1086-90-1285 **Claire A Montgomery*** (claire.montgomery@oregonstate.edu). *Applications to wildfire and fire fuels management in forest landscape-level planning.* Preliminary report.

The forests of the western U.S. are adapted to light frequent burning by indigenous populations over the last 10 millennia. Changes brought by European settlement upset the long established balance in two ways: removal of indigenous populations from the landscape also removed purposeful use of fire during moderate weather conditions; aggressive suppression of subsequent wildfire led to structural changes in these forests which increase the likelihood of catastrophic fire that destroys vegetation and sometimes soil. Resources for mitigation are limited. But rapidly escalating fire suppression expenditures lend urgency to the call for decision support tools to identify optimal wildfire and forest fire fuel management strategies. The problem is complex because it is spatial, stochastic, and dynamic. Stochastic dynamic programming has been applied to highly stylized formulations of the problem, but quickly becomes intractable as units and options increase to realistic numbers. This paper reports ongoing research in which we attempt to apply approximate dynamic programming methods (aka reinforcement learning) to identify policies for efficient use of wildfire on a landscape in central Oregon to mitigate fuel loading and restore fire adapted forest conditions. (Received September 20, 2012)