Guidelines for constructing small-scale map legends using the World Reference Base for Soil Resources

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Introduction

In this addendum to WRB 2006, first update 2007, guidelines are provided to construct map units (or soil typological units) and map legends for scales of 1:250 000 and smaller. For terms and definitions in these guidelines the user is referred to the above publication, which can be downloaded from the WRB website: http://www.fao.org/ag/agl/agll/wrb/doc/wrb2007_corr.pdf.

When classifying soils, the WRB is capable of indicating most of the soil's properties, and in most cases the result is a quite satisfactory and informative soil name. However, when generalization is required, e.g. in mapping, important information may not show, depending on how the generalization is carried out. Although WRB was not primarily designed to serve mapping purposes, it is increasingly used for that. This addendum has been developed to serve the need for small-scale mapping.

In the above-mentioned WRB publication it is suggested to use for small-scale maps the prefix qualifiers only and for large-scale maps additional suffix qualifiers. If this approach is taken with the current configuration of the qualifiers, important information on certain soil characteristics may not be revealed for small-scale maps. For example, the occurrence of clay skins (Cutanic) is recognized at prefix level, and, when generalizing, Luvisols (and related soils) become Cutanic Luvisols or Cutanic other soils, which for temperate and subtropical regions does not give satisfactory differentiation. Similarly, Rhodic in Ferralsols and Nitisols, and Xanthic in Ferralsols, important qualifiers to indicate their environmental setting and geological relationship, are suffix qualifiers, yielding in generalizations only Haplic Ferralsols and Nitisols.

These guidelines are based on the following considerations:

- The soil units and their ranking in the FAO-UNESCO Legend and Revised Legend of the Soil Map of the World (SMW);
- The occurrence and significance of soil properties in other classification systems;
- The relevance of differentiation characteristics for environmental and management functions;
- The availability of soil information (legacy and modern);
- The mappability of soil characteristics at scales of 1:250 000 and smaller.

Intergrade qualifiers are excluded from the map unit qualifier list once the RSG is passed in the Key, unless a specific exclusion is made or the feature is considered to be very important. All qualifiers have been taken into account, regardless whether they are prefix or suffix qualifiers for classification purposes. It must be emphasized that no new definitions and no new qualifiers are introduced; only the ones that are listed in the above-mentioned WRB publication will be used. However, in order to obtain consistent lists, the obligatory “Endo-“ specifier has been removed in some cases.

Below, for every Reference Soil Group, the qualifiers are given that can be used to construct small-scale map units and map legends. They are divided into lists of main map unit qualifiers and optional map unit qualifiers. The main map unit qualifiers are ranked and have to be used in the given order. The optional map unit qualifiers are listed alphabetically and may be added according to the need of the user. Some of the optional map unit qualifiers may not be mappable on the scales under consideration.

The following rules apply:

- A map unit consists either of the dominant soil only or of the dominant soil plus a co-dominant soil or one or more associated soils; dominant soils represent 50% or more of the soil cover, co-dominant soils 25% or more, and associated soils are mentioned only if they represent 5% or more of the soil cover or are of high relevance in the landscape ecology; instead of one dominant soil, a combination of at least two co-dominant soils is also possible; if co-dominant or associated soils are indicated, the words “dominant:”, “co-dominant:” and “associated:” are written before the name of the soil; the soils are separated by semicolons;
- The number of qualifiers specified below refers to the dominant soil; for co-dominant or associated soils, smaller numbers of qualifiers (or even no qualifier) may be appropriate;
- For map scales of 1 : 5 000 000 and smaller, either the Reference Soil Group (RSG) name or the RSG name plus the first applying qualifier of the main list is used; the qualifier is placed before the RSG name;
- For map scales from 1 : 1 000 000 to 1 : 5 000 000, the RSG name plus the first two applying qualifiers of the main list is used; the qualifiers are placed before the RSG name; the first applying qualifier stands closest to the RSG name;
- For map scales from 1 : 250 000 to 1 : 1 000 000, the RSG name plus the first three applying qualifiers of the main list is used; the qualifiers are placed before the RSG name; the first applying qualifier stands closest to the RSG name, the second one stands in the middle;

- Additional qualifiers of the main list or qualifiers of the optional list may be used in brackets behind the RSG name; if two or more qualifiers behind the RSG are used, the following rules apply: (a) the qualifiers are separated by commas, (b) the additional qualifiers from the main list are placed first and out of them the first applying qualifier stands first, (c) the sequence of the qualifiers from the optional list is according to the preference of the soil scientist who makes the map;
- In case two or more main map unit qualifiers are listed separated by a slash (/), only the dominant one is used;
- If there are less qualifiers applying than described above, the smaller number is used;
- Redundant qualifiers (the characteristics of which are included in a previously used qualifier) are not added; the qualifier Haplic cannot be used in combination with other qualifiers before the RSG name.
- The use of the specifiers Epi- (the qualifier applies only between 0 and 50 cm from the mineral soil surface) and Endo- (the qualifier applies only between 50 and 100 cm from the mineral soil surface) is encouraged, where applicable.

These guidelines are based on the understanding that satisfactory (quality) data are necessary to determine the elements of the map units.

At the end of this document four examples are given how to construct map unit names for map legends at different scales and increasing level of detail.

HISTOSOLS

Main map unit qualifiers	***Optional map unit qualifiers***
Cryic	Alcalic
Thionic	Calcaric
Folic	Calcic
Fibric/Hemic/Sapric	Drainic
Technic	Floatic
Hyperskeletic/Leptic	Gelic
Vitric/Andic	Glacic
Dystric/Eutric	Lignic
Rheic/Ombric	Limnic
	Novic
	Ornithic
	Petrogleyic
	Placic
	Salic
	Skeletic
	Sodic
	Subaquatic
	Tidalic
	Toxic
	Transportic
	Turbic

ANTHROSOLS

Main map unit qualifiers	***Optional map unit qualifiers***
Hydragric/Irragric/Terric/Plaggic/Hortic	Alcalic
Dystric/Eutric	Arenic
	Clayic
	Escalic
	Ferralic
	Fluvic
	Gleyic
	Novic
	Oxyaquic
	Regic
	Salic
	Siltic
	Sodic
	Spodic
	Stagnic
	Technic

TECHNOSOLS

Main map unit qualifiers	*Optional map unit qualifiers*
Ekranic	Acric
Linic	Alic
Urbic/Spolic/Garbic	Arenic
Cryic	Calcaric
Toxic	Clayic
Dystric/Eutric	Densic
	Drainic
	Fluvic
	Folic
	Gleyic
	Histic
	Humic
	Leptic
	Lixic
	Luvic
	Mollic
	Novic
	Oxyaquic
	Reductic
	Siltic
	Skeletic
	Stagnic
	Umbric
	Vitric

CRYOSOLS

Main map unit qualifiers	*Optional map unit qualifiers*
Glacic	Arenic
Turbic	Aridic
Folic/Histic	Calcaric
Hyperskeletic/Leptic	Calcic
Mollic/Umbric	Cambic
Spodic	Clayic
Reductaquic/Oxyaquic	Drainic
Haplic	Dystric
	Eutric
	Gypsiric
	Natric
	Novic
	Ornithic
	Salic
	Siltic
	Skeletic
	Thixotropic
	Transportic
	Vitric

LEPTOSOLS

Main map unit qualifiers	*Optional map unit qualifiers*
Nudilithic/Lithic	Andic
Hyperskeletic	Aridic
Rendzic	Brunic
Folic/Histic	Calcaric
Mollic/Umbric	Cambic
Dystric/Eutric	Drainic
	Gelic
	Gleyic
	Greyic
	Gypsiric
	Humic
	Novic
	Ornithic
	Oxyaquic
	Placic
	Protothionic
	Salic
	Skeletic
	Sodic
	Stagnic
	Technic
	Tephric
	Vertic
	Vitric
	Yermic

VERTISOLS

Main map unit qualifiers	*Optional map unit qualifiers*
Sodic	Albic
Salic	Calcaric
Gypsic	Duric
Petroduric	Endoleptic
Petrocalcic/Calcic	Ferric
Pellic	Gleyic
Chromic	Grumic
Haplic	Gypsiric
	Humic
	Hypereutric
	Hyposalic
	Hyposodic
	Manganiferric
	Mazic
	Mesotrophic
	Mollic
	Novic
	Stagnic
	Technic
	Thionic

FLUVISOLS

Main map unit qualifiers	*Optional map unit qualifiers*
Subaquatic/Tidalic	Anthric
Thionic	Arenic
Skeletic	Aridic
Salic	Calcic
Gleyic	Clayic
Stagnic	Densic
Folic/Histic	Drainic
Mollic/Umbric	Gelic
Calcaric	Greyic
Dystric/Eutric	Gypsic
	Gypsiric
	Humic
	Limnic
	Oxyaquic
	Petrogleyic
	Siltic
	Sodic
	Takyric
	Technic
	Tephric
	Transportic
	Yermic

SOLONETZ

Main map unit qualifiers	*Optional map unit qualifiers*
Gleyic	Abruptic
Stagnic	Albic
Mollic	Arenic
Salic	Aridic
Gypsic	Clayic
Petrocalcic/Calcic	Colluvic
Haplic	Duric
	Glossalbic
	Gypsic
	Humic
	Magnesic
	Novic
	Oxyaquic
	Petrocalcic
	Ruptic
	Siltic
	Takyric
	Technic
	Transportic
	Vertic
	Yermic

SOLONCHAKS

Main map unit qualifiers	***Optional map unit qualifiers***
Petrosalic	Aceric
Gleyic	Arenic
Stagnic	Aridic
Mollic	Carbonatic
Gypsic	Clayic
Duric	Chloridic
Calcic	Densic
Sodic	Drainic
Haplic	Folic
	Gelic
	Histic
	Hypersalic
	Novic
	Oxyaquic
	Puffic
	Siltic
	Sulphatic
	Takyric
	Technic
	Transportic
	Vertic
	Yermic

GLEYSOLS

Main map unit qualifiers	***Optional map unit qualifiers***
Thionic	Abruptic
Folic/Histic	Acric
Mollic/Umbric	Alcalic
Pisoplinthic/Plinthic	Alic
Gypsic	Alumic
Calcic/Calcaric	Andic
Dystric/Eutric	Anthraquic
	Arenic
	Clayic
	Colluvic
	Drainic
	Endosalic
	Fluvic
	Gelic
	Greyic
	Humic
	Lixic
	Luvic
	Novic
	Petrogleyic
	Siltic
	Sodic
	Spodic
	Takyric
	Technic
	Tephric
	Toxic
	Turbic
	Vitric

ANDOSOLS

Main map unit qualifiers	*Optional map unit qualifiers*
Vitric	Acroxic
Aluandic/Silandic	Anthric
Melanic/Fulvic	Arenic
Leptic	Calcaric
Gleyic	Clayic
Folic/Histic	Colluvic
Mollic/Umbric	Drainic
Petroduric/Duric	Eutrosilic
Calcic	Fragic
Dystric/Eutric	Gelic
	Greyic
	Gypsic
	Hydric
	Novic
	Oxyaquic
	Placic
	Siltic
	Skeletic
	Sodic
	Technic
	Thixotropic
	Transportic
	Turbic

PODZOLS

Main map unit qualifiers	*Optional map unit qualifiers*
Carbic/Rustic	Anthric
Albic/Entic	Densic
Gleyic	Drainic
Stagnic	Fragic
Folic/Histic/Umbric	Gelic
Hyperskeletic/Leptic	Hortic
Vitric/Silandic/Aluandic	Lamellic
Haplic	Novic
	Ornithic
	Ortsteinic
	Oxyaquic
	Placic
	Plaggic
	Ruptic
	Skeletic
	Technic
	Terric
	Transportic
	Turbic

PLINTHOSOLS

Main map unit qualifiers	*Optional map unit qualifiers*
Petric/Fractipetric	Abruptic
Pisoplinthic	Acric
Albic	Alumic
Stagnic	Arenic
Folic/Histic	Clayic
Umbric	Colluvic
Dystric/Eutric	Drainic
	Endoduric
	Ferric
	Geric
	Gibbsic
	Humic
	Lixic
	Manganiferric
	Novic
	Oxyaquic
	Pachic
	Posic
	Ruptic
	Siltic
	Technic
	Transportic
	Umbriglossic
	Vetic

NITISOLS

Main map unit qualifiers	*Optional map unit qualifiers*
Mollic/Umbric	Alumic
Ferralic	Andic
Alic/Acric/Luvic/Lixic	Colluvic
Humic	Densic
Rhodic	Novic
Dystric/Eutric	Oxyaquic
	Technic
	Transportic
	Vetic

FERRALSOLS

Main map unit qualifiers	*Optional map unit qualifiers*
Gibbsic	Alumic
Posic/Geric	Andic
Petroplinthic/Fractiplinthic/Pisoplinthic/	Arenic
Plinthic	Clayic
Folic	Colluvic
Mollic/Umbric	Densic
Acric/Lixic	Dystric
Humic	Eutric
Rhodic/Xanthic	Ferric
Haplic	Manganiferric
	Novic
	Oxyaquic
	Ruptic
	Siltic
	Sombric
	Technic
	Transportic
	Vetic

PLANOSOLS

Main map unit qualifiers	*Optional map unit qualifiers*
Solodic	Albic
Folic/Histic	Alcalic
Mollic/Umbric	Alumic
Gypsic	Arenic
Petrocalcic/Calcic	Calcaric
Alic/Acric/Luvic/Lixic	Chromic
Vertic	Clayic
Dystric/Eutric	Drainic
	Endogleyic
	Endosalic
	Ferric
	Gelic
	Geric
	Greyic
	Manganiferric
	Plinthic
	Ruptic
	Siltic
	Sodic
	Technic
	Thionic
	Transportic

STAGNOSOLS

Main map unit qualifiers	*Optional map unit qualifiers*
Folic/Histic	Alcalic
Mollic/Umbric	Alumic
Vertic	Arenic
Alic/Acric/Luvic/Lixic	Calcaric
Albic	Chromic
Gleyic	Clayic
Gypsic	Drainic
Petrocalcic/Calcic	Endosalic
Dystric/Eutric	Ferric
	Gelic
	Geric
	Greyic
	Manganiferric
	Ornithic
	Placic
	Plinthic
	Rhodic
	Ruptic
	Siltic
	Sodic
	Technic
	Thionic

CHERNOZEMS

Main map unit qualifiers	*Optional map unit qualifiers*
Voronic	Andic
Glossic	Anthric
Petrocalcic	Arenic
Vertic	Clayic
Gleyic	Densic
Luvic	Duric
Calcic	Endofluvic
Haplic	Endosalic
	Greyic
	Gypsic
	Leptic
	Novic
	Oxyaquic
	Pachic
	Petroduric
	Petrogypsic
	Siltic
	Skeletic
	Sodic
	Stagnic
	Technic
	Tephric
	Vermic
	Vitric

KASTANOZEMS

Main map unit qualifiers	*Optional map unit qualifiers*
Petrogypsic/Gypsic/Petroduric/Duric/ Petrocalcic	Andic
Vertic	Anthric
Gleyic	Arenic
Luvic	Chromic
Calcic	Clayic
Haplic	Densic
	Endosalic
	Glossic
	Greyic
	Leptic
	Novic
	Oxyaquic
	Siltic
	Skeletic
	Sodic
	Stagnic
	Technic
	Tephric
	Vermic
	Vitric

PHAEOZEMS

Main map unit qualifiers	*Optional map unit qualifiers*
Greyic	Abruptic
Rendzic	Albic
Leptic/Skeletic	Andic
Petrocalcic	Anthric
Vertic	Arenic
Gleyic	Chromic
Luvic	Clayic
Calcaric	Densic
Haplic	Duric
	Endosalic
	Ferralic
	Glossic
	Novic
	Oxyaquic
	Pachic
	Petroduric
	Petrogypsic
	Siltic
	Sodic
	Stagnic
	Technic
	Tephric
	Vermic
	Vitric

GYPSISOLS

Main map unit qualifiers	*Optional map unit qualifiers*
Petric	Arenic
Hyperskeletic/Leptic	Aridic
Petrocalcic/Calcic	Arzic
Luvic	Clayic
Haplic	Duric
	Endogleyic
	Endosalic
	Hypergypsic
	Hyperochric
	Hypogypsic
	Novic
	Petroduric
	Ruptic
	Siltic
	Skeletic
	Sodic
	Takyric
	Technic
	Transportic
	Vertic
	Yermic

DURISOLS

Main map unit qualifiers	*Optional map unit qualifiers*
Petric/Fractipetric	Arenic
Petrocalcic/Calcic	Aridic
Luvic/Lixic	Chromic
Haplic	Clayic
	Endogleyic
	Gypsic
	Hyperochric
	Leptic
	Novic
	Ruptic
	Siltic
	Sodic
	Takyric
	Technic
	Transportic
	Vertic
	Yermic

CALCISOLS

Main map unit qualifiers	*Optional map unit qualifiers*
Petric	Arenic
Hyperskeletic/Leptic	Aridic
Luvic/Lixic	Chromic
Haplic	Clayic
	Densic
	Endogleyic
	Endosalic
	Gypsic
	Hypercalcic
	Hyperochric
	Hypocalcic
	Novic
	Ruptic
	Siltic
	Skeletic
	Sodic
	Takyric
	Technic
	Transportic
	Vertic
	Yermic

ALBELUVISOLS

Main map unit qualifiers	*Optional map unit qualifiers*
Gleyic	Abruptic
Stagnic	Anthric
Folic/Histic	Arenic
Umbric	Cambic
Manganiferric/Ferric	Clayic
Alumic	Cutanic
Dystric/Eutric	Densic
	Drainic
	Fragic
	Gelic
	Greyic
	Novic
	Oxyaquic
	Ruptic
	Siltic
	Technic
	Transportic

ALISOLS

Main map unit qualifiers	***Optional map unit qualifiers***
Leptic/Skeletic	Abruptic
Fractiplinthic/Petroplinthic/	Alumic
Pisoplinthic/Plinthic	Andic
Gleyic	Anthric
Stagnic	Arenic
Umbric	Clayic
Albic	Cutanic
Manganiferric/Ferric	Densic
Humic	Epieutric
Rhodic/Chromic	Fragic
Haplic	Gelic
	Greyic
	Hyperalic
	Hyperdystric
	Hyperochric
	Lamellic
	Nitic
	Novic
	Nudiargic
	Oxyaquic
	Profondic
	Ruptic
	Siltic
	Technic
	Transportic
	Turbic
	Vertic
	Vitric

ACRISOLS

Main map unit qualifiers	*Optional map unit qualifiers*
Leptic	Abruptic
Fractiplinthic/Petroplinthic/Pisoplinthic/ Plinthic	Alumic
	Andic
Gleyic	Anthric
Stagnic	Arenic
Umbric	Clayic
Albic	Cutanic
Manganiferric/Ferric	Densic
Humic	Epieutric
Rhodic/Chromic	Fragic
Haplic	Greyic
	Hyperdystric
	Hyperochric
	Lamellic
	Nitic
	Novic
	Nudiargic
	Oxyaquic
	Profondic
	Ruptic
	Siltic
	Skeletic
	Sombric
	Technic
	Transportic
	Vetic
	Vitric

LUVISOLS

Main map unit qualifiers	***Optional map unit qualifiers***
Leptic/Skeletic	Abruptic
Gleyic	Andic
Stagnic	Anthric
Albic	Arenic
Vertic	Clayic
Calcic	Cutanic
Manganiferric/Ferric	Densic
Rhodic/Chromic	Epidystric
Haplic	Escalic
	Fragic
	Gelic
	Greyic
	Humic
	Hypereutric
	Hyperochric
	Lamellic
	Nitic
	Novic
	Nudiargic
	Oxyaquic
	Profondic
	Ruptic
	Siltic
	Sodic
	Technic
	Transportic
	Turbic
	Vitric

LIXISOLS

Main map unit qualifiers	***Optional map unit qualifiers***
Leptic Fractiplinthic/Petroplinthic/ Pisoplinthic/ Plinthic Gleyic Stagnic Albic Calcic Manganiferric/Ferric Rhodic/Chromic Haplic	Abruptic Andic Anthric Arenic Clayic Cutanic Densic Epidystric Ferric Fragic Greyic Humic Hypereutric Hyperochric Lamellic Nitic Novic Nudiargic Oxyaquic Profondic Ruptic Siltic Skeletic Technic Transportic Vetic Vitric

UMBRISOLS

Main map unit qualifiers	*Optional map unit qualifiers*
Leptic/Skeletic	Alumic
Gleyic	Andic
Stagnic	Anthric
Folic/Histic	Arenic
Mollic	Brunic
Albic	Cambic
Greyic	Chromic
Haplic	Clayic
	Densic
	Drainic
	Endoeutric
	Ferralic
	Fluvic
	Gelic
	Glossic
	Humic
	Hyperdystric
	Laxic
	Novic
	Ornithic
	Oxyaquic
	Pachic
	Placic
	Siltic
	Technic
	Thionic
	Turbic
	Vitric

ARENOSOLS

Main map unit qualifiers	*Optional map unit qualifiers*
Fractiplinthic/Petroplinthic/ Pisoplinthic/Plinthic	Aridic
Gleyic	Gelic
Salic	Greyic
Folic	Hydrophobic
Albic	Hyperalbic
Ferralic	Hyperochric
Hypoluvic/Lamellic	Novic
Rubic/Brunic	Ornithic
Protic	Petrogleyic
Gypsiric/Calcaric	Placic
Dystric/Eutric	Stagnic
	Technic
	Tephric
	Transportic
	Turbic
	Yermic

CAMBISOLS

Main map unit qualifiers	***Optional map unit qualifiers***
Leptic/Skeletic	Alcalic
Fractiplinthic/Petroplinthic/	Alumic
Pisoplinthic/Plinthic	Anthraquic
Vertic	Aridic
Thionic	Clayic
Gleyic	Colluvic
Gelistagnic/Stagnic	Densic
Salic	Escalic
Vitric/Andic	Ferric
Ferralic	Folic
Fluvic	Fragic
Gypsiric/Calcaric	Gelic
Rhodic/Chromic	Greyic
Dystric/Eutric	Hortic
	Humic
	Hyperochric
	Irragric
	Laxic
	Manganiferric
	Novic
	Ornithic
	Oxyaquic
	Pisocalcic
	Plaggic
	Ruptic
	Siltic
	Sodic
	Takyric
	Technic
	Tephric
	Terric
	Transportic
	Turbic
	Yermic

REGOSOLS

Main map unit qualifiers	***Optional map unit qualifiers***
Leptic/Skeletic	Arenic
Gleyic	Aric
Gelistagnic/Stagnic	Aridic
Thaptovitric/Thaptandic	Brunic
Tephric	Clayic
Colluvic	Densic
Gypsiric/Calcaric	Escalic
Dystric/Eutric	Folic
	Gelic
	Humic
	Hyperochric
	Hyposalic
	Ornithic
	Oxyaquic
	Siltic
	Sodic
	Takyric
	Technic
	Transportic
	Turbic
	Vermic
	Yermic

EXAMPLES

Example 1

A map unit in the Mediterranean region dominated by a red soil with clay illuviation, accumulation of secondary carbonates and vertic properties, all within 100 cm, will be denominated

- at map scales of 1 : 5 000 000 or smaller
  either *Luvisol* or *Vertic Luvisol*
- at map scales from 1 : 1 000 000 to 1 : 5 000 000
  Calcic Vertic Luvisol
- at map scales from 1 : 250 000 to 1 : 1 000 000
  Chromic Calcic Vertic Luvisol

In case the purity of the map unit permits, additional qualifiers may be added at all scales, e.g. if the soil occurs in a vast terraced area, the optional qualifier *Escalic* may be added in brackets after the name of the RSG:

Luvisol (Escalic) or *Vertic Luvisol (Escalic)*
Calcic Vertic Luvisol (Escalic)
Chromic Calcic Vertic Luvisol (Escalic)

Example 2

A map unit dominated by a soil with a black surface horizon, 30 cm thick, with high base saturation, secondary carbonates directly below the surface horizon, clay illuviation features and groundwater influence starting within 50 to 75 cm (i.e. having between 50 and 100 cm from the mineral soil surface a layer, 25 cm or more thick, that has reducing conditions in some parts and a gleyic colour pattern throughout), will be denominated

- at map scales of 1 : 5 000 000 or smaller
  either *Chernozem* or *Endogleyic Chernozem*
- at map scales from 1 : 1 000 000 to 1 : 5 000 000
  Luvic Endogleyic Chernozem
- at map scales from 1 : 250 000 to 1 : 1 000 000
  Calcic Luvic Endogleyic Chernozem

Example 3

In a map unit, 80% of the surface is covered by a severely eroded calcareous soil with 50% gravel over hard rock starting at 80 cm, in the other 20% the soil above the hard rock has 90% gravel. This unit will be denominated

- at map scales of 1 : 5 000 000 or smaller
  dominant: Regosol; associated: Leptosol or *dominant: Skeletic Regosol; associated: Hyperskeletic Leptosol* (the option *Leptic Regosol* was not chosen, because the hard rock starts only at 80 cm)
- at map scales from 1 : 1 000 000 to 1 : 5 000 000
  dominant: Calcaric Skeletic Regosol; associated: Hyperskeletic Leptosol
- at map scales from 1 : 250 000 to 1 : 1 000 000
  dominant: Calcaric Skeletic Regosol; associated: Hyperskeletic Leptosol
  (redundant qualifiers are not used; in this example the next applying qualifier for the Regosols is *Eutric*, however *Calcaric* already indicates the

high base saturation; therefore at this map scale only two qualifiers are applicable)

As in this example for the Regosols a choice had to be made between *Leptic* and *Skeletic*, which are not mutually exclusive, the non-chosen qualifier may be added in brackets after the name of the RSG:

Skeletic Regosol (Leptic)
Calcaric Skeletic Regosol (Leptic)

Example 4

A map unit dominated by a thick layer of mainly strongly decomposed acidic organic material overlying hard rock within 100 cm on a steep slope in an environment with a large excess of precipitation will be denominated

- at map scales of 1 : 5 000 000 or smaller
  Histosol or *Sapric Histosol*
- at map scales from 1 : 1 000 000 to 1 : 5 000 000
  Leptic Sapric Histosol
- at map scales from 1 : 250 000 to 1 : 1 000 000
  Dystric Leptic Sapric Histosol

In this example the next applying qualifier is *Ombric*, however as already three map unit qualifiers are used, the fourth one may be added in brackets after the name of the RSG:

Dystric Leptic Sapric Histosol (Ombric)