

THE USE OF SEED WAFERS IN REFORESTATION

A Thesis

Presented in Partial Fulfillment of the Requirements for the

DEGREE OF MASTER OF SCIENCE

Major in Forest Resources

In the

UNIVERSITY OF IDAHO GRADUATE SCHOOL

By

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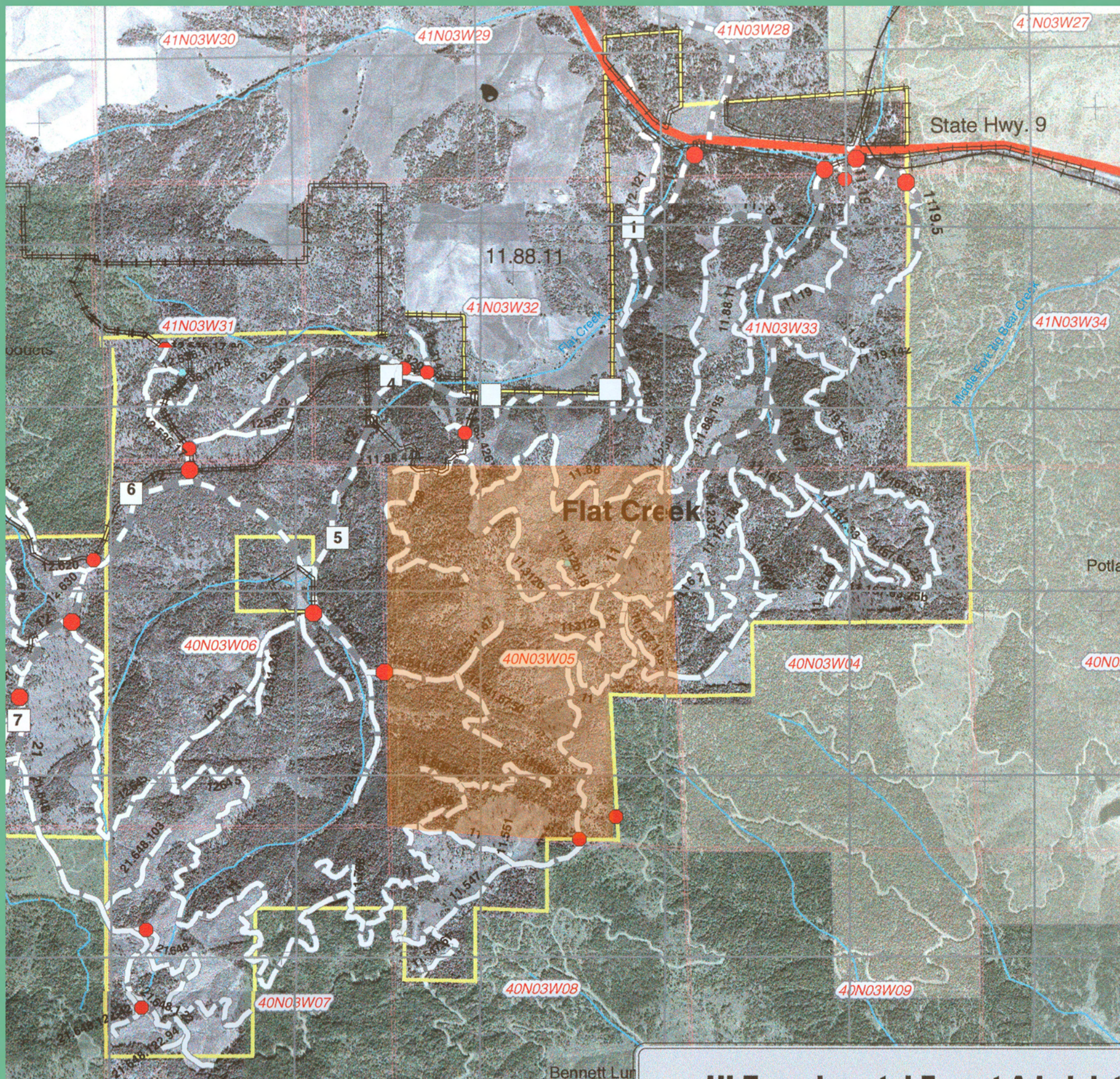
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Abstract

There are currently over 281,000 hectares of forest land in the Inland Northwest in need of reforestation. As planting costs average \$247.00 per hectare, an efficient and economical means of establishing regeneration has been sought. Seed wafers may offer an alternative in reforestation by providing the seed with a compact microenvironment favorable for germination. A seed wafer is composed of a seed embedded in a tablet of a fine grade of vermiculite and activated carbon bound by methylcellulose. Germination values of the four best wafer treatments of ponderosa pine were not significantly different from the germination value of the untreated control seeds. Untreated Douglas-fir seed germinated faster and more completely than controls. Field plantings of seed wafers and controls failed largely due to an atypically dry spring and summer. Greenhouse studies revealed that the water-holding capacity of vermiculite facilitated the imbibitions of water. It does not seem likely that the wafer material surrounding the seed inhibits the exchange of gases prior to germination. The methylcellulose-bound wafers break apart readily in water and provide a porous medium surrounding the seed.

Study Site

Site III is located on the Flat Creek Unit of the University of Idaho Experimental Forest, S. 5, T. 40 N., R. 3 W., B.M.. It is a *Thuja plicata* – *Pachistima myrsinites* habitat type (Daubenmire and Daubenmire 1968). The slopes are moderate steep with an average elevation of 975 meters. The soil is a medial over loamy, mixed Andeptic Paleoboralf (USDA 1975). This site was clearcut in the summer of 1978 and was broadcast burned that fall. In the spring of 1979 it was planted with western white pine, Douglas-fir, and western red cedar seedlings. Seed wafers of western white pine were planted on a north facing aspect.



Flat Creek Unit-2004 map



Location of Complete Research:

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University of Idaho Library:

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Other Sources: