Tropofolists and/or Troporthents SD, Dystrandepts SD	1 750	0.4
	Land dominated by moderately weathered ash and non ash soils with high organic matter content		Hydrandepts SD, Humitropepts SD, Dystrandepts SD	4 650	1.0
			Hydrandepts SD, Humitropepts SD, Tropaquepts SD	550	0.1
		2.0	Hydrandepts SD, Humitropepts and/or Eutropepts SD, Rendolls and/or Hapludolls SD	2 250	0.5
			Hydrandepts SD, Humitropepts SD, Troporthents and/or Tropofolists SD	1 250	0.3
			Hydrandepts or Dystrandepts SD, Humitropepts SD, Plintahquults or Palehumults SD	700	0.1
	Land dominated by moderately weathered soils with high organic matter content		Humitropepts SD, Eutropepts and/or Dystropepts SD, Troporthents or Ustorthents SD	29 450	6.4
			Humitropepts SD, Eutropepts and/or Troporthents SD, Tropofolists SD	2 200	0.5
			Humitropepts SD, Eutropepts and/or Troporthents SD, Tropaquepts SD	2 550	0.6
		10.9	Humitropepts SD, Eutropepts and/or Troporthents SD, various Andepts SD	3 350	0.7
			Humitropepts SD, Eutropepts and/or Troporthents SD, Rendolls or Hapludolls SD	2 650	0.6
			Humitropepts SD, Eutropepts and/or Troporthents SD, Tropudalfs, various Ultisols or Oxisols SD	9 750	2.1

Table 8 - Page 5

Major landform subdivision	Major grouping of soil association	% area of PNG	Soil association	Area km^2**	Area %
	Land dominated by shallow, dark, weakly acid to neutral soils		Rendolls SD, Troporthents and/or Cryorthents SD, Tropofolists and/or Cyofolists SD	5 450	1.2
		1.9	Rendolls SD, Troporthents SD, Humitropepts SD	2 250	0.5
			Rendolls SD, Troporthents SD, Hapludolls SD, various Andepts or Tropofolists SD	900	0.2

* Another 1200 km^2 or 0.3% covers lakes
**Areas rounded to nearest 50 km^2

4. DESCRIPTION OF THE MAPPING UNITS

4.1 Plains and Valleys

4.1.a Land dominated by waterlogged undifferentiated soils

This major grouping comprises only one soil association (Sulfaquents, Hydraquents and various Histosols) which is estimated to cover 5500 km^2, or 1.2% of the total area of PNG.

The association occurs along the coast in many provinces and is most common in the Gulf, Western and Central Province which account for almost 90% of its total distribution. It is typically found under mangrove vegetation along sheltered, mostly muddy shores of estuaries and flats, where tidal flooding prevails and soils are dominantly alkaline.

The major soil of this association, Sulfaquents, becomes strongly acidified upon aeration due to the presence of sulfides in the estuarine deposits.

This land is unsuitable for agriculture.

4.1.b Land dominated by waterlogged or very poorly drained undifferentiated soils

This major grouping consists of three soil associations covering about 55 500 km^2 or just over 12% of the total area of PNG.

Hydraquents and Fluvaquents are the major soils and occur most widespread in the lowlands along vast tracts of major rivers such as the Fly, Sepik and Purari. Therefore, these soils are very common in the Western, East and West Sepik and Gulf Provinces.

They are medium to fine textured soils which occur mainly in back swamps, blocked or drowned valley swamps and composite levee plains covered by swamp forest, swamp woodland or swamp grassland and mixed herbaceous swamp vegetation. In relatively sheltered positions, where little active deposition takes place, they are often associated with Histosols.

Although the soils often have a high nutrient status they offer little scope for future agricultural development without major improvement.

4.1.c Land dominated by poorly drained undifferentiated soils

This major grouping comprises five soil associations and totals approximately 26 100 km^2 or about 5.6% of the total land area of PNG.

Fluvaquents are the dominant soils, but other great soil groups such as the better drained Tropofluvents and Ustifluvents and the sandy Tropopsamments also form significant proportions of the mapping units.

Soils belonging to the first, second and fifth soil association of this major grouping (see Table 8) are mostly found on composite alluvial plains, narrow alluvial plains and meander floodplains of the East and West Sepik, Gulf and Madang Provinces. Their most common vegetation types are large to medium crowned forest, open forest and small crowned forest on plains.

The third soil association (Fluvaquents, Ustifluvents and locally Ustipsamments or Pellusterts) of this grouping typically occurs in areas with relatively low rainfall and a strong seasonality such as the coastal area of the Central Province. Here the soils are found on composite alluvial plains covered by grassland.

Fluvaquents together with Tropopsamments or Tropofluvents and Psammaquents (soil association 4) are most widespread in the North Solomons Province where they are found on volcano alluvial plains and beach ridge complexes overlain by volcano-alluvial deposits and covered by open forest or pioneer communities.

Although much of this land is considered to have soils with a moderately to high nutrient status and weakly acid soil reaction, large parts are subject to inundation and very hard to improve without major reclamation works.

4.1.d Land dominated by well to imperfectly drained, undifferentiated soils

This major grouping consists of three soil associations covering about 4100 km^2 or 0.9% of the total area of PNG. The dominant soils are Tropofluvents and Hapludolls.

The first association occurs in many coastal provinces and includes other undifferentiated, but poorly drained, medium and coarse textured soils (Fluvaquents and Psammaquents). These soils are found most widespread in the Madang, West Sepik and Morobe Provinces on narrow alluvial plains and flanking terraces, little dissected recent alluvial fans and composite levee plains. Large to medium crowned forest is the major vegetation.

The second association (Tropofluvents, Hapludolls, Tropopsamments or Troporthents) dominates on composite alluvial plains with large to medium crowned forest in the Northern Province.

The third, and smallest, soil association of this grouping includes dark cracking clay soils (Pelluderts) and is found mostly under grassland on composite bar plains and alluvial fan complexes in the relatively low rainfall areas of the Madang and Morobe provinces.

Although being highly suited for agricultural development much of this land is presently unused. This appears to be largely due to traditional cultural practices.

4.1.e Land dominated by shallow and/or coarse textured undifferentiated soils often subject to seasonal moisture stress

The mapping unit consists of four soil associations, three of which are found in the low mountains and hills where they will be discussed separately.

In the plains and valleys the major grouping totals only about 1000 km^2 or 0.2% of the total area of PNG and is one of the smallest mapped. It is typical for low rainfall areas with a strong seasonality and almost 90% of it is located the Central, Morobe or Milne Bay Provinces.

It consists of undifferentiated, mostly coarse textured soils (Psamments and Orthents) and poorly drained soils (Aquents), occurring most commonly on beach ridge complexes and beach plains but also on meander floodplains, braided floodplains or bar plains and little dissected relict alluvial fans. Grassland, littoral forest or open forest on plains are the dominant vegetation types.

Although having dominantly coarse textured, often shallow, soils of low fertility this soil association is considered to be moderately suitable for agriculture, particularly pastures and coconut plantations.

4.1.f Land dominated by organic soils

This major mapping unit consists of three soil associations which total 6400 km^2 or 1.4% of the total area of PNG and occur in a wide variety of environments.

The first association (Tropofibrists or Tropohemists, Hydraquents or Fluvaquents and Sulfihemists) dominates in the coastal areas of the East Sepik and Northern Provinces where it is typically found in backswamps and unstable alluvial plains where little active sedimentation takes place. Swamp woodland and swamp grassland are the dominant vegetation. However, near the coast under mangroves Sulfihemists, which become strongly acidified upon aeration, may also be present.

The second soil association (Tropofibrists, Psammaquents) is solely confined to low altitude, undifferentiated swamps of the North Solomons Province which consist of peat and redistributed, sandy volcanic ash deposits and are covered by pioneer communities or swamp woodland.

The third association (Tropofibrist, Tropaquepts or Fluvaquents and locally Haplaquolls and Andaquepts) is found at variable altitudes, commonly in the vicinity of volcanoes. It is most extensive under grassland in the wet, high altitude composite alluvial plains of the Highlands (Western Highlands, Enga and Southern Highlands Provinces). However, this association also occurs in the backplains and backswamps of the Western and West New Britain Province.

Poor drainage conditions and long term inundation render this major grouping unsuitable for agricultural development.

4.1.g Land dominated by soils with thick dark topsoils and undifferentiated soils subject to moisture stress

This major mapping unit has only one soil association (Haplustolls, Ustipsamments or Ustifluvents, Ustorthents with locally Hapludolls or Natrustolls) which covers approximately 2500 km^2 or 0.5% of the total land area. It is mainly located in the Morobe and Northern Provinces in areas characterized by low rainfall and a strong seasonality.

In the Morobe Province it is comprised of little dissected recent alluvial fans and fan complexes of the Markham Valley which are typically covered by grassland. The landforms in the Northern Province range from composite alluvial plains to low hilly terrain underlain by alluvium or coarse grained sedimentary rocks. The vegetation varies from grassland to medium crowned lowland hill forest.

Apart from the generally low fertility and seasonal moisture stress, this soil association is considered to have a moderate to high suitability for agriculture.

4.1.h Land dominated by strongly weathered, poorly drained soils with finer textured subsoils

This major mapping unit has four soil associations and is characterized by strongly weathered soils (Ultisols) formed on relict alluvial plains, colluvial mudflows or fans underlain by Pleistocene sediments. It covers about 11 500 km^2 or 2.5% of the total land area of PNG.

Over 90% of the first, and largest soil association, comprising Plinthaquults, Plinthudults and locally Paleaquults, occurs in the Western Province where it is found on poorly drained, gently undulating relict alluvial plains with broad swampy drainage depressions. The vegetation consists of scrub, reflecting the generally harsh climatic conditions and/or poor soil nutrient status.

Very similar conditions to the first soil association prevail in the East Sepik Province where over 95% of the 2nd soil association (Plinthaquults, Plinthaqualfs and Plinthudults) is located. However, as indicated by the presence of Alfisols in the association, the soils are generally slightly less weathered in comparison with those of the Western Province. Grassland is the dominant vegetation.

The third soil association (Plinthaquults, Plinthaqualfs, Argiaquolls with local Plinthohumults or Tropofluvents) is confined solely to grassland areas in the highlands, occurring on moderately sloping hilly terrain with weak or no structural control (Eastern Highlands) as well as very gently sloping, colluvial mudflows or fans (Western Highlands).

The fourth soil association, consists of Plinthaquults, Dystropepts and Paleaquults, and is entirely confined to the West Sepik Province where it is covered by small crowned forest.

Poor drainage conditions and the very low fertility of the soils render most of this land only marginally suitable for agriculture. Pastures appear to offer the best potential.

4.1.i Land dominated by strongly weathered, imperfectly drained soils with finer textured subsoils

This major mapping unit has two soil associations covering a total of about 19 000 km^2 or 4.1% of the total land area of PNG. It is typically found in the Western Province on nutrient poor, highly weathered Pleistocene sediments having soils with dominantly imperfect drainage conditions.

The first, and by far largest, soil association (Plinthudults and Plinthaquults) is entirely confined to the Western Province where it occurs on gently undulating relict alluvial plains with broad swampy drainage depressions. Dry evergreen forest, reflecting the slightly better drained conditions compared to the previous major mapping unit (h), is the dominant vegetation.

Under slightly wetter conditions, soils belonging to the second association comprising Tropudults, Plinthaquults and Tropudalfs are found. The association again occurs widespread on relict alluvial plains in the Western Province. However, in both the East Sepik and Madang Province it is also found on little dissected or undissected relict alluvial plains, colluvial mudflows or fans. Medium crowned lowland hill forest, reflecting the somewhat wetter conditions in comparison with the first association, is the characteristic vegetation of this soil association.

This mapping unit is considered to have moderate suitability for agriculture, the low nutrient status on imperfectly drained soils being the major limitation. Tree crops such as rubber and oil palm appear to offer the best prospects.

4.2 Low Mountains and Hills

4.2.a Land dominated by shallow undifferentiated soils subject to seasonal moisture stress

This major mapping unit comprises four soil associations the first of which has been described previously in the plains and valleys (see section 4.1.e). The three other soil associations are found in the low mountains and hills and cover a total of 7900 km^2 or 1.7% of the total land area of PNG. They are typical for areas having a lower rainfall, and occur on either hilly terrain with weak or no structural control or homoclinal ridges and cuestas. Coarse grained sedimentary rocks are the major parent material.

The second soil association (Ustorthents, Ustropepts, Pellusterts and local Haplustolls) is most common on moderately to steeply sloping terrain covered by savanna or woodland in the Central Province and the most eastern part of the Gulf Province.

The third soil association (Ustorthents, Ustropepts, Haplustalfs and local Argiustolls) dominates in the Central Province on less steeply sloping terrain and has a similar vegetation to the previous association. However, it is also commonly found on moderate slopes in the Morobe Province.

The fourth soil association, comprising Ustorthents, Ustropepts or Eutropepts with various Udolls and Tropudalfs, is most widespread in the East Sepik and Milne Bay Provinces. It occurs on moderately to steeply sloping terrain covered by grassland or medium crowned lowland hill forest reflecting slightly wetter conditions compared to the other soil associations belonging to this major grouping.

Being dominated by shallow, coarse textured soils on moderately to steeply sloping terrain most of this mapping unit is considered unsuitable for agriculture.

4.2.b Land dominated by slightly to moderately weathered ash soils with black topsoils

This major grouping comprises two soil associations covering about 3000 km^2 or 0.7% of the total land area of PNG. It is by far most common in the Northern Province where almost 50% of the first, and more than 70% of the second soil association is found. Other relatively large occurrences are in the East New Britain, Western Highlands and West New Britain Provinces.

The first soil association (Eutrandepts, Dystrandepts, Dystropepts or Eutropepts and locally Hydrandepts) dominates on steeply sloping terrain comprising various parent materials, but which are overlain by recent volcanic ash deposits. Medium crowned lowland hill forest is the major vegetation.

The second association (Eutrandepts, Dystrandepts or Vitrandepts, Hapludolls with local Andaquepts, Tropaquepts or Tropaqualfs), in contrast, consists of ash soils formed largely on little dissected or dissected volcanic footslopes and volcano-alluvial fans. Pioneer communities on steep slopes together with gardens and regrowth on the more gently sloping terrain is the dominant vegetation.

Apart from the steeply sloping terrain much of this land is considered to be highly suitable for agriculture, particularly arable and tree crops.

4.2.c Land dominated by slightly weathered generally coarse textured ash soils

This major mapping unit consists of four soil associations with an area of about 14 500 km^2 or 3.2% of the total landmass of PNG. Medium crowned lowland hill forest is the dominant vegetation.

Although the first soil association (Vitrandepts and Eutrandepts) is widely distributed throughout the coastal and island provinces, over 75% of it is found in the North Solomons and West New Britain. The association is most common on moderately to steeply sloping terrain comprising of volcanic cones and domes and dissected volcanic footslopes, but also occurs on low mountains and hills which have been blanketed by recent volcanic ash deposits.

The second soil association (Vitrandepts, Eutrandepts and Durandepts), in contrast, is entirely confined to North Solomons and the East and West New Britain Provinces. It dominates on little dissected and dissected volcanic footslopes and volcano-alluvial fans underlain by pyroclastics and volcano-alluvial deposits.

Although the third soil association (Vitrandepts, Eutrandepts and Troporthents) is most common in the North Solomons and West New Britain Provinces, it also has small occurrences in the Madang, Northern, Morobe and Milne Bay Provinces. It is mainly formed on steeply sloping volcanic cones and domes underlain by volcanic rocks or on pyroclastics.

The fourth mapping unit (Vitrandepts, Eutrandepts, Hapludolls with local Aquents or Fluvents) has been described on a wide variety of landforms which have been covered by recent volcanic ash deposits. The association is mainly found on steeply sloping terrain in the West New Britain Province with other minor occurrences in the Morobe and North Solomons Provinces.

Areas covered by gently and moderately sloping terrain, are considered highly suitable for agriculture. Because of the potential damage of airfall ash and pyroclastics, areas close to active volcanoes appear better suited to arable crops rather than tree crops.

4.2.d Land dominated by slightly to moderately weathered soils with altered B horizons

This major grouping consists of four soil associations occurring typically on steeply sloping terrain on which soil formation and erosion have stayed in approximate equilibrium. It covers about 13 000 km^2 or 2.8% of the total landmass and mostly has a vegetation of medium crowned lowland hill forest.

While more than 70% of the first soil association (Eutropepts and Troporthents) is found in Madang and Morobe Province it is common in most coastal provinces, occurring on a wide variety of parent materials. Mountains and hills with weak or no structural control are the major landform type on which the association is found.

The second, and smallest soil association (Eutropepts, Troporthents and Tropofolists) dominates in the Central and Morobe Province on high altitude mountains and hills with weak or no structural control. It has a typical vegetation of lower montane forest. Due to relatively low temperatures at high altitudes, chemical weathering of the mineral fraction is at a minimum. In addition, on less steeply sloping terrain, organic soils (Tropofolists) have formed by the build up of organic matter which cannot be broken down sufficiently by soil organisms.

The third soil association (Eutropepts, Troporthents, Hapludolls and Andepts) occurs mainly on hilly terrain with weak or no structural control but includes soils with thick dark topsoils (Andepts) which are found on gently sloping footslopes and fans in the vicinity of active volcanoes. The association is mainly confined to the West New Britain and Milne Bay Provinces, with other local occurrences in East New Britain, Morobe and Northern Provinces.

The fourth soil association (Eutropepts, Troporthents and Tropudalfs) is typical for areas with relatively low rainfall, occurring on hilly terrain and low mountains and hills with weak or no structural control. It is found widespread throughout the coastal and island provinces, but is most common in the Morobe Province.

Steep slopes and mostly shallow soils render most of this major grouping unsuitable for agriculture.

4.2.e Land dominated by moderately weathered soils with altered B horizons

With six soil associations and an area of about 103 000 km^2 or 22.4% of the total land area this is the largest major grouping mapped in PNG. It occurs widespread throughout the moderately to steeply sloping hilly to low mountainous terrain on a large variety of parent materials. Medium crowned lowland hill forest is the dominant vegetation.

Although the first, and largest (12.2% of the total land area), soil association (Dystropepts, Eutropepts and Troporthents) is fairly evenly distributed throughout the coastal and island provinces, its major occurrences are in the Madang and East and West Sepik Provinces where they cover almost 50% of the total area. The association is most common on metamorphic and coarse grained or mixed sedimentary rocks.

The second, and smallest, soil association (Dystropepts, Eutropepts and Rendolls) dominates in the West New Britain Province on mixed sedimentary and limestone. Other, but significantly smaller, occurrences are found in the Western, Central and New Ireland Provinces.

More than 50% of the third mapping unit, comprising Dystropepts, Eutropepts and Tropaquepts), covers the Gulf and Western Provinces. It occurs typically on moderately sloping, homoclinal ridges and questas. The fine textured, impervious sedimentary parent materials giving rise to a significant proportion of poorly drained soils (Tropaquepts), particularly on less steeply sloping terrain. Other smaller mapping units lie in West New Britain, Madang, Western Highlands and Chimbu Provinces.

The fourth soil association (Dystropepts, Eutropepts or Troporthents, Hapludolls and Andepts) is very common in the vicinity of active volcanoes occurring on basic to intermediate volcanic, but also mixed sedimentary rocks. It dominates in the West New Britain and Northern Provinces with more than 70% of the total mapping unit being present in these areas. Other common occurrences are in the Chimbu, New Ireland and Gulf Provinces.

With an estimated cover of 5.1% of the total land area, the fifth soil association (Dystropepts, Eutropepts or Troporthents and Tropudalfs, Tropudults or Tropohumults) is the second largest within this major grouping occurring throughout most of the coastal and island provinces. However, it is most common in the West Sepik, Morobe, New Ireland and Milne Bay Provinces. On the less steeply sloping terrain in the lower rainfall areas (2000 - 4000 mm) the association includes moderately to strongly weathered soils with finer textured B horizons (Alfisols and Ultisols). Parent materials vary from sedimentary to igneous rocks.

The sixth soil association (Dystropepts, Eutropepts and various Orthox) is found mainly in the West and East Sepik and Northern Provinces on a wide variety of parent materials. It occurs mainly in areas with relatively high rainfall and includes strongly weathered Oxisols formed on less steeply sloping terrain.

Apart from forestry and tree crop cultivation on the less steeply sloping terrain, most of this major grouping of soil associations is considered unsuitable or marginally suitable for agriculture.

4.2.f Land dominated by moderately to strongly weathered soils with altered B horizons

This major grouping of four soil associations covers 26 000 km^2 or 5.6% of the total land area. Medium crowned lowland hill forest is the typical vegetation.

The first soil association (Dystropepts and Haplorthox) occurs widespread around Mt Bosavi in the Western and Southern Highlands Provinces on deeply weathered, gently sloping, little dissected volcanic footslopes and fans underlain by pyroclastic rocks.

More than 85% of the second soil association (Dystropepts and Paleudults) is widely distributed in the Western Province on the intricately dissected relict plains just north of the Fly River. The soils are typical for old stable landscapes with a seasonal climate and Pleistocene sediments as parent material.

The third, and largest soil association (Dystropepts, Haplorthox and various Udults and Humults) belonging to this group is found thoughout the mainland coastal provinces. It occurs mainly on mountains and hills with no stuctural control and has basic to intermediate volcanic rocks as parent material.

The fourth soil association (Dystropepts, Haplorthox and various Andepts) has a rather patchy distribution, occurring only in the Gulf, Northern, Manus and Southern Highlands Provinces. Similarly to the first association belonging to this major grouping it is found mainly on old, dissected volcanic footslopes and volcano-alluvial fans with pyroclastics as parent material.

Although dominated by strongly weathered soils of very low fertility this major grouping is considered to be moderately suitable for agriculture, particularly tree crops such as rubber and oil palm.

4.2.g Land dominated by shallow, dark, weakly acid to neutral soils

This major grouping consists of seven associations, four of which occur in the low mountains and hills, and the remainder in the high mountains. In the low mountains and hills this major grouping covers approximately 39 000 km^2 or 8.6% of the total land area. It is typically associated with limestone and other calcareous rocks and has a dominant vegetation of medium crowned lowland hill forest.

Although the first, and largest, soil association (Rendolls, Troporthents, Eutropepts and Andepts) occurs throughout the country it is mainly found in the Southern Highlands, Gulf and both New Britain Provinces. The mapping unit consists of polygonal karst plateaux or broad ridges with numerous rugged hills which, near active volcanoes, have been blanketed by ash deposits.

Almost 90% of the second soil association (Rendolls, Troporthents and various Tropepts) is found in the Gulf and Southern Highlands Provinces on mostly gently sloping homocinal ridges and questas, polygonal karst plateaux or broad ridges.

The third soil association, comprising Rendolls, Troporthents and Tropudalfs, is by far most common in the New Ireland Province with other significant occurrences in Morobe and Milne Bay Provinces. It is typically associated with gently sloping raised coral reefs and associated back reef plains in relatively low rainfall areas.

The fourth mapping unit (Rendolls, Eutropepts and Tropaquepts, Pelluderts various Entisols or Histosols) is mainly associated with moderately sloping high altitude mountains and hills as well as structural plateaux. Due to the relatively cool climate prevailing at high altitudes organic matter break down is at a minimum and has lead to the formation of Histosols on less steeply sloping terrain. However, this soil association is also found in gently sloping lowland areas in the Morobe as well as East and West New Britain, Manus and North Solomons Provinces. In coastal areas this association is most common on raised coral reefs and associated back reef plains.

Very shallow, often rocky soils on steep slopes render most of the soils belonging to this major grouping unsuitable for agriculture.

4.2.h Land dominated by moderately weathered soils with finer textured subsoils

This major grouping has three soil associations and covers about 6600 km^2 or 1.4% of the total landmass of PNG. It is typical for low rainfall areas with strong seasonality and has a dominant vegetation cover of grassland or medium crowned lowland hill forest.

Almost 85% of the first, and largest soil association (Tropudalfs, Eutropepts or Dystropepts and various Aqualfs or Aquepts) of this major grouping occurs in the East Sepik and Madang Provinces on moderately sloping, hilly terrain with weak or no structural control and which is underlain by fine grained or mixed or undifferentiated sedimentary rocks.

The second soil association (Tropudalfs, Eutropepts or Dystropepts and various Udolls) dominates in the East Sepik Province, occurring in low mountains and hills with weak or no structural control with mixed or undifferentiated igneous or mixed sedimentary and limestone as parent material. However, it is also found in the North Solomons Province on very gently sloping raised coral reefs and associated back reef plains.

The third soil association (Tropudalfs, Hapludolls and various Orthents or Rendolls) only covers small areas in the East Sepik, Northern, Central and New Ireland Provinces. It is most common on moderately sloping, hilly terrain or low mountains and hills with weak or no structural control which are underlain by sedimentary rocks.

Being dominated by moderate sloping terrain, the mapping unit is considered to be moderately suitable for agriculture, particularly tree crops and forestry.

4.2.i Land dominated by moderately weathered soils with finer textured subsoils which are subject to seasonal moisture stress

With only one soil association (Haplustalfs, Argiustolls and/or Haplustolls) covering about 200 km^2 or less than 0.1% of the total area this is the smallest unit mapped. It is entirely confined to the lower rainfall areas with strong seasonality in Northern Province. It occurs typically on gently to moderately sloping, dissected alluvial fans or colluvial mudflows. Medium or small crowned lowland hill forest or savanna in the lower rainfall areas is the dominant vegetation.

This mapping unit is considered to be moderately suitable for agriculture, particularly tree crops which prefer seasonal climates.

4.2.j Land dominated by strongly weathered soils with finer textured subsoils

This major grouping covers about 33 500 km^2 or 7.3% of the total landmass. It is typical for the gently sloping dissected relict alluvial plains and fans underlain by Pleistocene sediments and a dominant vegetation of medium crowned lowland hill forest. The mapping unit consists of three soil associations.

The first soil association (Plinthudults, Dystropepts, Paleudults or Tropudults), totalling 32 000 km^2, is the largest by far. Apart from a few minor occurrences in the Gulf and both Sepik Provinces this association dominates in the Western Province in areas having a moderate (2000-4000 mm) rainfall and weak seasonality.

The second soil association (Plinthudults, Dystropepts and Tropaquepts) is solely confined to the West and East Sepik Provinces where it is very common on impervious sediments, as shown by the presence of poorly drained Tropaquepts in this association.

Over 90% of the third soil association (Plinthudults and/or Tropudults, Dystropepts and Tropudalfs) is found in the West Sepik Province in areas with a relatively low rainfall and strong seasonality.

Strong weathering has resulted in highly leached soils with a very low nutrient status occurring in this major grouping. Combined with generally low hydraulic conductivities and imperfect drainage conditions the mapping unit is considered to have a moderate to low suitability for agriculture. Forestry and tree crops, such as rubber and oil palm, appear to offer the best prospects.

4.3 High Mountains

4.3.a Land dominated by undifferentiated, shallow and organic soils

This major grouping consists of two soil associations covering 8450 km^2 or 1.8% of the total area of PNG. The associations occur typically on moderately to steeply sloping, high altitude (above 2800 m) mountains with weak or no structural control and a vegetation of montane forest or alpine grassland. There is a wide variety of parent materials.

The first association (Troporthents or Cryorthents and Tropofolists or Cryofolists) occurs widespread in relatively small scattered areas throughout mainland provinces.

The second soil association (Troporthents or Cryorthents, Tropofolists or Cryofolists and Cryandepts or Hydrandepts) is almost solely confined to areas found in the vicinity of extinct volcanoes in highland provinces.

Low temperatures at high altitudes combined with shallow or organic soils render this major grouping unsuitable for agriculture.

4.3.b Land dominated by moderately weathered ash soils with thick dark topsoils

This major mapping unit has two soil associations which cover about 4200 km^2 or 0.9% of the total land area. It is typical for extinct volcanic cones and dissected footslopes found in the relatively cool, wet highland areas between 1200 and 2400 m, but also occurs on mountainous terrain which has been blanketed by airfall ash deposits. Lower montane forest or grassland is the most common vegetation type.

More than 80% of the first soil association (Hydrandepts, Dystrandepts with local Andaquepts or various Histosols) is found on gently to moderately sloping volcanic footslopes in the Southern Highland Province with other minor occurrences in the Enga and Western Highlands Provinces. Local poor drainage conditions have given rise to the presence of Andaquepts and/or various Histosols in low topographic positions.

Although found dominant in the Western Highlands, the second soil association (Hydrandepts, Tropofolists and/or Troporthents and Dystrandepts) is fairly evenly distributed throughout the highlands where it occurs in high rainfall areas on generally slighty less steeply sloping, but better drained, terrain compared to the first soil association.

Much of the less steeply sloping terrain is considered to be highly suitable for upland tree crops, particularly arabica coffee and tea. However vegetables and subsistence crops, such as sweet potato, also offer good prospects on gentler sloping terrain.

4.3.c Land dominated by moderately weathered ash and non ash soils with high organic matter content

This major grouping consists of five soil associations covering about 9400 km^2 or 2.0% of the total land area. It typically occurs in the highlands provinces where it is found in the vicinity of extinct volcanoes between 1200 and 2400 m altitude on steeply sloping terrain of which the blanketing volcanic ash layer has partly been stripped by erosion. Although the underlying rocks are dominantly volcanic, parent materials may vary widely. Lower montane forest and grassland are the most common vegetation types.

The first, and largest, soil association (Hydrandepts, Humitropepts and Dystrandepts) dominates in the Southern and Western Highlands occurring mainly on volcanic cones and their associated footslopes.

The second soil association (Hydrandepts, Humitropepts and Tropaquepts) is very small and occurs typically on high altitude mountains with weak or no structural control. Fine grained sedimentary rocks, giving rise to local poor drainage conditions, are common in areas where the blanketing ash has been stripped by erosion.

Like the first, the third soil association, comprising Hydrandepts, Humitropepts and/or Eutropepts and Rendolls and/or Hapludolls, dominates in the Western and Southern Highlands Provinces. In steeply sloping areas where ash has been stripped by erosion. Rendolls have formed on the substratum of limestone or calcareous sediments.

The fourth soil association (Hydrandepts, Humitropepts, Troporthents and/or Tropofolists) is typical of the terrain at highest altitudes. It occurs mainly in the Chimbu and the Southern Highlands Provinces on both pyroclastics and sedimentary rocks exposed by erosion.

The fifth soil association (Hydrandepts or Dystrandepts, Humitropepts and Plinthaquults or Palehumults), is confined to the Western Highlands and Eastern Highlands Provinces. It occurs typically on older, often strongly weathered, dissected volcano alluvial or mudflow fans comprising pyroclastic material or Pleistocene sediments stripped of ash by erosion.

Consisting of dominantly steeply sloping terrain, crop suitability is considered to be limited to forestry and tree crops. Much of this land is presently used for subsistence cultivation.

4.3.d Land dominated by moderately weathered soils with high organic matter content

With six soil associations covering almost 50 000 km^2 or 10.9% of the total land area this is one of the largest major groupings. It is typical for hilly and mountainous terrain between altitudes of 1200 and 2800 m.

The first, and by far largest soil association (Humitropepts, Eutropepts and/or Dystropepts and Troporthents or Ustorthents) covers almost 30 000 km^2 or 6.4% of the total area of PNG. It occurs throughout the country, but dominates in the relatively low rainfall areas of the Morobe, Central and Eastern Highlands Provinces. It is typical for moderately to steeply sloping mountains with weak or no structural control having a wide range of parent materials. Medium crowned lowland hill forest grading with altitude into lower montane forest is the dominant vegetation.

The second soil association (Humitropepts, Eutropepts and/or Troporthents and Tropofolists) is most common in the Enga and Eastern Highlands Province, occurring on moderately to steeply sloping terrain at altitudes between 2400 and 2800 m. It has a vegetation of lower montane forest or alpine grassland.

The third association (Humitropepts, Eutropepts and/or Troporthents and Tropaquepts) is found throughout the dry to very wet highlands on moderate to steep slopes of mountains and hills as well as homoclinal ridges and cuestas. Parent materials are dominantly fine grained sedimentary rocks or mixed sedimentary and limestone. These impervious sediments may give rise to poorly drained soils, even on terrain with moderate slopes. Lower montane forest and grassland is the most common vegetation.

Although the fourth association (Humitropepts, Eutropepts and/or Troporthents with various Andepts) dominates in the Chimbu Province, it occurs also in the Eastern Highlands, Enga, Western Highlands and Northern Provinces. It consists of moderately to steeply sloping mountains and hills with weak or no structural control, underlain by mixed sedimentary and volcanic rocks, but which may be partly covered with volcanic ash. Most of this mapping unit is under cultivation or grassland.

Steeply sloping mountains and hills and strike ridges consisting of mixed sedimentary rocks and limestone form the fifth soil association (Humitropepts, Eutropepts and/or Troporthents and Rendolls or Hapludolls). This association is dominantly found in the Enga and Southern Highlands Provinces under lower montane forest.

The sixth, and second largest soil association of this major grouping (Humitropepts, Eutropepts and/or Troporthents and Tropudalf with various Ultisols or Oxisols) occurs widespread throughout the country in the lower rainfall areas. Although typical for moderately to steeply sloping mountains and hills with mixed sedimentary and limestone as parent material it also includes more gently sloping terrain with strongly weathered Ultisols and Oxisols. Lower montane forest, grassland and gardening are the major vegetation types.

Rugged terrain with steep slopes render most of this map-

ping unit unsuitable for agriculture. However, forestry appears to offer some potential.

4.3.e Land dominated by shallow, dark, weakly acid to neutral soils

This major grouping consists of seven soil associations, the first three of which have been described previously in the low mountains and hills section. The three associations in the high mountains cover approximately 8600 km^2 or 1.9% of the total land mass and are typically associated with limestone.

Over 90% of the first, and largest soil association (Rendolls, Troporthents and/or Cryorthents and Tropofolists and/or Cryofolists) occurs in the Enga, Morobe, Southern Highlands and West Sepik Provinces. It dominantes moderately to steeply sloping terrain comprising polygonal karst and structural plateaux at altitudes above 2400 m. The major vegetation is (coniferous) lower montane forest.

The second soil association (Rendolls, Troporthents and Humitropepts) dominates in the Southern Highlands, but is also common in the Enga and Morobe Provinces. It is mainly found at altitudes of 1200 to 1800 m on steep, sharp crested strike ridges and hogback ridges and, less commonly, mountains and hills with weak or no structural control. Rainfall varies between 2000 and 4000 mm, while lower montane forest is the major vegetation.

With an area of only about 900 km^2, the third soil association (Rendolls, Troporthents, Hapludolls and various Andepts or Tropofolists) is one of the smallest mapped. More than 85% the mapping unit is found in the Chimbu and Enga Provinces, occurring most commonly in the vicinity of extinct volcanoes. It consists mainly of steeply sloping strike ridges and hogback ridges which vary widely in altitude, rainfall and vegetation type.

Steep slopes and shallow, stony soils render most of this land only unsuitable for agriculture.

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Table 9. % distribution of soil associations - Western Province

Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
PLAINS AND VALLEYS	Land dominated by waterlogged undifferentiated soils	Sulfaquents SD, Hydraquents SD, various Histosols SD	1 500	1.5
	Land dominated by waterlogged or very poorly drained undifferentiated soils	Hydraquents SD, Fluvaquents SD, various Histosols SD	19 050	19.6
		Hydraquents D or SD, Fluvaquents D or SD	3 900	4.0
	Land dominated by poorly drained undifferentiated soils	Fluvaquents PD	550	0.6
		Fluvaquents D or SD, Tropofluvents SD. Locally Tropaquepts or various Histosols SD. Near volcanoes various Andepts SD; on raised coral Rendolls SD	850	0.9
	Land dominated by organic soils	Tropofibrists SD, Tropaquepts or Fluvaquents SD. Locally Haplaquolls or Andaquepts SD	550	0.6
	Land dominated by soils with thick, dark topsoils and undifferentiated soils subject to seasonal moisture stress	Haplustolls SD, Ustipsamments or Ustifluvents SD Ustorthents SD. Locally Hapludolls or Natrustolls SD	200	0.2
	Land dominated by strongly weathered poorly drained soils with finer textured subsoils	Plinthaquults D or SD, Plinthudults SD Locally Paleaquults SD	6 500	6.7
	Land dominated by strongly weathered imperfectly drained soils with finer textured subsoils	Plinthudults D, Plinthaquults SD	17 000	17.5
		Tropudults D or SD, Plinthaquults SD, Tropudualfs SD	700	0.7
TOTAL PLAINS AND VALLEYS			50 800	52.3
LOW MOUNTAINS AND HILLS	Land dominated by moderately weathered soils with altered B-horizons	Dystropepts SD, Eutropepts SD, Troporthents SD	3 150	3.2
		Dystropepts SD, Eutropepts SD, Rendolls SD	450	0.5
		Dystropepts SD, Eutropepts SD, Tropaquepts SD	1 800	1.9
		Dystropepts SD, Eutropepts or Troporthents SD, Tropudalfs, Tropudults or Tropohumults SD	<50	<0.1
		Dystropepts SD, Eutropepts SD, various Orthox SD	<50	<0.1
	Land dominated by moderately to strongly weathered soils with altered B-horizons	Dystropepts D, Haplorthox SD	3 550	3.7
		Dystropepts D, Paleudults SD	2 300	2.4
		Dystropepts SD, Haplorthox SD, various Udults or Humults SD	150	0.1
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents SD, Eutropepts SD. Near volcanoes various Andepts SD	2 150	2.2

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Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
		Rendolls SD, Eutropepts SD, Tropaquepts, Pelluderts, and various Entisols or Histosols SD	<50	<0.1
	Land dominated by strongly weathered soils with finer textured subsoils	Plintudults SD, Dystropepts SD, Paleudults or Tropudults SD	30 650	31.6
TOTAL LOW MOUNTAINS AND HILLS			**44 250**	**45.6**
HIGH MOUNTAINS	Land dominated by undifferentiated shallow and organic soils	Troporthents or Cryorthents D or SD, Tropofolists or Cryofolists D or SD	<50	<0.1
	Land dominated by moderately weathered with high organic matter content	Humitropepts SD, Eutropepts and/or Dystropepts SD, Troporthents or Ustorthents SD	400	0.3
		Humitropepts SD, Eutropepts and/or Troporthents SD, Tropaquepts SD	500	0.5
		Humitropepts SD, Eutropepts and/or Troporthents SD, Rendolls or Hapludolls SD	<50	<0.1
		Humitropepts SD, Eutropepts and/or Troporthents SD, Tropudalfs, various Ulitsols or Oxisols SD	<50	<0.1
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents and/or Cryorthents SD, Tropofolists and/or Cryofolists SD	200	0.2
		Rendolls SD, Troporthents SD, Humitropepts SD	50	<0.1
		Rendolls SD, Troporthents SD, Hapludolls SD, various Andepts or Tropofolists SD	50	<0.1
TOTAL HIGH MOUNTAINS			**1 250**	**1.3**
TOTAL WESTERN PROVINCE (including 780 km^2 or 0.80% lakes)			**97 080**	**100.0**

*Areas rounded to nearest 50 km^2

Table 10. % distribution of soil associations - Gulf Province

Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
PLAINS AND VALLEYS	Land dominated by waterlogged undifferentiated soils	Sulfaquents SD, Hydraquents SD, various Histosols SD	2 700	8.0
	Land dominated by waterlogged or very poorly drained undifferentiated soils	Hydraquents SD, Fluvaquents SD, various Histosols SD	5 600	16.6
		Hydraquents D or SD, Fluvaquents D or SD	100	0.3
	Land dominated by poorly drained undifferentiated soils	Fluvaquents D or SD, Tropofluvents SD. Locally Tropaquepts or various Histosols SD. Near volcanoes various Andepts SD; on raised coral Rendolls and/or Eutropepets SD	2 900	8.6
		Fluvaquents SD, Troposamments or Tropfluvents SD, Psammaquents SD	<50	<0.1
		Fluvaquents SD, Haplaquolls SD, Tropofluvents or Hapludolls SD. Near volcanoes various Andepts	850	2.5
	Land dominated by well to imperfectly drained undifferentiated soils	Tropofluvents SD, Hapludolls SD, Fluvaquents or Psammaquents SD	<50	<0.1
		Tropofluvents SD, Hapludolls SD, Tropopsamments or Troporthents SD	150	0.5
	Land dominated by shallow and/or coarse textured undifferentiated soils often subject to seasonal moisture stress	Ustipsamments or Tropopsamments SD, Ustorthents or Troporthents SD, various Aquents SD	100	0.3
	Land dominated by organic soils	Tropofibrists or Tropohemists D, Hydraquents or Fluvaquents SD. Under mangrove Sulfihemists SD	50	0.1
	Land dominated by soils with thick, dark topsoils and undifferentiated soils subject to seasonal moisture stress	Haplustolls SD, Ustipsamments or Ustifluvents SD Ustorthents SD. Locally Hapludolls or Natrustolls SD	<50	<0.1
TOTAL PLAINS AND VALLEYS			**12 550**	**37.1**
LOW MOUNTAINS AND HILLS	Land dominated by shallow undifferentiated soils subject to seasonal moisture stress	Ustorthents SD, Ustropepts SD, Pellusterts SD. Locally Haplustolls SD	150	0.4
		Ustorthents D or SD, Ustropepts D or SD, Haplustalfs SD. Locally Argiustolls SD	<50	<0.1
	Land dominated by slightly to moderately weathered soils with altered B-horizons	Eutropepts D, Troporthents SD	350	1.0
	Land dominated by moderately weathered soils with altered B-horizons	Dystropepts SD, Eutropepts SD, Troporthents SD	6 700	19.8
		Dystropepts SD, Eutropepts SD, Rendolls SD	150	0.4
		Dystropepts SD, Eutropepts SD, Tropaquepts SD	2 700	8.0
		Dystropepts SD, Eutropepts or Troporthents SD, Hapludolls SD. Near volcanoes various Andepts SD	250	0.7

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Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
		Dystropepts SD, Eutropepts or Troporthents SD, Tropudalfs, Tropudults or Tropohumults SD	1 000	3.0
	Land dominated by moderately to strongly weathered soils with altered B-horizons	Dystropepts D, Haplorthox SD	<50	<0.1
		Dystropepts SD, Haplorthox SD, various Udults or Humults SD	<50	<0.1
		Dystropepts SD, Haplorthox SD, various Andepts SD	1 150	3.4
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents SD, Eutropepts SD Near volcanoes various Andepts SD	5 250	15.5
		Rendolls SD, Troporthents SD, various Tropepts SD	1 250	3.7
	Land dominated by strongly weathered soils with finer textured subsoils	Plinthudults SD, Dystropepts SD, Paleudults or Tropudults SD	1 100	3.3
TOTAL LOW MOUNTAINS AND HILLS			**20 100**	**59.4**
HIGH MOUNTAINS	Land dominated by moderately weathered soils with high organic matter content	Humitropepts SD, Eutropepts and/or Dystropepts SD, Troporthents or Ustorthents SD	1 050	3.1
	Land dominated by shallow, dark, weakly acid to netural soils	Rendolls SD, Troporthents SD Humitropepts SD	150	0.4
TOTAL HIGH MOUNTAINS			**1 200**	**3.5**
TOTAL GULF PROVINCE			**33 850**	**100.0**

*Area rounded to nearest 50 km^2

Table 11. % distribution of soil associations - Central Province

Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
PLAINS AND VALLEYS	Land dominated by waterlogged undifferentiated soils	Sulfaquents SD, Hydraquents SD, various Histosols SD	750	2.5
	Land dominated by waterlogged or very poorly drained undifferentiated soils	Hydraquents SD, Fluvaquents SD, various Histosols SD	1 000	3.4
		Hydraquents D or SD, Fluvaquents D or SD	400	1.3
		Hydraquents D or SD, Fluvaquents SD, Tropofluvents SD	700	2.3
	Land dominated by poorly drained undifferentiated soils	Fluvaquents D or SD, Tropofluvents SD. Locally Tropaquepts or various Histosols SD. Near volcanoes various Andepts SD; on raised coral Rendolls and/or Eutropepets SD	1 200	4.0
		Fluvaquents D or SD, Ustifluvents D or SD Locally Ustipsamments or Pellusterts SD	1 250	4.2
		Fluvaquents SD, Tropopsamments or Tropfluvents SD, Psammaquents SD	<50	<0.1
	Land dominated by shallow and/or coarse textured undifferentiated soils often subject to seasonal moisture stress	Ustipsamments or Tropopsamments SDI Ustorthents or Troporthents SD, various Aquents SD	350	1.2
	Land dominated by soils with thick, dark topsoils and undifferentiated soils subject to seasonal moisture stress	Haplustolls SD, Ustipsamments or Ustifluvents SD Ustorthents SD. Locally Hapludolls or Natrustolls	<50	<0.1
TOTAL PLAINS AND VALLEYS			**5 700**	**19.0**
LOW MOUNTAINS AND HILLS	Land dominated by shallow undifferentiated soils subject to seasonal moisture stress	Ustorthents SD, Ustropepts SD, Pellusterts SD. Locally Haplustolls SD	450	1.5
		Ustorthents D or SD, Ustropepts D or SD, Haplustalfs SD. Locally Argiustolls SD	3 550	11.9
		Ustorthents D or SD, Ustropepts or Eutropepts D or SD. Various Udolls or Tropudalfs SD	100	0.3
	Land dominated by slightly to moderately weathered soils with altered B-horizons	Eutropepts D, Troporthents SD	100	0.3
		Eutropepts SD, Troporthents SD, Tropofolists SD	600	2.0
	Land dominated by moderately weathered soils with altered B-horizons	Dystropepts SD, Eutropepts SD, Troporthents SD	2 000	6.7
		Dystropepts SD, Eutropepts SD, Rendolls SD	300	1.0
		Dystropepts SD, Eutropepts or Troporthents SD, Tropudalfs, Tropudults or Tropohumults SD	2 250	7.5
		Dystropepts SD, Eutropepts SD, various Orthox SD	450	1.5
	Land dominated by moderately to strongly weathered soils with altered B-horizons	Dystropepts D, Haplorthox SD	150	0.5

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Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
		Dystropepts SD, Haplorthox SD, various Udults or Humults SD	7 200	24.1
	Land dominated by shallow, dark, weakly acid to neutral soil	Rendolls SD, Troporthents SD, Tropudalfs SD	150	0.5
	Land dominated by moderately weathered soils with finer textured subsoils	Tropudalfs D or SD, Eutropepts or Dystropepts SD, various Aqualfs or Aquepts SD	500	1.7
		Tropudalfs D or SD, Eutropepts or Dystropepts SD, various Udolls SD	<50	<0.1
		Tropudalfs SD, Hapludolls SD, various Orthents or Rendolls SD	150	0.5
TOTAL LOW MOUNTAINS AND HILLS			**18 000**	**60.1**
HIGH MOUNTAINS	Land dominated by undifferentiated, shallow and organic soils	Troporthents or Cryorthents D or SD, Tropofolists or Cryofolists D or SD	1 050	3.5
	Land dominated by moderately weathered with high organic matter content	Humitropepts SD, Eutropepts and/or Dystropepts SD, Troporthents or Ustorthents SD	3 650	12.1
		Humitropepts SD, Eutropepts and/or Troporthents SD, Tropofolists SD	50	0.2
		Humitropepts SD, Eutropepts and/or Troporthents SD, Rendolls or Hapludolls SD	250	0.9
		Humitropepts SD, Eutropepts and/or Troporthents SD, Tropudalfs, various Ultisols or Oxisols SD	1 200	4.0
TOTAL HIGH MOUNTAINS			**6 200**	**20.7**
TOTAL CENTRAL PROVINCE (including 40 km^2 or 0.13% lake)			**29 940**	**99.9**

*Areas rounded to nearest 50 km^2

Table 12. % distribution of soil associations - Milne Bay Province

Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	%
PLAINS AND VALLEYS	Land dominated by waterlogged undifferentiated soils	Sulfaquents SD, Hydraquents SD, various Histosols SD	200	1.4
	Land dominated by waterlogged or very poorly drained undifferentiated soils	Hydraquents SD, Fluvaquents SD, various Histosols SD	100	0.7
	Land dominated by poorly drained undifferentiated soils	Fluvaquents PD	100	0.7
		Fluvaquents D or SD, Tropofluvents SD. Locally Tropaquepts or various Histosols SD. Near volcanoes various Andepts SD; on raised coral Rendolls and/or Eutropepets SD	1 400	9.9
		Fluvaquents SD, Tropopsamments or Tropofluvents SD, Psammaquents SD	<50	0.3
		Fluvaquents SD, Haplaquolls SD, Tropofluvents or Hapludolls SD. Near volcanoes various Andepts	100	0.7
	Land dominated by shallow and/or coarse textured undifferentiated soils often subject to seasonal moisture stress	Ustipsamments or Tropopsamments SD, Ustorthents or Troporthents SD, various Aquents SD	250	1.8
	Land dominated by organic soils	Tropofibrists or Tropohemists D, Hydraquents or Fluvaquents SD. Under mangrove Sulfihemists SD	<50	0.2
	Land dominated by strongly weathered poorly drained soils with finer textured subsoils	Plinthaquults SD, Plinthaqualfs SD, Plinthudults SD	<50	0.2
TOTAL PLAINS AND VALLEYS			**2 250**	**15.9**
LOW MOUNTAINS AND HILLS	Land dominated by shallow undifferentiated soils subject to seasonal moisture stress	Ustorthents D or SD, Ustropepts D or SD, Haplustalfs SD. Locally Argiustolls SD	200	1.4
		Ustorthents D or SD, Ustropepts or Eutropepts D or SD, various Udolls or Tropudalfs SD	600	4.3
	Land dominated by slighly to moderately weathered ash soils with black topsoils	Eutrandepts SD, Dystrandepts or Vitrandepts SD, Hapludolls SD. Locally Andaquepts, Tropaquepts or Tropaqualfs SD	50	0.3
	Land dominated by slightly weathered generally coarse textured ash soils	Vitrandepts D or SD. Eutrandepts D or SD	300	2.1
		Vitrandepts SD, Eutrandepts SD, Troporthents SD	<50	0.2
		Vitrandepts SD, Eutrandepts SD, Hapludolls SD. Locally various Aquents or Fluvents SD	100	0.7
	Land dominated by slightly to moderately weathered soils with altered B-horizons	Eutropepts D, Troporthents SD	400	2.9
		Eutropepts SD, Troporthents SD, Tropofolists SD	<50	0.1
		Eutropepts SD, Troporthents SD, Hapludolls SD. Near volcanoes various Andepts SD	550	3.9

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Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
		Eutropepts SD, Troporthents SD, Tropudalfs SD	100	0.7
	Land dominated by moderately weathered soils with altered B-horizons	Dystropepts SD, Eutropepts SD, Troporthents SD	3 000	21.3
		Dystropepts SD, Eutropepts SD, Tropaquepts SD	50	0.3
		Dystropepts SD, Eutropepts or Troporthents SD, Hapludolls SD. Near volcanoes various Andepts SD	50	0.3
		Dystropepts SD, Eutropepts or Troporthents SD, Tropudalfs, Tropudults or Tropohumults SD	2 500	17.8
		Dystropepts SD, Eutropepts SD, various Orthox SD	100	0.7
	Land dominated by moderately to strongly weathered soils with altered B-horizons	Dystropepts D, Haplorthox SD	150	1.2
		Dystropepts SD, Haplorthox SD, various Udults or Humults SD	1 350	9.6
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents SD, Eutropepts SD. Near volcanoes various Andepts SD	<50	0.2
		Rendolls SD, Troporthents SD, Tropudalfs SD	1 200	8.5
		Rendolls SD, Eutropepts SD, Tropaquepts, Pelluderts and various Entisols or Histosols SD	100	0.7
	Land dominated by moderately weathered soils with finer textured subsoils	Tropudalfs D or SD, Eutropepts or Dystropepts SD, various Aqualfs or Aquepts SD	100	0.7
		Tropudalfs SD, Hapludolls SD, variou Orthents or Rendolls SD	<50	0.2
	Land dominated by strongly weathered soils with finer textured subsoils	Plinthudults and/or Tropudults SD, Dystropepts SD Tropudalfs SD	50	0.3
TOTAL LOW MOUNTAINS AND HILLS			**11 050**	**78.4**
HIGH MOUNTAINS	Land dominated by undifferentiated, shallow and organic soils	Troporthents or Cryorthents D or SD, Tropofolists or Cryofolists D or SD	<50	0.2
	Land dominated by moderately weathered soils with high organic matter content	Humitropepts SD, Eutropepts and/or Dystropepts SD, Troporthents or Ustorthents SD	350	2.5
		Humitropepts SD, Eutropepts and/or Troporthents SD, Rendolls or Hapludolls SD	100	0.9
		Humitropepts SD, Eutropepts and/or Troporthents SD, Tropudalfs, various Ultisols or Oxisols SD	300	2.1
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents and/or Cryorthents SD, Tropofolists and/or Cryofolists SD	<50	<0.1
TOTAL HIGH MOUNTAINS			**800**	**5.7**
TOTAL MILNE BAY PROVINCE			**14 100**	**100.0**

*Areas rounded to nearest 50 km^2

Table 13. % distribution of soil associations - Northern Province

Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
PLAINS AND VALLEYS	Land dominated by waterlogged undifferentiated soils	Sulfaquents SD, Hydraquents SD, various Histosols SD	150	0.7
	Land dominated by waterlogged or very poorly drained undifferentiated soils	Hydraquents SD, Fluvaquents SD, various Histosols SD	450	2.0
		Hydraquents D or SD, Fluvaquents D or SD	550	2.4
		Hydraquents D or SD, Fluvaquents SD, Tropofluvents SD	<50	0.1
	Land dominated by poorly drained undifferentiated soils	Fluvaquents D or SD, Tropofluvents SD. Locally Tropaquepts or various Histosols SD. Near volcanoes various Andepts SD; on raised coral Rendolls and/or Eutropepets SD	2 150	9.6
		Fluvaquents D or SD, Ustifluvents D or SD Locally Ustipsamments or Pellusterts SD	100	0.4
		Fluvaquents SD, Tropopsahhents or Tropofluvents SD, Psammaquents SD	300	1.3
		Fluvaquents SD, Haplaquolls SD, Tropofluvents or Hapludolls SD. Near volcanoes various Andepts SD	50	0.2
	Land dominated by well to imperfectly drained undifferentiated soils	Tropofluvents SD, Hapludolls SD, Fluvaquents or Psammaquents SD	100	0.4
		Tropofluvents SD, Hapludolls SD, Tropopsamments or Troporthents SD	650	2.9
	Land dominated by organic soils	Tropofibrists or Tropohemists D, Hydraquents or Fluvaquents SD. Under mangrove Sulfihemists SD	1 200	5.3
	Land dominated by soils with thick, dark topsoils and undifferentiated soils subject to seasonal moisture stress	Haplustolls SD, Ustipsamments or Ustifluvents SD Ustorthents SD. Locally Hapludolls or Natrustolls SD	650	2.9
TOTAL PLAINS AND VALLEYS			**6 350**	**28.2**
LOW MOUNTAINS AND HILLS	Land dominated by slightly to moderately weathered ash soils with black topsoils	Eutrandepts SD, Dystrandepts SD, Dystopepts or Eutropepts SD. Locally Hydrandepts SD	800	3.5
		Eutrandepts SD, Dystrandepts or Vitrandepts SD, Hapludolls SD. Locally Andaquepts, Tropaquepts or Tropaqualfs SD	1 050	4.7
	Land dominated by slightly weathered generally coarse textured ash soils	Vitrandepts D or SD. Eutrandepts D or SD	250	1.1
		Vitrandepts SD, Eutrandepts SD, Troporthents SD	350	1.6
		Vitrandepts SD, Eutrandepts SD, Hapludolls SD. Locally various Aquents or Fluvents SD	300	1.3

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Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
	Land dominated by slightly to moderately weathered soils with altered B-horizons	Eutropepts D, Troporthents SD	100	0.4
		Eutropepts SD, Troporthents SD, Hapludolls SD. Near volcanoes various Andepts SD	200	0.9
		Eutropepts SD, Troporthents SD, Tropudalfs SD	250	1.1
	Land dominated by moderately weathered soils with altered B-horizons	Dystropepts SD, Eutropepts SD, Troporthents SD	1 500	6.7
		Dystropepts SD, Eutropepts or Troporthents SD, Hapludolls SD. Near volcanoes various Andepts SD	1 300	5.8
		Dystropepts SD, Eutropepts or Troporthents SD, Tropudalfs, Tropudults or Tropohumults SD	2 100	9.3
		Dystropepts SD, Eutropepts SD, various Orthox SD	800	3.6
	Land dominated by moderately to strongly weathered soils with altered B-horizons	Dystropepts D, Haplorthox SD	550	2.4
		Dystropepts D, Paleudults SD	100	0.4
		Dystropepts SD, Haplorthox SD, various Udults or Humults SD	1 500	6.7
		Dystropepts SD, Haplorthox SD, various Andepts SD	400	1.8
	Land dominated by moderately weathered soils with finer textured subsoils	Tropudalfs SD, Hapludolls SD, various Orthents or Rendolls SD	200	0.9
	Land dominated by moderately weathered soils with finer textured subsoils which are subject to seasonal moisture stess	Haplustalfs D, Argiustolls and/or Haplustolls SD	200	0.9
TOTAL LOW MOUNTAINS AND HILLS			**11 950**	**53.1**
HIGH MOUNTAINS	Land dominated by undifferentiated, shallow and organic soils	Troporthents or Cryorthents D or SD, Tropofolists or Cryofolists D or SD	900	4.0
	Land dominated by moderately weathered soils with high organic matter content	Humitropepts SD, Eutropepts and/or Dystropepts SD, Troporthents or Ustorthents SD	2 300	10.3
		Humitropepts SD, Eutropepts and/or Troporthents SD, Tropofolists SD	<50	0.1
		Humitropepts SD, Eutropepts and/or Troporthents SD, various Andepts SD	400	1.8
		Humitropepts SD, Eutropepts and/or Troporthents SD, Rendolls or Hapludolls SD	50	0.3
		Humitropepts SD, Eutropepts and/or Troporthents SD, Tropudalfs, various Ultisols or Oxisols SD	500	2.2
TOTAL HIGH MOUNTAINS			**4 200**	**18.7**
TOTAL NORTHERN PROVINCE			**22 500**	**100.0**

*Areas rounded to nearest 50 km^2

Table 14. % distribution of soil associations - Southern Highlands Province

Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	%
PLAINS AND VALLEYS	Land dominated by waterlogged or very poorly drained undifferentiated soils	Hydraquents SD, Fluvaquents SD, various Histosols SD	300	1.2
	Land dominated by poorly drained undifferentiated soils	Fluvaquents PD	<50	0.1
		Fluvaquents D or SD, Tropofluvents SD. Locally Tropaquepts or various Histosols SD. Near volcanoes various Andepts SD; on raised coral Rendolls and/or Eutropepts SD	100	0.4
	Land dominated by organic soils	Tropofibrists SD, Tropaquepts or Fluvaquents SD. Locally Haplaquolls or Andaquepts SD	250	1.0
TOTAL PLAINS AND VALLEYS			**700**	**2.7**
LOW MOUNTAINS AND HILLS	Land dominated by slightly to moderately weathered soils with altered B-horizons	Eutropepts SD, Troporthents SD, Tropofolists SD	100	0.4
	Land dominated by moderately weathered soils with altered B-horizons	Dystropepts SD, Eutropepts SD, Troporthents SD	1 550	6.1
		Dystropepts SD, Eutropepts SD, Rendolls SD	<50	0.1
		Dystropepts SD, Eutropepts SD, Tropaquepts SD	900	3.5
		Dystropepts SD, Eutropepts or Troporthents SD, Tropudalfs, Tropudults or Tropohumults SD	350	1.4
	Land dominated by moderately to strongly weathered soils with altered B-horizons	Dystropepts D, Haplorthox SD	2 650	10.4
		Dystropepts SD, Haplorthox SD, various Udults or Humults SD	50	0.2
		Dystropepts SD, Haplorthox SD, various Andepts SD	200	0.8
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents SD, Eutropepts SD. Near volcanoes various Andepts SD	7 450	29.1
		Rendolls SD, Troporthents SD. Various Tropepts SD	400	1.6
TOTAL LOW MOUNTAINS AND HILLS			**13 700**	**53.6**
HIGH MOUNTAINS	Land dominated by undifferentiated, shallow and organic soils	Troporthents or Cryorthents D or SD, Tropofolists or Cryofolists D or SD	50	0.2
		Troporthents or Cryorthents SD, Tropofolists or Cryofolists SD, Cryandepts or Hydrandepts SD	850	3.3
	Land dominated by moderately weathered ash-soils with thick dark topsoils	Hydrandepts D or SD, Dystrandepts D or SD. Locally Andaquepts or various Histosols SD	2 050	8.0
		Hydrandepts D. Tropofolists and/or Troporthents SD, Dystrandepts SD	200	0.8

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Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
	Land dominated by moderately weathered ash and non ash soils with high organic matter content	Hydrandepts SD, Humitropepts SD, Dystrandepts SD	2 050	8.0
		Hydrandepts SD, Humitropepts and/or Eutropepts SD, Rendolls and/or Hapludolls SD	550	2.2
		Hydrandepts SD, Humitropepts SD, Troporthents and/or Tropofolists SD	500	2.0
	Land dominated by moderately weathered soils with high organic matter content	Humitropepts SD, Eutropepts and/or Dystropepts SD Troporthents or Ustorthents SD	950	3.7
		Humitropepts SD, Eutropepts and/or Troporthents SD, Tropofolists SD	100	0.4
		Humitropepts SD, Eutropepts and/or Troporthents SD, Tropaquepts SD	50	0.2
		Humitropepts SD, Eutropepts and/or Troporthents SD. Rendolls or Hapludolls SD	900	3.5
		Humitropepts SD, Eutropepts and/or Troporthents SD Tropudalfs, various Ultisols or Oxisols SD	400	1.6
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents and/or Cryorthents SD, Tropofolists and/or Cryofolists SD	1 100	4.3
		Rendolls SD, Troporthents SD, Humitropepts SD	1 350	5.3
		Rendolls SD, Troporthents SD, Hapludolls SD, various Andepts or Tropofolists SD	50	0.2
TOTAL HIGH MOUNTAINS			**11 150**	**43.7**
TOTAL SOUTHERN HIGHLANDS (including 58 km^2 lake)			**25 550**	**100.0**

*Areas rounded to nearest 50 km^2

Table 15. % distribution of soil associations - Enga Province

Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	%
PLAINS AND VALLEYS	Land dominated by organic soils	Tropofibrists or Tropohemists D, Hydraquents or Fluvaquents SD	<50	0.1
		Tropofibrists Sd, Tropaquepts or Fluvaquents SD Locally Haplaquolls or Andaquepts SD	300	2.4
TOTAL PLAINS AND VALLEYS			**350**	**2.5**
LOW MOUNTAINS AND HILLS	Land dominated by slightly to moderately weathered ash soils with black topsoils	Eutrandepts SD, Dystrandepts SD, Dystropepts or Eutropepts SD. Locally Hydrandepts SD	50	0.4
	Land dominated by slightly to moderately weathered soils with altered B-horizons	Eutropepts SD, Troporthents SD, Tropofilists SD	50	0.4
	Land dominated by moderately weathered soils with altered B-horizons	Dystropepts SD, Eutropepts SD, Troporthents SD	900	7.6
		Dystropepts SD, Eutropepts SD, Tropaquepts SD	100	0.9
		Dystropepts SD, Eutropepts or Troporthents SD Hapludolls SD. Near volcanoes various Andepts SD	150	1.3
TOTAL LOW MOUNTAINS AND HILLS			**1 250**	**10.6**
HIGH MOUNTAINS	Land dominated by undifferentiated, shallow and organic soils	Troporthents or Cryorthents D or SD, Tropofolists or Cryofolists D or SD	1 100	9.3
		Troporthents or Cryorthents SD, Tropofolists or Cryofolists SD, Cryandepts or Hydrandepts SD	1 300	11.0
	Land dominated by moderately weathered ash-soils with thick dark topsoils	Hydrandepts D or SD, Dystrandepts D or SD Locally Andaquepts or various Histosols SD	250	2.1
		Hydrandepts D. Tropofolists and/or Troporthents SD, Dystrandepts SD	350	3.0
	Land dominated by moderately weathered ash and non ash soils with high organic matter content	Hydrandepts SD, Humitropepts SD, Dystrandepts SD	450	3.8
		Hydrandepts SD, Humitropepts SD, Tropaquepts SD	400	3.4
		Hydrandepts SD, Humitropepts and/or Eutropepts SD, Rendolls and/or Hapludolls SD	250	2.1
		Hydrandepts SD, Humitropepts SD, Troporthents and/or Tropofolists SD	<50	0.2
	Land dominated by moderately weathered soils with high organic matter content	Humitropepts SD, Eutropepts and/or Dystropepts SD, Troporthents or Ustorthents SD	1 250	10.6
		Humitropepts SD, Eutropepts and/or Troporthents SD, Tropofolists SD	650	5.5
		Humitropepts SD, Eutropepts and/or Troporthents SD, Tropaquepts SD	350	2.9
		Humitropepts SD, Eutropepts and/or Troporthents SD, various Andepts SD	500	4.2

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Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
		Humitropepts SD, Eutropepts and/or Troporthents SD, Rendolls or Hapludolls SD	900	7.6
		Humitropepts SD, Eutropepts and/or Troporthents SD, Tropudalfs, various Ultisols or Oxisols SD	350	3.0
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents and/or Cryorthents SD, Tropofolists and/or Cryofolists SD	1 700	14.3
		Rendolls SD, Troporthents SD, Humitropepts SD	250	2.2
		Rendolls SD, Troporthents SD, Hapludolls SD, various Andepts or Tropofolists SD	200	1.7
TOTAL HIGH MOUNTAINS			**10 250**	**86.9**
TOTAL ENGA PROVINCE			**11 850**	**100.0**

*Areas rounded to nearest 50 km^2

Table 16. % distribution of soil associations - Western Highlands

Major landform subdivision	Major grouping of soil association	Soil association	Area km²*	%
PLAINS AND VALLEYS	Land dominated by poorly drained undifferentiated soils	Fluvaquents D or SD, Tropofluvents SD. Locally Tropaquepts or various Histosols SD. Near volcanoes various Andepts SD; on raised coral Rendolls and/or Eutropepts SD	50	0.5
	Land dominated by organic soils	Tropofibrists SD, Tropaquepts or Fluvaquents SD. Locally Haplaquolls or Andaquepts SD	300	3.4
	Land dominated by strongly weathered poorly drained soils with finer textured subsoils	Plinthaquults SD, Plinthaqualfs SD, Argiaquolls SD. Locally Plinthohumults or Tropofluvents SD	300	3.4
TOTAL PLAINS AND VALLEYS			**650**	**7.3**
LOW MOUNTAINS AND HILLS	Land dominated by slightly to moderately weathered ash soils with black topsoils	Eutrandepts SD, Dystrandepts SD, Dystropepts or Eutropepts SD. Locally Hydrandepts SD	200	2.2
	Land dominated by moderately weathered soils with altered B-horizons	Dystropepts SD, Eutropepts SD, Troporthents SD	150	1.7
		Dystropepts SD, Eutropepts or Tropaquepts SD	550	6.1
		Dystropepts SD, Eutropepts or Troporthents SD, Hapludolls SD. Near volcanoes various Andepts SD	50	0.5
		Dystropepts SD, Eutropepts or Troporthents SD, Tropudalfs, Tropudults or Tropohumults SD	150	1.7
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents SD, Eutropepts SD. Near volcanoes various Andepts SD	<50	0.2
TOTAL LOW MOUNTAINS AND HILLS			**1 100**	**12.4**
HIGH MOUNTAINS	Land dominated by undifferentiated, shallow and organic soils	Troporthents or Cryorthents SD, Tropofolists or Cryofolists SD, Cryandepts or Hydrandepts SD	1 000	11.2
	Land dominated by moderately weathered ash-soils with thick dark topsoils	Hydrandepts D or SD, Dystrandepts D or SD. Locally Andaquepts or various Histosols	100	1.1
		Hydrandepts D. Tropofolists and/or Troporthents SD, Dystrandepts SD	700	7.9
	Land dominated by moderately weathered ash and non ash soils with high organic matter content	Hydrandepts SD, Humitropepts SD, Dystrandepts SD	1 650	18.5
		Hydrandepts SD, Humitropepts SD, Tropaquepts SD	100	1.1
		Hydrandepts SD, Humitropepts and/or Eutropepts SD, Rendolls and/or Hapludolls SD	1 250	14.1
		Hydrandepts SD, Humitropepts SD, Troporthents and/or Tropofolists SD	200	2.3
		Hydrandepts or Dystrandepts SD, Humitropepts SD, Plinthaquults or Palehumults SD	450	5.1
	Land dominated by moderately weathered soils with high organic matter content	Humitropepts SD, Eutropepts and/or Dystropepts SD, Troporthents or Ustorthents SD	1 100	12.4
		Humitropepts SD, Eutropepts and/or Tropaquepts SD	100	1.1
		Humitropepts SD, Eutropepts and/or Troporthents SD, various Andepts SD	450	5.1
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents and/or Cryorthents SD, Tropofolists and/or Cryofolists SD	50	0.4
TOTAL HIGH MOUNTAINS			**7 150**	**80.3**
TOTAL WESTERN HIGHLANDS			**8 900**	**100.0**

*Areas rounded to nearest 50 km²

Table 17. % distribution of soil associations - Chimbu

Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
PLAINS AND VALLEYS		Fluvaquents D or SD, Tropofluvents SD. Locally Tropaquepts or various Histosols SD. Near volcanoes various Andepts SD	50	0.8
TOTAL PLAINS AND VALLEYS			**50**	**0.8**
LOW MOUNTAINS	Land dominated by moderately weathered soils	Dystropepts SD, Eutropepts SD, Tropaquepts SD	450	7.5
		Dystropepts SD, Eutropepts or Troporthents SD Hapludolls SD. Near volcanoes various Andepts SD	650	10.8
TOTAL LOW MOUNTAINS AND HILLS			**1 100**	**18.3**
HIGH MOUNTAINS	Land dominated by undifferentiated, shallow and organic soils	Troporthents or Cryorthents SD, Tropofolists or Cryofolists SD, Cryandepts or Hydrandepts SD	400	6.7
	Land dominated by moderately weathered ash-soils with thick, dark topsoils	Hydrandepts D. Tropofolists and/or Troporthents SD, Dystrandepts SD	300	5.0
	Land dominated by moderately weathered ash and non ash soils with high organic matter content	Hydrandepts SD, Humitropepts SD, Dystrandepts SD	450	7.5
		Hydrandepts SD, Humitropepts SD, Tropaquepts SD	50	0.8
		Hydrandepts SD, Humitropepts and/or Eutropepts SD, Rendolls and/or Hapludolls SD	200	3.3
		Hydrandepts SD, Humitropepts SD, Troporthents and/or Tropofolists SD	500	8.3
	Land dominated by moderately weathered soils with high organic matter content	Humitropepts SD, Eutropepts and/or Troporthents SD, Tropaquepts SD	900	15.0
		Humitropepts SD, Eutropepts and/or Troporthents SD, various Andepts SD	1 500	25.0
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents SD, Hapludolls SD, various Andepts or Tropofolists SD	550	9.2
TOTAL HIGH MOUNTAINS			**4 850**	**80.8**
TOTAL CHIMBU			**6 000**	**99.9**

*Areas rounded to nearest 50 km^2

Table 18. % distribution of soil associations - Eastern Highlands

Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
PLAINS AND VALLEYS	Land dominated by well to imperfectly drained undifferentiated soils	Tropofluvents SD, Hapludolls SD, Fluvaquents or Psammaquents SD	50	0.5
	Land dominated by shallow and/or coarse undifferentiated soils often subject to seasonal moisture stress	Ustipsamments or Tropopsamments SD, Ustorthents or Troporthents SD, various Aquents SD	<50	<0.1
	Land dominated by soils with thick, dark topsoils and undifferentiated soils subject to seasonal moisture stress	Haplustolls SD, Ustipsamments or Ustifluvents SD Ustorthents SD. Locally Hapiudolls or Natrustolls SD	100	0.9
	Land dominated by strongly weathered imperfectly drained soils with finer textured subsoils	Plinthaquults SD, Plinthaqualfs SD, Argiaquolls SD. Locally Plinthohumults or Tropofluvents SD	500	4.5
TOTAL PLAINS AND VALLEYS			**650**	**5.9**
LOW MOUNTAINS AND HILLS	Land dominated by slightly to moderately weathered soils with altered B-horizons	Eutropepts D, Troporthents SD	<50	0.2
		Eutropepts SD, Troporthents SD, Tropofilists SD	50	0.4
		Eutropepts SD, Troporthents SD, Tropudalfs SD	300	2.7
	Land dominated by moderately weathered soils with altered B-horizons	Dystropepts SD, Eutropepts SD, Troporthents SD	450	4.1
		Dystropepts SD, Eutropepts SD, Tropaquepts SD	100	0.9
		Dystropepts SD, Eutropepts or Troporthents SD, Tropudalfs, Tropudults or Tropohumults SD	400	3.6
		Dystropepts SD, Eutropepts SD, various Orthox SD	50	0.4
TOTAL LOW MOUNTAINS AND HILLS			**1 350**	**12.3**
HIGH MOUNTAINS	Land dominated by undifferentiated, shallow and organic soils	Troporthents or Cryorthents D or SD, Tropofolists or Cryofolists D or SD	250	2.3
		Troporthents or Cryorthents SD, Tropofolists or Cryofolists SD, Cryandepts or Hydrandepts SD	100	0.9
	Land dominated by moderately weathered ash-soils with thick dark topsoils	Hydrandepts D or SD, Dystrandepts D or SD. Locally Andaquepts or various Histosols	50	0.4
		Hydrandepts D, Tropofolists and/or Troporthents SD, Dystrandepts SD	200	1.8
	Land dominated by moderately weathered ash and non ash soils with high organic matter content	Hydrandepts SD, Humitropepts SD, Dystrandepts SD	50	0.4
		Hydrandepts SD, Humitropepts SD, Tropaquepts SD	<50	<0.1
		Hydrandepts SD, Humitropepts and/or Eutropepts SD, Rendolls and/or Hapludolls SD	50	0.4

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Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
		Hydrandepts or Dystrandepts SD, Humitropepts SD, Plinthaquults or Palehumults SD	250	2.3
	Land dominated by moderately weathered soils with high organic matter content	Humitropepts SD, Eutropepts and/or Dystropepts SD, Troporthents or Ustorthents SD	3 300	30.0
		Humitropepts SD, Eutropepts and/or Troporthents SD, Tropofolists SD	500	4.6
		Humitropepts SD, Eutropepts and/or Troporthents SD, Tropaquepts SD	500	4.6
		Humitropepts SD, Eutropepts and/or Troporthents SD, various Andepts SD	550	5.0
		Humitropepts dD, Eutropepts and/or Troporthents SD, Tropudalfs, various Ultisols or Oxisols SD	3 150	28.6
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents and/or Cryorthents SD, Tropofolists and/or Cryofolists SD	50	0.4
TOTAL HIGH MOUNTAINS			**9 000**	**81.8**
TOTAL EASTERN HIGHLANDS			**11 000**	**100.0**

*Areas rounded to nearest 50 km^2

Table 19. % distribution of soil associations - Morobe Province

Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
PLAINS AND VALLEYS	Land dominated by waterlogged or very poorly drained undifferentiated soils	Hydraquents SD, Fluvaquents SD, various Histosols SD	600	1.8
	Land dominated by poorly drained undifferentiated soils	Fluvaquents D or SD, Tropofluvents SD. Locally Tropaquepts or various Histosols SD. Near volcanoes various Andepts SD; on raised coral Rendolls and/or Eutropepts SD	100	0.3
		Fluvaquents D or SD, Ustifluvents D or SD Locally Ustipsamments or Pellusterts SD	250	0.8
	Land dominated by well to imperfectly drained undifferentiated soils	Tropofluvents SD, Hapludolls SD, Fluvaquents or Psammaquents SD	500	1.5
		Tropofluvents SD, Hapudolls SD, Tropopsamments or Troporthents SD	100	0.3
		Tropofluvents SD, Hapludolls SD, Pelluderts SD	150	0.4
	Land dominated by shallow and/or coarse textured undifferentiated soils often subject to seasonal moisture stress	Ustipsamments or Tropopsamments SD, Ustorthents or Troporthents SD, various Aquents SD Aquents SD	250	0.8
	Land dominated by soils with thick, dark topsoils and undifferentiated soils subject to seasonal moisture stress	Haplustolls SD, Ustipsamments or Ustifluvents SD Ustorthents SD. Locally Hapludolls or Natrustolls SD	1 250	3.7
TOTAL PLAINS AND VALLEYS			**3 200**	**9.6**
LOW MOUNTAINS AND HILLS	Land dominated by shallow undifferentiated soils subject to seasonal moisture stress	Ustorthents D or SD, Ustropepts D or SD, Haplustalfs SD. Locally Argiustolls SD	1 950	5.8
	Land dominated by slightly weathered generally coarse textured ash soils	Vitrandepts D or SD. Eutrandepts D or SD	100	0.3
		Vitrandepts SD, Eutrandepts SD, Troporthents SD	200	0.6
		Vitrandepts SD, Eutrandepts SD, Hapludolls SD. Locally various Aquents or Fluvents SD	600	1.8
	Land dominated by slightly to moderately weathered soils with altered B-horizons	Eutropepts D, Troporthents SD	1 000	3.0
		Eutropepts SD, Troporthents SD, Tropofolists SD	300	0.9
		Eutropepts SD, Troporthents SD, Hapludolls SD. Near volcanoes various Andepts SD	300	0.9
		Eutropepts SD, Troporthents SD, Tropudalfs SD	2 000	6.0
	Land dominated by moderately weathered soils with altered B-horizons	Dystropepts SD, Eutropepts SD, Troporthents SD	2 350	7.0
		Dystropepts SD, Eutropepts SD, Rendolls SD	200	0.6
		Dystropepts SD, Eutropepts SD, Tropaquepts SD	<50	0.1
		Dystropepts SD, Eutropepts or Troporthents SD, Tropudalfs, Tropudults or Tropohumults SD	3 450	10.3

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Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
		Dystropepts SD, Eutropepts SD, various Orthox SD	700	2.1
	Land dominated by moderately to strongly weathered soils with altered B-horizons	Dystropepts D, Paleudults SD	150	0.4
		Dystropepts SD, Haplorthox SD, various Udults or Humults SD	350	1.1
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents SD, Eutropepts SD. Near volcanoes various Andepts SD	2 150	6.4
		Rendolls SD, Troporthents SD, various Tropepts SD	150	0.4
		Rendolls SD, Troporthents SD, Tropudalfs SD	1 450	4.3
		Rendolls SD, Eutropepts SD, Tropaquepts, Pelluderts, and various Entisols or Histosols SD	450	1.3
	Land dominated by moderately weathered soils with finer textured subsoils	Tropudalfs D or SD, Eutropepts or Dystropepts SD, various Udolls SD	<50	0.1
TOTAL LOW MOUNTAINS AND HILLS			**17 900**	**53.4**
HIGH MOUNTAINS	Land dominated by undifferentiated, shallow and organic soils	Troporthents or Cryorthents D or SD, Tropofolists or Cryofolists D or SD⁻	500	1.5
		Troporthents or Cryorthents SD, Tropofolists or Cryofolists SD, Cryandepts or Hydrandepts SD	<50	0.1
	Land dominated by moderately weathered soils with high organic matter content	Humitropepts SD, Eutropepts and/or Dystropepts SD, Troporthents or Ustorthents SD	8 050	24.0
		Humitropepts SD, Eutropepts and/or Troporthents SD, Rendolls or Hapludolls SD	350	1.0
		Humitropepts SD, Eutropepts and/or Troporthents SD, Tropudalfs, various Ultisols or Oxisols SD	1 950	5.8
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents and/or Cryorthents SD, Tropofolists and/or Cryofolists SD	1 250	3.7
		Rendolls SD, Troporthents SD, Humitropepts SD	300	0.9
TOTAL HIGH MOUNTAINS			**12 400**	**37.0**
TOTAL MOROBE PROVINCE (including 14 km^2 lake)			**33 500**	**100.0**

*Areas rounded to nearest 50 km^2

Table 20. % distribution of soil associations - Madang Province

Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
PLAINS AND VALLEYS	Land dominated by waterlogged or very poorly drained undifferentiated soils	Hydraquents SD, Fluvaquents SD, various Histosols SD	1 350	4.7
	Land dominated by poorly drained undifferentiated soils	Fluvaquents PD	1 250	4.4
		Fluvaquents D or SD, Tropofluvents SD. Locally Tropaquepts or various Histosols SD. Near volcanoes various Andepts SD; on raised coral Rendolls and/or Eutropepts SD	2 100	7.3
		Fluvaquents SD, Haplaquolls SD, Tropofluvents or Hapludolls SD. Near volcanoes various Andepts	300	1.0
	Land dominated by well to imperfectly drained undifferentiated soils	Tropofluvents SD, Hapludolls SD, Fluvaquents or Psammaquents SD	950	3.3
		Tropofluvents SD, Hapludolls SD, Tropopsamments or Troporthents SD	50	0.2
		Tropofluvents SD, Hapludolls SD, Pelluderts SD	300	1.0
	Land dominated by shallow and/or coarse textured undifferentiated soils often subject to seasonal moisture stress	Ustipsamments or Tropopsamments SD, Ustorthents or Troporthents SD, various Aquents SD	100	0.4
	Land dominated by soils with thick, dark topsoils and undifferentiated soils subject to seasonal moisture stress	Haplustolls SD, Ustipsamments or Ustifluvents SD Usrorthents SD. Locally Hapludolls or Natrustolls SD	200	0.7
	Land dominated by strongly weathered poorly drained soils with finer textured subsoils	Plintaquults SD, Plinthaqualfs SD, Plinthudults SD	50	0.2
	Land dominated by strongly weathered imperfectly drained soils with finer textured subsoils	Tropudults D or SD, Plinthaquults SD, Tropudalfs SD	300	1.0
TOTAL PLAINS AND VALLEYS			**6 950**	**24.2**
LOW MOUNTAINS AND HILLS	Land dominated by shallow undifferentiated soils subject to seasonal moisture stress	Ustorthents D or SD, Ustropepts D or SD. Haplustalfs SD. Locally Argiustolls SD	50	0.2
	Land dominated by slightly to moderately weathered ash soils with black topsoils	Eutrandepts SD, Dystrandepts SD, Dystropepts or Eutropepts SD. Locally Hydrandepts SD	<50	0.1
	Land dominated by slightly weathered generally coarse textured ash soils	Vitrandepts D or SD. Eutrandepts D or SD	350	1.2
		Vitrandepts SD, Eutrandepts SD, Troporthents SD	450	1.6
		Vitrandepts SD, Eutrandepts SD, Hapludolls SD. Locally various Aquents or Fluvents SD	50	0.2
	Land dominated by slightly to moderately weathered soils with altered B-horizons	Eutropepts D, Troporthents SD	2 000	7.0

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Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
		Eutropepts SD, Troporthents SD, Hapludolls SD. Near volcanoes various Andepts SD	50	0.2
		Eutropepts SD, Troporthents SD, Tropudalfs SD	<50	0.1
	Land dominated by moderately weathered soils with altered B-horizons	Dystropepts SD, Eutropepts SD, Troporthents SD	9 150	31.8
		Dystropepts SD, Eutropepts SD, Rendolls SD	200	0.7
		Dystropepts SD, Eutropepts SD, Tropaquepts SD	550	1.9
		Dystropepts SD, Eutropepts or Troporthents SD, Tropudalfs, Tropudults or Tropohumults SD	850	2.9
	Land dominated by moderately to strongly weathered soils with altered B-horizons	Dystropepts D, Haplorthox SD	850	2.9
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents SD, Eutropepts SD. Near volcanoes various Andepts SD	1 750	6.1
		Rendolls SD, Troporthents SD, various Tropepts SD	50	0.2
		Rendolls SD, Troporthents SD, Tropudalfs SD	250	0.9
		Rendolls SD, Eutropepts SD, Tropaquepts, Pelluderts, and various Entisols or Histosols SD	100	0.3
	Land dominated by moderately weathered soils with finer textured subsoils	Tropudalfs D or SD, Eutropepts or Dystropepts SD, various Aqualfs or Aquepts SD	1 400	4.9
TOTAL LOW MOUNTAINS AND HILLS			**18 150**	**63.2**
HIGH MOUNTAINS	Land dominated by undifferentiated, shallow and organic soils	Troporthents or Cryorthents D or SD, Tropofolists or Cryofolists D or SD	550	1.9
	Land dominated by moderately weathered soils with high organic matter content	Humitropepts SD, Eutropepts and/or Dystropepts SD, Troporthents or Ustorthents SD	2 050	7.1
		Humitropepts SD, Eutropepts and/or Troporthents SD, Tropofolists SD	300	1.1
		Humitropepts SD, Eutropepts and/or Troporthents SD, Tropudalfs, various Ultisols or Oxisols SD	600	2.1
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents and/or Cryorthents SD, Tropofolists and/or Cryofolists SD	50	0.2
TOTAL HIGH MOUNTAINS			**3 550**	**12.4**
TOTAL MADANG PROVINCE (including a 70 km^2 lake)			**28 720**	**100.0**

*Areas rounded to nearest 50 km^2

Table 21. % distribution of soil associations - East Sepik Province

Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
PLAINS AND VALLEYS	Land dominated by waterlogged or very poorly drained undifferentiated soils	Hydraquents SD, Fluvaquents SD, various Histosols SD	15 500	35.4
		Hydraquents D or SD, Fluvaquents D or SD	300	0.7
		Hydraquents D or SD, Fluvaquents SD, Tropofluvents SD	500	1.2
	Land dominated by poorly drained undifferentiated soils	Fluvaquents PD	350	0.8
		Fluvaquents D or SD, Tropofluvents SD. Locally Tropaquepts or various Histosols SD. Near volcanoes various Andepts SD; on raised coral Rendolls and/or Eutropepts SD	2 600	5.9
		Fluvaquents SD, Haplaquolls SD, Tropofluvents or Hapludolls SD. Near volcanoes various Andepts SD	350	0.8
	Land dominated by well to imperfectly drained undifferentiated soils	Tropofluvents SD, Hapludolls SD, Fluvaquents or Psammaquents SD	50	0.1
	Land dominated by organic soils	Tropofibrists or Tropohemists D, Hydraquents or Fluvaquents SD. Under mangrove Sulfihemists SD	2 600	5.9
	Land dominated by strongly weathered drained soils with finer textured subsoils	Plinthaquults SD, Plinthaqualfs SD, Plinthdudults SD	2 450	5.6
	Land dominated by strongly weathered imperfectly drained soils with finer textured subsoils	Tropudults D or SD, Plinthaquults SD, Tropudalfs SD	800	1.9
TOTAL PLAINS AND VALLEYS			**25 500**	**58.3**
LOW MOUNTAINS AND HILLS	Land dominated by shallow undifferentiated soils subject to seasonal moisture stress	Ustorthents D or SD, Ustropepts or Eutropepts D or SD, various Udolls or Tropudalfs SD	700	1.6
	Land dominated by slightly to moderately weathered ash soils with black topsoils	Eutrandepts SD, Dystrandepts or Vitrandepts SD, Hapludolls SD. Locally Andaquepts, Tropaquepts or Tropaqualfs SD	<50	<0.1
	Land dominated by slightly to moderately weathered soils with altered B-horizons	Europepts SD, Troporthents SD, Tropudalfs	400	0.9
	Land dominated by moderately weathered soils with altered B-horizons	Dystropepts SD, Eutropepts SD, Troporthents SD	8 500	19.4
		Dystropepts SD, Eutropepts SD, Rendolls SD	100	0.2
		Dystropepts SD, Eutropepts or Troporthents SD, Hapludolls SD. Near volcanoes various Andepts SD	50	0.1
		Dystropepts SD, Eutropepts or Troporthents SD, Tropudalfs, Tropudults or Tropohumults SD	500	1.1
		Dystropepts SD, Eutropepts SD, various Orthox SD	900	2.1

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Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
	Land dominated by moderately to strongly weathered soils with altered B-horizons	Dystropepts D, Haplorthox SD	1 050	2.4
		Dystropepts D, Paleudults SD	<50	<0.1
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents SD, Eutropepts SD, Near volcanoes various Andepts SD	<50	<0.1
		Rendolls SD, Troporthents SD, Tropudalfs SD	100	0.2
		Rendolls SD, Eutropepts SD, Tropaquepts, Pelluderts, and various Entisols or Histosols SD	<50	<0.1
	Land dominated by moderately weathered soils with finer textured subsoils	Tropudalfs D or SD, Eutropepts or Dystropepts SD, various Aqualfs or Aquepts SD	2 000	4.6
		Tropudalfs D or SD, Eutropepts or Dystropepts SD, various Udolls SD	1 100	2.5
		Tropudalfs SD, Hapludolls SD, various Orthents or Rendolls SD	400	0.8
	Land dominated by strongly weathered soils with finer textured subsoils	Plinthudults SD, Dystropepts SD, Paleudults or Tropudults SD	300	0.7
		Plinthdults SD, Dystropepts SD, Tropaquepts SD	50	0.2
TOTAL LOW MOUNTAINS AND HILLS			**16 200**	**37.0**
HIGH MOUNTAINS	Land dominated by undifferentiated, shallow and organic soils	Troporthents or Cryorthents D or SD, Tropofolists or Cryofolists D or SD	150	0.3
	Land dominated by moderately weathered soils with high organic matter content	Humitropepts SD, Eutropepts and/or Dystropepts SD, Troporthents or Ustorthents SD	950	2.2
		Humitropepts SD, Eutropepts and/or Troporthents SD, Tropofolists SD	400	0.9
		Humitropepts SD, Eutropepts and/or Troporthents SD, Tropudalfs, various Ultisols or Oxisols SD	350	0.8
TOTAL HIGH MOUNTAINS			**1 850**	**4.2**
TOTAL EAST SEPIK PROVINCE (including a 200 km^2 lake)			**43 750**	**100.0**

*Areas rounded to nearest 50 km^2

Table 22. % distribution of soil associations - West Sepik Province

Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
PLAINS AND VALLEYS	Land dominated by waterlogged or very poorly drained undifferentiated soils	Hydraquents SD, Fluvaquents SD, various Histosols SD	1 900	5.3
		Hydraquents D or SD, Fluvaquents D or SD	<50	<0.1
		Hydraquents D or SD, Fluvaquents SD, Tropofluvents SD	2 050	5.7
	Land dominated by poorly drained undifferentiated soils	Fluvaquents PD	100	0.3
		Fluvaquents D or SD, Tropofluvents SD. Locally Tropaquepts or various Histosols SD. Near volcanoes various Andepts SD; on raised coral Rendolls and/or Eutropepts SD	4 350	12.1
	Land dominated by well to imperfectly drained undifferentiated soils	Tropofluvents SD, Hapludolls SD, Fluvaquents or Psammaquents SD	600	1.7
		Tropofluvents SD, Hapludolls SD, Tropopsamments or Troporthents SD	50	0.1
	Land dominated by strongly weathered poorly drained soils with finer textured subsoils	Plinthaquults D or SD, Plinthudults SD Locally Paleaquults SD	500	1.4
		Plinthaquults SD, Dystropepts SD, Paleaquults SD	950	2.6
TOTAL PLAINS AND VALLEYS			**10 500**	**29.2**
LOW MOUNTAINS AND HILLS	Land dominated by slightly to moderately weathered soils with altered B-horizons	Eutropepts D, Troporthents SD, Tropudalfs SD	300	0.8
	Land dominated by moderately weathered soils with altered B-horizons	Dystropepts SD, Eutropepts SD, Troporthents SD	8 150	22.6
		Dystropepts SD, Eutropepts SD, Rendolls SD	100	0.3
		Dystropepts SD, Eutropepts or Troporthents SD, Tropudalfs, Tropudults or Tropohumults SD	5 850	16.2
		Dystropepts SD, Eutropepts SD, various Orthox SD	1 350	3.8
	Land dominated by moderately to strongly weathered soils with altered B-horizons	Dystropepts D, Haplorthox SD	800	2.2
		Dystropepts D, Paleudults SD	100	0.3
		Dystropepts SD, Haplorthox SD, various Udults or Humults SD	300	0.8
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents SD, Eutropepts SD. Near volcanoes various Andepts SD	650	1.8
		Rendolls SD, Troporthents SD, Tropudalfs SD	1 000	2.8
	Land dominated by moderately weathered soils with finer textured subsoils	Tropudalfs D or SD, Eutropepts or Dystropepts SD, various Aqualfs or Aquepts SD	50	0.1

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Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
	Land dominated by strongly weathered soils with finer textured subsoils	Plinthudults SD, Dystropepts SD, Paleudults or Tropudults SD	100	0.3
		Plinthdults SD, Dystropepts SD, Tropaquepts SD	600	1.7
		Plinthudults and/or Tropudults SD, Dystropepts SD Tropudalfs SD	600	1.7
TOTAL LOW MOUNTAINS AND HILLS			**19 950**	**55.4**
HIGH MOUNTAINS	Land dominated by undifferentiated, shallow and organic soils	Troporthents or Cryorthents D or SD, Tropofolists or Cryofolists D or SD	150	0.4
	Land dominated by moderately weathered soils with high organic matter content	Humitropepts SD, Eutropepts and/or Dystropepts SD, Troporthents or Ustorthents SD	2 950	8.2
		Humitropepts SD, Eutropepts and/or Troporthents SD, Tropofolists SD	200	0.6
		Humitropepts SD, Eutropepts and/or Troporthents SD, Tropaquepts SD	150	0.4
		Humitropepts SD, Eutropepts and/or Troporthents SD, Rendolls or Hapludolls SD	50	0.1
		Humitropepts SD, Eutropepts and/or Troporthents SD, Tropudalfs, various Ultisols or Oxisols SD	950	2.6
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents and/or Cryorthents SD, Tropofolists and/or Cryofolists SD	1 100	3.1
TOTAL HIGH MOUNTAINS			**5 550**	**15.4**
TOTAL WEST SEPIK PROVINCE			**36 000**	**100.0**

*Areas rounded to nearest 50 km^2

Table 23. % distribution of soil associations - Manus Province

Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	%
PLAINS AND VALLEYS	Land dominated by waterlogged undifferentiated soils	Sulfaquents SD, Hydraquents SD, various Histosols SD	50	2.4
	Land dominated by waterlogged or very poorly drained undifferentiated soils	Hydraquents SD, Fluvaquents SD, various Histosols SD	150	7.1
		Hydraquents D or SD, Fluvaquents D or SD	100	4.8
TOTAL PLAINS AND VALLEYS			**300**	**14.3**
LOW MOUNTAINS AND HILLS	Land dominated by moderately weathered soils with altered B-horizons	Dystropepts SD, Eutropepts SD, Troporthents SD	250	11.9
		Dystropepts SD, Eutropepts SD, Rendolls SD	<50	0.1
		Dystropepts SD, Eutropepts SD, Tropaquepts SD	400	19.1
		Dystropepts SD, Eutropepts or Troporthents SD, Tropudalfs, Tropudults or Tropohumults SD	<50	1.1
		Dystropepts SD, Eutropepts SD, various Orthox SD	100	5.5
	Land dominated by moderately to strongly weathered soils with altered B-horizons	Dystropepts SD, Haplorthox SD, various Udults or Humults SD	350	16.7
		Dystropepts SD, Haplorthox SD, various Andepts SD	400	19.1
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents SD, Eutropepts SD. Near volcanoes various Andepts SD	100	4.8
		Rendolls SD, Troporthents SD, various Tropepts SD	<50	0.3
		Rendolls SD, Eutropepts SD, Tropaquepts, Pelluderts, and various Entisols or Histosols SD	150	7.1
TOTAL LOW MOUNTAINS AND HILLS			**1 800**	**85.7**
TOTAL MANUS PROVINCE			**2 100**	**100.0**

*Areas rounded to nearest 50 km^2

Table 24. % distribution of soil associations - New Ireland Province

Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	%
PLAINS AND VALLEYS	Land dominated by waterlogged undifferentiated soils	Sulfaquents SD, Hydraquents SD, various Histosols SD	100	1.0
	Land dominated by waterlogged or very poorly drained undifferentiated soils	Hydraquents SD, Fluvaquents SD, various Histosols SD	100	1.0
	Land dominated by poorly drained undifferentiated soils	Fluvaquents D or SD, Tropofluvents SD. Locally Tropaquepts or various Histosols SD. Near volcanoes various Andepts SD; on raised Rendolls and/or Eutropepts SD	350	3.7
TOTAL PLAINS AND VALLEYS			**550**	**5.7**
LOW MOUNTAINS AND HILLS	Land dominated by moderately weathered ash soils with black topsoils	Eutrandepts SD, Dystrandepts or Vitrandepts SD, Hapludolls SD. Locally Andaquepts, Tropaquepts or Tropaqualfs SD	<50	<0.1
	Land dominated by slightly to moderately weathered soils with altered B-horizons	Eutropepts D, Troporthents SD	300	3.1
		Eutropepts SD, Troporthents SD, Tropudalfs SD	350	3.7
	Land dominated by moderately weathered soils with altered B-horizons	Dystropepts SD, Eutropepts SD, Troporthents SD	150	1.6
		Dystropepts SD, Eutropepts SD, Rendolls SD	300	3.1
		Dystropepts SD, Eutropepts or Troporthents SD, Hapludolls SD. Near volcanoes various Andepts SD	450	4.7
		Dystropepts SD, Eutropepts or Troporthents SD, Tropudalfs, Tropudults or Tropohumults SD	2 700	28.1
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents SD, Eutropepts SD. Near volcanoes various Andepts SD	650	6.8
		Rendolls SD, Troporthents SD, Tropudalfs SD	3 550	37.0
	Land dominated by moderately weathered soils with finer textured subsoils	Tropudalfs SD, Hapludolls SD, various Orthents or Rendolls SD	100	1.0
TOTAL LOW MOUNTAINS AND HILLS			**8 550**	**89.1**
HIGH MOUNTAINS	Land dominated by moderately weathered soils with high organic matter content	Humitropepts SD, Eutropepts and/or Dystropepts SD, Troporthents or Ustorthents SD	500	5.2
TOTAL NEW IRELAND PROVINCE			**9 600**	**100.0**

*Areas rounded to nearest 50 km^2

Table 25. % distribution of soil associations - East New Britain

Major landform subdivision	Major grouping of soil association	Soil association	Area km²*	Area %
PLAINS AND VALLEYS	Land dominated by waterlogged or very poorly drained undifferentiated soils	Hydraquents SD, Fluvaquents SD, various Histosols SD	<50	0.1
		Hydraquents D or SD, Fluvaquents SD, Tropofluvents SD	50	0.3
	Land dominated by poorly drained undifferentiated soils	Fluvaquents D or SD, Tropofluvents SD. Locally Tropaquepts or various Histosols SD. Near volcanoes various Andepts SD; on raised Rendolls and/or Eutropepts SD	650	4.3
	Land dominated by well to imperfectly drained undifferentiated soils	Tropofluvents SD, Hapludolls SD, Fluvaquents or Psammaquents SD	250	1.6
		Tropofluvents SD, Hapludolls SD, Tropopsamments or Troporthents SD	50	0.3
TOTAL PLAINS AND VALLEYS			**1 000**	**6.6**
LOW MOUNTAINS AND HILLS	Land dominated by moderately weathered ash soils with black topsoils	Eutrandepts SD, Dystrandepts SD, Dystropepts or Eutropepts SD. Locally Hydrandepts SD	450	3.0
	Land dominated by slightly weathered generally coarse textured ash soils	Vitrandepts D or SD. Eutrandepts D or SD	350	2.3
		Vitrandepts SD, Eutrandepts SD, Durandepts SD	450	3.0
		Vitrandepts SD, Eutrandepts SD, Hapludolls SD. Locally various Aquents or Fluvents SD	100	0.7
	Land dominated byslightly to moderately weathered soils with altered B-horizons	Eutropepts SD, Troporthents SD, Hapludolls SD. Near volcanoes various Andepts SD	350	2.3
		Eutropepts SD, Troporthents SD, Tropudalfs SD	<50	0.1
	Land dominated by moderately weathered soils with altered B-horizons	Dystropepts SD, Eutropepts SD, Troporthents SD	4 400	29.1
		Dystropepts SD, Eutropepts or Troporthents SD, Hapludolls SD. Near volcanoes various Andepts SD	<50	<0.1
		Dystropepts SD, Eutropepts or Troporthents SD, Tropudalfs, Tropudults or Tropohumults SD	1 300	8.6
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents SD, Eutropepts SD. Near volcanoes various Andepts SD	5 350	35.4
		Rendolls SD, Troporthents SD, Tropudalfs SD	500	3.3
		Rendolls SD, Eutropepts SD, Tropaquepts, Pelluderts, and various Entisols or Histosols SD	250	1.6
TOTAL LOW MOUNTAINS AND HILLS			**13 500**	**89.4**
HIGH MOUNTAINS	Land dominated by moderately weathered soils with high organic matter content	Humitropepts SD, Eutropepts and/or Dystropepts SD, Troporthents or Ustorthents SD	500	3.2

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Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents SD, Humitropepts SD	100	0.8
TOTAL HIGH MOUNTAINS			**600**	**4.0**
TOTAL EAST NEW BRITAIN PROVINCE			**15 100**	**100.0**

*Areas rounded off to nearest 50 km^2

Table 26. % distribution of soil associations - West New Britain

Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
PLAINS AND VALLEYS	Land dominated by waterlogged undifferentiated soils	Sulfaquents SD, Hydraquents SD, various Histosols SD	50	0.2
	Land dominated by waterlogged or very poorly drained undifferentiated soils	Hydraquents SD, Fluvaquents SD, various Histosols SD	300	1.4
		Hydraquents D or SD, Fluvaquents D or SD	150	0.7
		Hydraquents D or SD, Fluvaquents SD, Tropofluvents SD	100	0.5
	Land dominated by poorly drained undifferentiated soils	Fluvaquents PD	<50	0.1
		Fluvaquents D or SD, Tropofluvents SD. Locally Tropaquepts or various Histosols SD. Near volcanoes various Andepts SD; on raised coral Rendolls and/or Eutropepts SD	400	1.9
		Fluvaquents SD, Tropopsamments or Tropofluvents SD, Psammaquents SD	<50	<0.1
		Fluvaquents SD, Haplaquolls SD, Tropofluvents or Hapludolls SD. Near volcanoes various Andepts	100	0.5
	Land dominated by well to imperfectly drained undifferentiated soils	Tropofluvents SD, Hapludolls SD, Fluvaquents or Psammaquents SD	50	0.5
	Land dominated by organic soils	Tropofibrists SD, Tropaquepts or Fluvaquents SD. Locally Haplaquolls or Andaquepts SD	400	1.9
TOTAL PLAINS AND VALLEYS			**1 600**	**7.7**
LOW MOUNTAINS HILLS	Land dominated by slightly to moderately weathered ash soils with black topsoils	Eutrandepts SD, Dystrandepts SD, Dystropepts or Eutropepts SD. Locally Hydrandepts SD	100	0.5
		Eutrandepts SD, Dystrandepts or Vitrandepts SD, Hapludolls SD. Locally Andaquepts, Tropaquepts or Tropaqualfs SD	300	1.5
	Land dominated by slightly weathered generally coarse textured ash soils	Vitrandepts D or SD. Eutrandepts D or SD	1 150	5.5
		Vitrandepts SD, Eutrandepts SD, Durandepts SD	150	0.7
		Vitrandepts SD, Eutrandepts SD, Troporthents SD	1 000	4.8
		Vitrandepts SD, Eutrandepts SD, Hapludolls SD. Locally various Aquents or Fluvents SD	1 500	7.3
	Land dominated byslightly to moderately weathered soils with altered B-horizons	Eutropepts SD, Troporthents SD, Hapludolls SD. Near volcanoes various Andepts SD	1 850	8.9
		Eutropepts SD, Troporthents SD, Tropudalfs SD	<50	<0.1
	Land dominated by moderately weathered soils with altered B-horizons	Dystropepts SD, Eutropepts SD, Troporthents SD	3 750	18.1
		Dystropepts SD, Eutropepts SD, Rendolls SD	2 250	10.9

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Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	Area %
		Dystropepts SD, Eutropepts SD, Tropaquepts SD	1 350	6.5
		Dystropepts SD, Eutropepts or Troporthents SD, Hapludolls SD. Near volcanoes various Andepts SD	2 800	13.5
		Dystropepts SD, Eutropepts or Troporthents SD, Tropudalfs, Tropudults or Tropohumults SD	150	0.7
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents SD, Eutropepts SD. Near volcanoes various Andepts SD	2 350	11.3
		Rendolls SD, Troporthents SD, Tropudalfs SD	<50	<0.1
		Rendolls SD, Eutropepts SD, Tropaquepts, Pelluderts, and various Entisols or Histosols SD	250	1.2
	Land dominated by moderately weathered soils with finer textured subsoils	Tropudalfs D or SD, Eutropepts or Dystropepts SD, various Udolls SD	50	0.2
TOTAL LOW MOUNTAINS AND HILLS			**19 000**	**91.7**
HIGH MOUNTAINS	Land dominated by moderately weathered soils with high organic matter content	Humitropepts SD, Eutropepts and/or Dystropepts SD, Troporthents or Ustorthents SD	50	0.2
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents SD, Humitropepts SD	50	0.3
TOTAL HIGH MOUNTAINS			**100**	**0.5**
TOTAL WEST NEW BRITAIN (including a 60 km^2 lake)			**20 760**	**99.9**

*Areas rounded to nearest 50 km^2

Table 27. % distribution of soil associations - North Solomons Province

Major landform subdivision	Major grouping of soil association	Soil association	Area km^2*	%
PLAINS AND VALLEYS	Land dominated by waterlogged undifferentiated soils	Sulfaquents SD, Hydraquents SD, various Histosols SD	<50	0.1
	Land dominated by waterlogged or very poorly drained undifferentiated soils	Hydraquents SD, Fluvaquents SD, various Histosols SD	<50	0.2
		Hydraquents D or SD, Fluvaquents D or SD	<50	0.3
	Land dominated by poorly drained undiffer- soils	Fluvaquents D or SD, Tropofluvents SD. Locally Tropaquepts or various Histosols SD. Near volcanoes various Andepts SD; on raised coral Rendolls and/or Eutropepts SD	50	0.4
		Fluvaquents SD, Troposamments or Tropofluvents SD, Psammaquents SD	800	8.6
	Land dominated by well to imperfectly drained undifferentiated soils	Tropofluvents SD, Hapludolls SD, Tropopsamments or Troporthents SD	<50	<0.1
	Land dominated by organic soils	Tropofibrists D, Psammaquents SD	650	7.0
TOTAL PLAINS AND VALLEYS			**1 550**	**16.6**
LOW MOUNTAINS AND HILLS	Land dominated by slightly to moderately weathered ash soils with black topsoils	Eutrandepts SD, Dystrandepts or Vitrandepts SD, Hapludolls SD. Locally Andaquepts, Tropaquepts or Tropaqualfs SD	<50	<0.1
	Land dominated by slightly weathered generally coarse textured ash soils	Vitrandepts D or SD. Eutrandepts D or SD	3 350	35.8
		Vitrandepts SD, Eutrandepts SD, Durandepts SD	1 500	16.0
		Vitrandepts SD, Eutrandepts SD, Troporthents SD	1 350	14.4
		Vitrandepts SD, Eutrandepts SD, Hapludolls SD. Locally various Aquents or Fluvents SD	550	5.9
	Land dominated by slightly to moderately weathered soils with altered B-horizons	Eutropepts D, Troporthents SD, Tropudalfs SD	350	3.7
	Land dominated by shallow, dark, weakly acid to neutral soils	Rendolls SD, Troporthents SD, Tropudalfs SD	<50	<0.1
		Rendolls SD, Eutropepts SD, Tropaquepts, Pelluderts, and various Entisols or Histosols SD	150	1.6
	Land dominated by moderately weathered soils with finer textured subsoils	Tropudalfs D or SD, Eutropepts or Dystropepts SD, various Udolls SD	550	5.9
TOTAL LOW MOUNTAINS AND HILLS			**7 800**	**83.4**
TOTAL NORTH SOLOMONS PROVINCE			**9 350**	**100.0**

*Areas rounded to nearest 50 km^2

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