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### Evaluating the role of vehicles in the transportation and spread of plant propagules

Plant species are introduced to areas where they are not native by a variety of natural and anthropogenic means, and the number of anthropogenic introductions has increased in recent decades. Roads are regarded as dispersal vectors for plant species due to transport and spread by vehicles, and thereafter, by natural population expansion in the more-disturbed environments along the right of way. Plant propagules (seeds and other reproductive parts) have been observed on vehicles, but the number of studies is limited. More propagules are likely to be collected by vehicles driven off-road than on gravel roads, and by tracked or all-terrain vehicles than civilian pattern vehicles, but there are no quantitative data to support this hypothesis. Our study aims to quantify the number of propagules carried by different types of vehicle on different surfaces (gravel roads and off-road) and in different ecosystems. During the summer of 2007, light 4-wheel drive and heavier all wheel drive vehicles were driven along gravel roads for known distances and the soil and other waste removed with a commercial weed wash unit, and the waste contained. Effectiveness of the vehicle wash unit had been evaluated previously. The waste samples were placed in the greenhouse, and germination and establishment of all individuals is being recorded over a 12 month period. Currently, after six months, we have observed over thirty species, and the total number of individual plants observed to date represents between 1 and 10 seeds per vehicle and kilometer driven. When this experiment is complete we will be able to evaluate for differences in propagule pressure between vehicle types. The study will be repeated in future years with the same vehicle types but for more surfaces and ecosystems, to provide an improved understanding and quantification of the potential of plant propagules to be spread by vehicles. These data can be used with data of non-native species frequency with distance from road to improve predictive models of rate of spread along and adjacent to roadways.