

Comments on 'A Soil Classification for Great Britain'

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General

Great sympathy with co-ordinate approach to soil classification.

Testing of the system ^{by} ~~but~~ units and ideas in current usage indicate its practicability.

~~The inherent~~ ^{restricted} flexibility of the system is very pleasing.

The symbolism confuses, especially the many uses of the same suffix. Some of this could be avoided by greater use of capitals, numbers, and dashes over of under symbols.

More examples of the symbolism in use would be welcome, in the table and elsewhere in the text.

Points are discussed as they arise in the text.

Horizon designation 3.1

O - organic matter estimate for stony soils - stony needs definition (i.e. is it quantitative?)

B-- recognition of B horizons is dependent on presence of A, E horizons. It needs defining independently to cover the case of eroded soils.

Horizons designated by lower-case suffixes 3.5

Bb horizon. Seems to be emphasis on accumulation of silicate clay. There is no indication of an upper limit to this so that division of Bb and Bbt horizons is not clear here.

I prefer v to b as a suffix for 'weathered' horizons.

c - 'fine earth' is not defined

c' - the apostrophe is likely to get lost. Suggest \bar{c} as alternative.

g - no indication of what is 'slightly gleyed' for the symbol (g)

Eg - needs exception in base colour chroma condition to meet soils of low iron content e.g. Harwell

h' - suggest \bar{h}

There is no horizon suffix for highly ferritic B horizons.

Pedological classification. Diagnostic horizons 4

Diagnostic horizons in mineral soils 4.2

hh - prominent A horizon. The use of the symbol hh causes confusion. In rankers and rendzinas hh refers to a prominent A horizon, h to a weak A horizon. In other soils having other diagnostic horizons, h alone is used for prominent A horizons, and no symbol is used if only a weak A horizon.

Alternative suggestion: use h instead of hh and retain h for current usage. Then use h for prominent A horizons in soils with other diagnostic horizons and in rankers/rendzinas. h above can then be used only for weak A horizons as and when required.

pp - suggest p

b - do not appreciate the significance of these depths (in (2)).

gg - suggest g

GG - suggest G, GGG - suggest GG

GG - do not see why soils with buried organic layers should qualify as ground water gleys.

GGG - inconsistency of depth - 40 cms used here instead of 35 as elsewhere.

Degrees of hydromorphism. It is good to see the difference between gleying and drainage status recognised. But absolutely no need to bring in a third term. Let us stick to degrees of gleying.

t - the 7th approx. definition better i.e. instead of 'more than 10 cms thick and more than $\frac{1}{10}$ thickness of overlying horizons' - use ' $\frac{1}{10}$ of thickness of horizons above; where these exceed 60"', simply more than 6" thick.
10 cms may be too thick in some shallow soils.

t' - suggest \bar{t}

Major soil groups 5

Rankers - what are regic rankers? (p.35)

Calcimorphic soils (Rendzinas)

Basic rendzina - no mention of c horizons in diagnostic features.

Brown rendzina - how thin is a 'thin Bb horizon'?

Brown rendzinas do not qualify for lithic soils if they have a diagnostic sub-surface horizon (6.2(1) p.48). This can evidently be very thin, or presumably thick too. It seems therefore shallow brown soils over limestones could be grouped with much deeper soils and thus one of their major features i.e. depth to rock, would not necessarily be differentiating.

Gleyed brown rendzina - it would be unfortunate if all Evesham profiles were grouped as rendzinas. Their gley morphology is sometimes sufficiently evident, to warrant calling them 'calcareous stangleys' e.g. SU39/2384.

Brown earths

No sub-group for ferritic brown earths.

Lithological classification 6

Application of particle size classes 6.2

- (3) Use of a different set of particle-size groups for soils with t horizons seems an unnecessary complication
- (4) What is a 'weighted average'?

Supplementary differentiae based on coarse fragments etc. 6.3

Altogether too much emphasis on stones.

This classification should surely be based primarily on parent material, with stones, if alien, as supplementary differentiae ie. two lower-case symbols, parent material first.

Following the above, there is no need for a breakdown of soils into three groups, all would be treated alike in the classification.

Difficulty would arise with Pleistocene and Recent deposits and I see no alternative to invoking divisions based on origin in these cases.

Stones should not be significant at such a low level as 5%. A more realistic level would be 20%.

If stones are dominant in the reference layer, then they should supersede parent material.

The presence of hard rock should be significant to at least 90 cms. if not more, unless there was an obvious lithological discontinuity.

Stones should qualify for recognition even if they are not sufficiently hard to qualify for a R designation.

Differentiae

- a & b - need subdivision for coarse- and fine- grained rocks
 - u - why not ultra basic (as b = basic)?
 - p - pelite carries no implication of metamorphism
Simply rocks composed of clay-sized material:
There is no reason why this should not include slates.
 - s - sandstones should include quartzite
 - f - should include quartz
 - z - less than 20% alien stones present
 - t - marine
 - w - alluvial
 - r - could well be merged with d
- No need for x

Additional symbols required for:

- i gravel, conglomerate, breccias
- ii loose sands, friable sandstone
- iii non-shaky clays and silty clays

Differentiae based on the < 2 mm fraction 6.4

This may be partially redundant in light of suggestions for 6.3. The differentiae suggested for 6.4 would still be very useful, and in some case essential, separating criteria.