EFFECT OF A PRESCRIBED BURN AND HERBICIDES ON CANADA THISTLE CONTROL AND SPECIES COMPOSITION IN A GRASSLAND COMMUNITY

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ABSTRACT

Travnicek, Andrea Jean; M.S.; Program of Natural Resources Management; Department of Plant Sciences; College of Agriculture, Food Systems, and Natural Resources; North Dakota State University; January 2004. Effect of a Prescribed Burn and Herbicides on Canada Thistle Control and Species Composition in a Grassland Community. Major Professor: Dr. Rodney G. Lym.

Prescribed burning in Theodore Roosevelt National Park (TRNP) has played an important role in maintaining natural ecosystems. However, changes in plant community dynamics caused by burning may lead to an invasion of weedy species, such as Canada thistle. The objectives of this research were to evaluate the effect of burning prior to herbicide application on Canada thistle control, to evaluate the soil seedbank within Canada thistle infestations in TRNP, and to compare spring and fall herbicide application timing for optimum Canada thistle control. Canada thistle stem densities initially were higher in the burned compared to the non-burned areas, but densities were similar by the end of the season. Canada thistle stems were slower to emerge in the non-burned compared to the burned areas. Canada thistle control with herbicides was similar with clopyralid, clopyralid plus triclopyr, and picloram whether or not application was preceded by a prescribed burn. The majority of the soil seedbank consisted of non-desirable species. Low seral and invasive species combined, including Canada thistle and Kentucky bluegrass, accounted for over 80% of the total species identified regardless of burn treatment. Canada thistle control 12 mo after treatment was similar when clopyralid, clopyralid plus triclopyr, and picloram were applied in the spring to bolted plants or in the fall to rosette and bolted plants averaging 58%.