

Research/Teaching/Demonstration Project Study Plan – Fertilization Trials

10 October 2006

1. Relevance to McDonald-Dunn Forest Plan

Forest Plan Appendix – Silviculture Team (Theme 1)

The McDonald-Dunn Forest Plan established five appendix teams to write appendices and investigate research questions in the forest. The Silvicultural Themes Team developed a Silvicultural Framework attached as Appendix 2 to the Forest Plan. The Silviculture Team is also proposing and leading three RTD Projects beginning in CY2007.

The project proposed in this study plan supports Theme 1 by establishing a research/teaching/demonstration site for fertilization of Douglas-fir plantations. Fertilization is a major silvicultural treatment for enhancing timber production in the Douglas-fir region.

2. Title of RTD Project

Theme 1 Fertilization Trials: Response of Douglas-fir plantations to fertilization in OSU McDonald-Dunn Forest

3. Principal Investigator

Doug Maguire

4. CY2007 Requests from FEC

Funding Request - \$3,000

College Forests staff-time request - none

5. Objective of RTD Project

The objectives of the Theme 1 Fertilization Trials Project are: (1) to test tree and stand responses to nutrient additions other than standard nitrogen fertilization at 200 lbs/ac; (2) provide a concrete expression of the College of Forestry's support for the Planted Forest Initiative (fourteen other sites have already been established this fall on industry land in western Oregon and Washington, with cooperators paying \$17,000 per site); and (3) build momentum for developing the Planted Forest Initiative into comprehensive program on intensive silviculture.

6. Timeline: 2007-2009

2007: (Winter) Install plots; measure trees; sample foliage; sample soil; develop prescriptions; add fertilizer. (Fall) Resample foliage and soil; measure trees; write preliminary report.

2009: Resample foliage and soil; measure trees; write final report.

7. Basic overview of approach/methods

Fertilization treatments include:

- (1) 220 kg N/ha as urea
- (2) Calcium as lime (1000 kg Ca/ha)
- (3) Calcium as calcium chloride (100 kg Ca/ha, tests the effect of calcium without pH adjustment)
- (4) Phosphorus (420 kg/ha P as tri-sodium phosphate)
- (5) Site-specific Fenn prescription
- (6) Site-specific Kinsey prescription
- (7) Unfertilized Control

8. Budget for Project: 2007-2009

2007: The Fertilization Trials Project is requesting \$2,720 for fertilizer application and foliar and soil analysis in CY2007

2009: Approximately \$600 will be sought (in October 2008) for foliar and soil analysis in CY2209.

9. Teaching components of RTD Project

Jeff DeRoss, who is funded on a full Richardson Fellowship will develop this M.S. thesis on these trials, using the proposed McDonald-Dunn installation as one of three intensive study sites. The site will also be visited by graduate and undergraduate silviculture classes. Finally, a high school teacher from the ORTOSA program (Oregon Teachers on Summer Assignment) will be invited to participate in this project.

10. Outreach components of RTD project

Results of the Theme 1 Fertilization Trials Project will be published as a journal paper in 2010, but early results will be incorporated into a field trip handout. Preliminary results will also be reported during a formal meeting with paying cooperators in late 2007 and final results in late 2009. The site will be visited during extension and outreach fieldtrips and workshops.