

Keywords: soil morphology; hydrogeology; groundwater flux; Guarani Aquifer System

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(5322 - 1580) Progress in making fundamental changes to Soil Taxonomy

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Soil Taxonomy is the dominant soil classification system in the United States and is recognized by the IUSS as one of the two international classification systems. As the system has developed and grown, it has become increasingly complex, resulting in a document that is difficult for non-trained soil scientists to apply. Thus, few other disciplines use the system to communicate soils information. In 2015 the Soil Science Society of America established the Fundamental Changes to Soil Taxonomy Task Force to address the growing number of issues with using and teaching Soil Taxonomy. The objective of the task force is to facilitate an open and transparent process to develop a suite of fundamental changes to Soil Taxonomy leading to a more user-friendly product that can and will be used by more than just trained soil scientists. The task force has identified and discussed many fundamental changes. Proposals to redefine organic soil materials and reducing the complexity of the oxic and kandic diagnostic horizons have been vetted to the larger soil science community (over 70 soil scientists world-wide have agreed to comment on proposed changes). In addition, there has been significant progress towards developing proposals for a new wet soil order, removing the complexity from the mollic epipedon criteria, and including all climate related components of the classification system at the family level. This poster will highlight these proposals, reasons supporting the changes, and the associated discussion.

Keywords: Taxonomy, Classification, Kandic, Aquic

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(9219 - 2331) Soil potential in agricultural areas of Cerrado in southern Tocantins

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The misuse of land leads to a shortage of resources, enabling destruction, increasing poverty, and do not preventing the permanence of man in countryside, and other social damages. In view of this reality, the study aimed the realization of a soil survey in area of livestock exploration, located in the state of Tocantins. At first, the area was separated according to the soil patches. Trenches were opened to study the physical and morphological characteristics of soil profile. After exposing each soil profile, the horizons were identified, delimiting them using a millimeter grid and determining the thicknesses of each horizon and depth of the soil profile. Also, occurred verification of presence of impediments to roots, structure, drainage, color, consistency, slope and other attributes that helped in the classifications. After which the classification according to the Brazilian Soil Classification System (*Sistema Brasileiro de Classificação de Solos* - SiBCS) and their possible uses, according to agricultural aptitude. The studied area showed four classes of soils, which were classified as *PLINTOSSOLO ARGILÚVICO Distrófico petroplíntico*, *LATOSSOLO VERMELHO-AMARELO Distrófico típico* and *GLEISSOLO MELÂNICO Ta Eutrófico* with agricultural suitability in subgroups

1(a)bc; 4P; 1aBC and 3(bc), in order. The studied area showed that it could be used for other types of agricultural crops besides livestock.

Keywords: soil classification; capacity; fertility

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(3260 - 1981) Soil Series Survey and Research of Zhejiang Province Based on Chinese Soil Taxonomy

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Soil classification is a summary of human understanding of soil. It is not only an important way to further understand the soil, but also the basis for suitable comprehensive utilization of the soils. Therefore, it has always been a great concern of relevant researchers. Currently, there were three major factions in the international soil classification system, namely the soil diagnostic classification of the United State (Soil Taxonomy), the soil genetic classification of the Soviet Union and the soil morphogenetic classification of the Western Europe. The quantitative and standardized classification of Soil Taxonomy is now the mainstream of international soil classification. Chinese Soil Taxonomy is based on diagnostic horizons and characteristics, and guided by the principle of genesis. The project of 'Soil Series Survey and Research of China' is the study of primary soil classification led by Nanjing Institute of Soil Research, CAS, and participated by several soil research institutes and colleges, that was supported by the Chinese National Science and Technology Basic Research Project(2008FY110600). The soil series survey and research project of Zhejiang Province, China was started in 2009 and lasted for 5 years. There were 145 soil profiles investigated, 205 soil profiles observed, 588 soil layers sampled and more than 3500 survey photos shot. Through comprehensive analysis and classification of field observations and laboratory test data and the history of Zhejiang province soil classification data retrieval, the 145 sections respectively belong to 8 soil orders as Anthrosols, Halosols, Gleysols, Isohumosols, Ferrosols, Argosols, Cambosols and Primosols, 13 suborders, 28 soil groups and 52 subgroups. With the establishment of soil families and soil series classification principles and standards, all these profiles were divided into 106 families, and 144 series were established. For each soil series, details of distributional environment, characteristic amplitude, representative pedon and utilization performance were described. Soil series survey scope covers most of the soils that with large distribute area, high importance of agricultural use and regional characteristics in Zhejiang province, China.

Keywords: Chinese Soil Taxonomy, taxonomy, Zhejiang province, soil classification

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(1575 - 2727) Soil subgroups of the Northeast of Brazil not yet cataloged in the Brazilian System of Soil Classification

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The Brazilian System of Soil Classification (SiBCS) is under continuous improvement since its first edition published in 1999. Advancements in the System have been accomplished with its use in soil surveys, classification and correlation meetings and researches in Soil Science. The objective of this work is to suggest the addition of new subgroups into the SiBCS as a result of studies in the Northeast Region of Brazil. The Coastal Tablelands and surrounding areas of the

Northeast Region of Brazil comprises the study area. The proposal of the new subgroups are based on the morphological, analytical and taxonomic review of 750 soil profiles, comprising 400 soil profiles available from pedological studies published in the 70s and 80s of the past century, and 350 soil profiles of the reconnaissance soil survey (1:100,000 scale) under execution in the State of Ceará. The physical and chemical analyses of all soil profiles were made according to the methodology developed and used by Embrapa Soils. The detailed analysis of the 750 soil profiles and the current SiBCS structure showed the necessity of addition of 45 new subgroups to the system. These new subgroups will be distributed as follows: 13 in the order of the *Argissolos* (Ultisols); 3 in the order of the *Cambissolos* (Inceptisols); 2 in the order of the *Chernossolos* (Molissols); 3 in the order of the *Espodosolos* (Spodosols); 2 in the order of the *Gleissolos* (Aqualfs); 7 in the order of the *Latossolos* (Oxisols); 3 in the order of the *Luvissolos* (Alfisol); 3 in the order of the *Neossolos* (Entisols); 1 in the order of the *Organossolos* (Histosols); 2 in the order of the *Planossolos* (Alfisol); 4 in the order of the *Plintossolos* (Plinthudult); and 2 in the order of the *Vertissolos* (Vertisols).

Keywords: Taxonomy of soils; Coastal Tablelands; Brazilian soils.

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(8673 - 2925) Soils and soil organic carbon stocks in the Restinga de Cabedelo National Forest, in Cabedelo and João Pessoa Municipalities, Paraíba State, Brazil

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National Forests are conservation units of the nature that objective the sustainable multiple use of forest resources and the scientific research. This work aims to provide soil information for part of the Restinga de Cabedelo National Forest (Flona Cabedelo), specifically on taxonomic soil classes and soil organic carbon stocks (CS). The Flona Cabedelo is located in the municipalities of Cabedelo and João Pessoa (PB) and encompasses an area of 114.34 ha. Conventional methods were used to soil survey of the all area under coastal sandy plain vegetation (*restinga* vegetation) and a small area of mangrove. The carbon stock (CS) was to assess only under *restinga* vegetation at 0-20 cm and 0-100 cm depths using kriging. The results showed a close soil-sediment-vegetation relationship in the area: *Neossolos Quartzarênicos* are the unique soil classes under *restinga* vegetation. They occupy about 58 ha (91 % of the area) and are related to the sandy sediments of holocene marine terraces. The rest of the area is strongly influenced by riverine and marine tides, which can cause sulfidic, saline, sodic, gleyzic and lithologic discontinuity features in soils. The presence and intensity of one or more of these features in the soil are related to the current and past hydrological dynamics, which shaped the local relief, causing subtle differences in elevation at short distances, often defining the soil class, drainage regime and vegetation. At the lower elevations under permanently flooded salt marsh, the *Gleissolos Tiomórficos* predominate. As the landscape rises subtly, the soils are progressively less poorly drained, predominantly non-sulfidic, but still salic or solodic, and saline, and still present lithological discontinuities within 100 cm depth. In these areas, halophilic grass vegetation with a low density of individuals occur on *Gleissolos Sálícos* and *Neossolos Flúvicos*. The CS up to 100 cm depth in the *restinga* vegetation area ranged from 4.89 to 43.79 Mg ha⁻¹ (mean of 23.20 Mg ha⁻¹), with approximately 50 % of this stock concentrated in the upper 20 cm. There was no clear relationship between soil classes and EC. Higher CS values for both depths were observed in the eastern part of the study area, possibly due to the stronger edge effect relative to the other parts of the remnant *restinga* vegetation.

Keywords: Soil-landscape relationship; coastal sandy plain; mangrove soils, *restinga* vegetation

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(2229 - 2675) Soils of the Brazilian Quadrilátero Ferrífero, Minas Gerais state, under different native vegetation and parent materials

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The *Quadrilátero Ferrífero* (QF), in the Brazilian state of Minas Gerais, is a region of great environmental diversity with strong potential for mining. Consequently, mining-related studies have been carried out, whereas soil-related studies are less common. This study aims to characterize the soils and evaluate their relation to the relief, geology and native vegetation in three representative sites of the QF region in Minas Gerais state: Córrego do Meio mine, municipality of Sabará; Miguelão mine, municipality of Nova Lima; and Córrego do Feijão mine, municipality of Brumadinho. The 28 soil profiles are allocated in five toposequences, encompassing all local physiographic variations. In most toposequences, *Cambissolos Háplícos Distrófcos latossólicas* (Cambisols) were the dominant soils in Sabará, occurring on metasedimentary rocks, hilly relief with concave curvature, and under semi-deciduous forest and savanna vegetation. They are soils with low fertility, usually aluminic, stony at the surface when occurring under savanna, with high silt content, often superior to clay, and have medium (savanna) or clay (forest) texture. *Latossolos Vermelhos Distrófcos cambissólicas* or *húmicos* (Ferralsols) are also present in Sabará on the same parent materials, both under semi-deciduous forest and savanna, and always located at the footslopes on hilly relief. In Brumadinho, *Latossolos Vermelhos* or *Vermelho-Amarelos* (Ferralsols) occur under semi-deciduous forest on granite parent material on gently undulated relief with concave curvature. These are the most evolved non-ferric soils observed in this study, and are located at the upper third of the only toposequence visited in Brumadinho. Below this portion of the slope, *Cambissolos Háplícos* or *Húmicos* (Cambisols) vary in classification and attributes as a function of the local relief ranging from gently undulated with convex curvature to undulated with concave curvature. In Nova Lima, *Plintossolos Pétricos* (Petroplinthic Plinthosols) are the only soils present in the *canga* fields in the visited toposequence, and are originated from the weathering of the ferruginous rocky outcrop. They have more than 70 % in volume of petroplinthite beginning at different depths in their profiles, and their physical and chemical attributes vary much across the landscape. Soil and relief vary at short distances in Nova Lima originating different physiographic, vegetation types and microhabitats for the local fauna and flora.

Keywords: Ferruginous rocks; Canga fields; Plinthosols.

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(7884 - 452) Soils of the hydrographic bowl of the Uberaba river

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The catchment area of the Uberaba river includes tropical soils, highly weathered and with great agricultural potential, which makes the Uberaba municipality the largest state producer of corn and soybean. However, much information about the limitations and potentials of these soils remains beyond the reach of farmers. Thus, the work was conducted in the years of 2009 and 2010, with the objectives of geological characterization of the area; detailed survey of soils of the basin and classification of these soils, using the Brazilian Soil Classification System. Fieldwork consisted of the identification and characterization of the areas, as well as the collection of materials for analysis. According to the results obtained, it can be concluded that: