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**163. © Subsoiling promotes native plant establishment on compacted forest sites.**  
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# Subsoiling promotes native plant establishment on compacted forest sites



| James G Archuleta and Eric S Baxter

## ABSTRACT

Soil compaction is one of the most serious site limitations to establishing native plants on disturbed lands such as closed roads. Subsoiling or ripping is the recommended treatment for compacted soils, and this article describes the development and utilization of 3 new, multifunctional subsoiling implements for use with an excavator. The subsoiling grapple rake was designed specifically for resolving the severe soil compaction that develops with the repeated heavy equipment use on timber sales. The subsoiling excavator bucket has been used for road decommissioning and watershed restoration projects. The subsoiling brush cutter has proven useful in a variety of projects including pre-commercial thinning, forest health, fuel reduction, forage enhancement, and brush removal. Nitrogen-fixing shrubs and small trees are ideal for road decommissioning projects because they are aggressive pioneer plants that also improve site fertility.

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### KEY WORDS

soil, compaction, restoration, revegetation, site preparation, road decommissioning

### NOMENCLATURE

USDA NRCS (2008)

An exciting new policy requires the use of native plant materials in revegetation, restoration, and rehabilitation on all National Forest lands (USDA Forest Service 2008). On many restoration sites, soil compaction is a major impediment to native plant establishment. Decades of timber harvest and recreational vehicle traffic have created acres of severely compacted soils in need of restoration. Most older timber sale units were logged with bulldozers that hauled logs to landings on a series of spur roads, which created a vast road network (Figure 1A). The original management objective was for these road systems to be used again for other silvicultural entries and forest recreational activities. In recent years, however, the role of timber harvest has been greatly reduced on Forest Service lands and so these old logging roads are being closed or “decommissioned.” It