

Focus on WRB in the International Symposium on ‘Soil Classification 2001’, 8 - 12 October, 2001, Velence, Hungary

1. Objectives

This meeting was organized by the Hungarian Society of Soil Science, Szent Istvan University, Hungary and was supported by IUSS and the EU Joint Research Centre. The main objective of this meeting was to discuss new philosophies, concepts, and principles to enhance soil classification systems to better serve the users of soil information. Furthermore the aim was to set the scene for improving information exchange and correlation between national soil classification systems.

2. Findings

This meeting was the single most important international soil science gathering in-between the two IUSS (International Union of Soil Science) Conferences of 1998 and 2002. Indeed, the attendance exceeded 50 international experts and soil scientists of 23 different nations attended including the US, Russia, Canada, Australia and nearly all European countries. About 30 Hungarian soil scientists attended in addition. The American presence would have been even more important were it not for travel restrictions for the US Administration. The opening took place in the Academy of Sciences in Budapest and the remainder of the workshop was in Velence.

The workshop programme focussed on the testing of national soil classification systems and their correlation with international systems, WRB in particular. Significant parts of the workshop were dedicated to Anthropogenic (man made) soils for which it remains difficult to find a general classification agreement. Interesting correlation ideas and schemes were developed by Kosse for Urban soils and by Ivanova for Anthrosols in general. There was a general feeling that there is now an urgent need to document the philosophy of soil classification and its history in the light of a new generation of “digital” soil scientists taking over. (Micheli, Gerasimova, and Arnold presented papers in this sense). Another finding was the great steps the Russian Soil Classification system has taken over the last five years and it has now come surprisingly close to the international systems, although it maintains its traditional strong link with pedogenesis. The same is true, but this is less surprising, for the French system which is a near carbon copy of the WRB system but without tropical soils.

The mid- and post-conference tours highlighted the soil scapes around lake Velence, the Danube depression and the soils of the Eastern Carpatian Mountains. This was a real test for the WRB definitions of the soils with a Mollic and Chernic horizons. A large number of pertinent suggestions have been noted for improving the concepts and the qualifiers for these soils.

3. WRB Business meetings

In two business meeting progress was reported on WRB field testing, translations and scope for its future. Following issues were discussed:

3.1. WRB as IUSS-endorsed system for Soil Correlation

Some reservations of the American delegates towards the world-wide acceptance of WRB were voiced by Dick Arnold. This was to the great surprise of all WRB delegates present at the meeting. Dr. Deckers drew the attention to the fact that the motion to adopt WRB as the IUSS’s system for soil correlation has received near-unanimous support from the IUSS council at Montpellier including the USA-delegate – Dr. L. Wilding. Furthermore this motion

was referred to in the concluding remarks from the President (A. Ruellan – see also IUSS Bulletin 1998-2, page 30), and is furthermore documented in the minutes of the IUSS Council meetings. It is therefore a major task of the IUSS Working Group RB to implement this motion, through WRB publications, translations and international workshops. The WRB Task force will make a special effort to represent WRB at the coming ‘Symposium on Soil Classification’ due in Charlotte, NC in order to raise the interest for WRB in academic circles in the USA.

3.2. WRB topsoil classification

During the Hungary symposium and especially during the field trips the need for a topsoil classification was stressed. Important in this respect was the contribution of Dr. Gabriella Broll. It is recommended that Spaargaren takes the lead with Broll and Nachtergaele. Deckers has volunteered to serve as resource person.

3.3. Formalisation of the 2-tier approach of WRB and ranking of the qualifiers

The Hungary symposium has endorsed the two-tier approach in WRB.

It is proposed for international correlation purposes to rank the qualifiers of the WRB Reference groups in following order: (1) First the strong expression qualifiers are keyed out in alphabetic order; (2) then follow the Intergrades in key order and then (3) the others in alphabetic order.

Example of the Ferralsols:

Strong expression qualifiers

Geric
Gibbsic
Posic

Intergrade qualifiers (in order of key)

Histic
Gleyic
Andic
Plinthic
Mollic
Acric
Lixic
Umbric
Arenic

Other qualifiers (in alphabetic order)

Alumic
Dystric
Eutric
Ferric
Humic
Rhodic
Stagnic
Vetic
Xanthic

3.4. Renewal of WRB task force

It was also announced that the present WRB Task force, will be renewed at the occasion of the next World Soil Congress at Bangkok.

The present chairman (Deckers), vice-chairman (Nachtergaele) and secretary (Spaargaren) have been in office since 1994. They were re-elected in 1998 at Montpellier. They thank the people who endorsed their mandate.. It has been a rewarding job. However, it is felt that time has come for a change, so as to keep up momentum of WRB. This does not mean that they will not be continue to give full support to WRB, on the contrary. For practical reasons it would be wise to have one of the present three WRB taskforce members continue for the sake of ‘institutional memory’. Otto Spaargaren whose Institute is the depository of World Soil Information (International Soils Reference and Information Centre (ISRIC), Wageningen is willing to keep his post. Otto will be proposed at Bangkok as Secretary of WRB. Candidates are needed to step into the mandate of Deckers (chairman) and Nachtergaele (vice-chairman). What is needed are people with (1) a good experience in international soil classification, (2) good knowledge of languages; (3) access to resources to support international travel; (4) the necessary time availability to organise/attend international meetings on soil classification; (5) good sense for pedo-politics. WRB members will be invited to submit nominees (either yourself or a colleague) by e-mail to Deckers (seppe.deckers@agr.kuleuven.ac.be), copied to Spaargaren (spaargaren@isric.nl) and Nachtergaele (freddy.nachtergaele@fao.org). In order to guarantee a smooth transition and institutional support needed, both Deckers and Nachtergaele will remain available to serve as resource persons in the WRB task force.

3.5. Add soil family criteria for full classification purposes in WRB.

In order to enhance the usefulness of our Reference Groups a simple addition on soil texture, mineralogy and slope of the land is proposed. To keep things simple texture and slope criteria of the FAO Soil map of the World is proposed (only three classes for each). For mineralogy a semi-quantitative appreciation in terms of e.g. ‘kaolinitic or montmorillonitic’ would be aimed at.

3.6. Other proposals from the Hungary symposium

- 3.6.1. WRB Key: It should be mentioned with Chernozems and Phaeozems that soil samples need to be crushed when colour is determined.
- 3.6.2. Petrocalcic horizon should be allowed in Chernozems and Kastanozems, Calcic in Phaeozems.
- 3.6.3. Calcic and Gypsic horizons need to be redefined as having a higher Calcium or gypsum content than the overlying and underlying horizons. The secondary characteristics should be taken up in the diagnostic criteria. Boixadera will make a proposal.
- 3.6.4. Cambic horizon needs rethinking: (rock structure, quantification of removal of carbonates or clay increase). The exclusions which are now in the general descriptions should come under the diagnostic criteria. Maria Gerasimova will make a proposal. Maybe we have to go back to the Soil Taxonomy definition.
- 3.6.5. WSR 84, page 29: a Chernic horizon should have a value equal or less than 2.0 rather than darker than 2.0 when moist.
- 3.6.6. Natric Horizon: WSR 84, page 38: we should drop requirement Nr. 2 – and 3 - the clay increase – when the soil is ploughed. However we may require clay cutans then.
- 3.6.7. Introduction of Vertic Properties is required next to a Vertic Horizon. This concern has been voiced in nearly all WRB testing exercises since 1998 and will certainly be implemented!
- 3.6.8. In view of the many Chernozems investigated in Hungary following qualifyer list is proposed:

CHERNOZEMS

Strong expression qualifiers (alphabetic order)

Chernic

Pachic

Siltic

Vermic

Intergrades (key order)

Vertic

Fluvic

Endosalic

Gleyic

Sodic

Calcic

Glossic

Luvic

Cambic

Others (alphabetic order)

Cumulic

Zeric

It should be noted that a number of these qualifiers are new such as ‘Zeric’ which replaces ‘Haplic’ where ever it applies – suggestion from Dudal. In alphabetical order it would always key out as the last qualifier. Also new is Cumulic: signifying accumulation of colluvial sediment on top of the profile, not sufficiently thick to go for a Regosol. Even thick colluvial sediments do therefore not necessarily lead to a Regosol classification. Fluvic signifies accumulation of alluvium on top of the profile but in insufficient quantities to call it a Fluvisol. We have to define a Cambic qualifyer which has some of the properties of the Cambic horizon – Maria Gerassimova is requested to make a proposal.

- 3.6.9. The terms Bathi and Thapto needs to be elaborated upon as most people have no clear idea how to work with these terms. It is suggested to do this in the next WRB publication.
- 3.6.10. Vertisols: Gleyic and stagnic qualifiers to be added
- 3.6.11. Gleysols: Stagnic qualifier to be added
- 3.6.12. Cambisols: Humic qualifier to be added
- 3.6.13. Tonkonogov proposes to replace the name Kastanozem by the original Russian name ‘Kashtanozem’ or by Castanosol. The WRB steering committee had a discussion on this motion. In view of possible confusion that this name change may create it is considered unwise to implement this change.

4. Conclusions

There is a clear convergence of all national classification systems presented in the meeting to align themselves to the IUSS World Reference Base of Soil Resources. This very positive development was most notable in the Russian presentation. The USA, though supportive of WRB, still has apparent ambitions to maintain the USDA Soil Taxonomy as an international system. The proceedings of the meeting will be published jointly by FAO, the European Soil Bureau and the University of Godolo in 2002.

5. Acknowledgement

The WRB task force wishes to sincerely thank the Hungarian Society of Soil Science, Szent Istvan University, Hungary for accommodating the IUSS Working Group RB in this prestigious symposium on soil classification. Special thanks are due to Prof. Erika Michelli and her students who went through great lengths to make this symposium a benchmark for all the participants, not only from scientific viewpoint. Also the many social events which were organised along with the symposium have left us with a warm feeling for Hungary and its hospitable people.

