ISFOR 2017 International Symposium on New Horizons in Forestry
18-20 October 2017 | Isparta - Turkey

Oral presentation

The effects on trees and stream beds of forest road construction on soil and loose rock grounds in south region of Turkey

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Abstract: Forest roads are necessary to provide access to the forest for general management, maintenance, timber extraction, recreation, regeneration, production, fire and pest control. Building forest roads involves removal of vegetation and soil, thus favoring run-off, pollution of streams, the risk of erosion and mass movement on steeper terrain. Besides, the stream beds can fill with excavated materials and this situation is very important in terms of aquatic habitat, fish and changed of stream beds. In this study, environmental damages and forest road construction techniques by using bulldozer were investigated in forested regions in Antalya region in Turkey. Also, the productivity of bulldozer was found on soil and loose rock areas. Along the 1575 m of the road section, decision variables were collected from 52 cross sections. Along the forest road construction area, the number of damaged trees and undamaged trees were determined between two cross sections as gradient groups. Another damages type, stream beds were investigated filling with excavation materials during forest road construction operation. The slope in this research area was changed between 25 – 80%. Besides, maximum length and minimum length of fill on different cross sections was found to be between 2 and 16 meters, approximately. In this study, 26.3% of trees below the forest road construction were bending for 25-80% ground slopes and 6.1% of trees were wounding. The number of damaged trees regarding with various gradient classes were also determined in study area. Along the forest road section, some areas were determined fill of stream bed. The wounding of the tree barks is very important for this forest region.
Keywords: Road construction, Environmental damages, Cross section, Stream bed, Bulldozer