



The role of ash in soil conservation in post-fire environments.

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Ash is a valuable protection against soil degradation in post-fire environments. During the time that ash is retained on the soil surface, protects it from rainsplash impact and sediment detachment. If ash is hydrophilic, can retain water and increase infiltration. This water storage will be important for vegetation regrowth, especially because ash slurries are rich in available nutrients such as calcium, magnesium, potassium and phosphorous, essential to plant recuperation. On the other hand, if ash is hydrophobic or is crusted onto soil surface, overland flow is high and water infiltration is limited since the ash layer behaves as an obstacle to water penetration. In this context, soil hydrological response in the immediate period after the fire depends on the type of ash produced and how he is distributed on the soil surface. If ash is produced at high severities, normally has a high pH and osmotic potential, inhibiting seed germination, since most of them have a low reduced tolerance to alkaline environments. However, after the first rainfalls, pH decreases creating a good environment for plant growth. Ash is rich in heavy metals and other potentially hazardous elements such as polycyclic aromatic compounds and may reduce water bodies' quality in the immediate period post-fire. Despite these potential negative impacts, ash cover contributes to soil protection and conservation being a valuable protection against raindrops impact and a source of nutrients for plant restoration.

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