

Special Issue

The Influence of Mechanized Timber Harvesting on Soils or Stands

Message from the Guest Editors

Mechanized timber harvesting is widely used to improve efficiency, productivity, and operator safety; however, it can also often be a source of undesirable environmental impacts. Soil compaction, rutting, and structural disturbance from machine traffic degrade the physical, chemical, and biological properties of soils; reduce infiltration; limit root development; and hinder forest regeneration. Residual stand damage—such as bark wounds, stem breakage, and root exposure—can reduce stand value and increase susceptibility to pests and diseases.

Although many studies have addressed the individual impacts of mechanized operations, integrated assessments under varied site and operational conditions remain limited. Yet, understanding these interactions is essential for sustainable forest management and in order to implement sustainable forest operations.

Consequently, this Special Issue invites original research on the effects of mechanized timber harvesting—especially on steep terrain—on soil properties and residual stand conditions. Submissions focusing on monitoring methods, mitigation practices, and innovative technologies to reduce environmental impacts are encouraged.

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