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Influence of soil/ substrate in recovery areas degraded by mining in the Amazonian forest- Rondonia / Brazil

Admilson Irio Ribeiro (1), Regina Longo (2), Felipe Fengler (1), Wanderley Melo (3), and Herlon Soares (4)

(1) Universidade Estadual Paulista (UNESP-Sorocaba - Brazil) , (2) Pontifical Catholic University of Campinas - Brazil, (3) Universidade Estadual Paulista (UNESP-Jaboticabal - Brazil) , (4) Brascan Environmental Recovery Projects

Mining activities promote profound changes in the physical environment, modifying in a direct way the quality standards of soil, water and vegetation. In relation to the soil, the mining promotes changes in the biogeochemical cycles of many elements because it promotes the removal of the vegetal cover and later of the horizons besides the degradation of numerous physical, chemical and biological properties of the soil. In addition to the ore itself, the activity generates other products that are not economically accounted for properly, such as a series of waste that will make up a new landscape. In the Amazonian forest the vegetation is all transformed and the soil characteristics are directly affected, which promotes a cyclical process of degradation. In the present work, 48 areas were analyzed in the final recovery process in the municipality of Itapuã d'Oeste-Rondônia-Brazil , In the years 2006, 2010, 2011, 2012, 2013 and 2014 in five different types of land: tillage, dry tailings deposit, wet tailings deposit, tailings tailings deposit and washing plant. The cluster analysis considered the established indicators: cations exchange capacity, base saturation, pH and sum of bases. It is important to highlight that the soils in degraded environments presented a great variability in their attributes, due to the material of origin in which it was formed, environmental conditions and management as well as the anthropic actions suffered. In degraded soils these conditions are more intensified, generally having modifications in important attributes in both horizontal and vertical directions. Mining activities, for example, promote significant changes both in the landscape distribution and in depth, since in most cases the soils are removed from a site and the tailings, after extraction of the ore, are deposited in other places, promoting a complete physical destruction of the soil, a great leaching of nutrients and a loss of biological activity.