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After the fire: biogeochemical effects of charcoal and ash on fire-affected landscapes

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Vegetation fires are a global phenomenon that affect 3-5 million km² every year. Both natural and caused by humans, fire burns through a very broad range of ecosystems, from boreal forest to tropical savannahs, exerting also a very broad range of effects. Despite this huge variability, there are two components always present after a fire: charcoal and ash.

Charcoal, also known as pyrogenic carbon, is a key player in the carbon cycle from fires, due to its ability to act as a carbon sink. In addition, it can play a major role in the functioning of soils via its interactions with other elements and priming of native soil organic matter. Meanwhile, ash, the powdery fire residue, can be an important source of nutrients for the post-fire regrowing vegetation, but it can also be a source of water contamination when transported by wind and water to the hydrological networks after fire. This presentation will give an overview on the current knowledge of these two interlinked components of the wildfire-affected landscapes, highlighting current gaps and future research directions.