

Restoration of plant cover in subalpine forests disturbed by camping: Success of transplanting

Cole, D. N., and D. R. Spildie. 2006. *Natural Areas Journal* 26(2):168–178.

COLE AND SPILDIE (2006) IDENTIFY THE NEED for effective techniques to restore vegetation in disturbed subalpine areas—popular recreation destinations because of their scenic mix of forests and meadows, abundant lakes, and mountain views—and provide an assessment of transplanting, soil treatments, and mulch mats in high-elevation locales, namely six severely impacted campsites (closed in 1995) in the Eagle Cap Wilderness in the Wallowa Mountains in northeastern Oregon. This study reveals that scarifying soils to break up compaction and then transplanting locally established plants is a very successful method for reestablishing vegetation in subalpine forests. Most transplants (68%) were still alive after seven years, though transplant success varied among species. Graminoids (e.g., *Juncus parryi* and *Carex rossii*) survived most frequently, particularly those with fibrous roots and without rhizomes. Most transplanted trees (e.g., *Pinus contorta* and *Abies lasiocarpa*) survived and grew rapidly. Most forbs (e.g., *Sibbaldia procumbens* and *Polemonium pulcherrimum*) survived and grew, but at a less pronounced rate than trees; forb transplants tended to survive better when intermixed with shrubs or graminoids. Less than half (45%) of the transplanted shrubs (e.g., *Vaccinium scoparium* and *Phyllodoce empetriformis*) survived. For most species, soil amendments helped to increase growth but not survival, except for shrubs on which soil amendments had no effect. Mulch mats had no effect on any plant types. Cole and Spildie (2006) conclude that these results have wide application because this plant community is common in subalpine areas. Also, more research is needed on soil amendments and

transplanting for shrubs, given the importance of this plant type and the difficulty of establishing it.