

**Final Reports on CIPM Projects****Project Title:** Methods to Inventory Weed Populations In Remote Areas**P. I.(s):** L. Rew, B. Maxwell, R. Aspinall, T. Weaver, D. Despain**Funding:** CIPM GC006-02-Z1138 (\$4,940, 1 yr.)**Budget Detail:** 426098

Early detection of weeds may increase our ability to manage them before they have serious impacts. Yellowstone National Park (YNP) Natural Resource Personnel are currently faced with the problem of creating an inventory of their non-native plant species so that they can prioritize the management of the most invasive of the species. We collaborated with YNP personnel using their previous data to identify, through simulation, a range of sampling techniques that may most efficiently inventory weeds away from trails and roads. We found that 2 km, continuously observed transects, perpendicular to roads, trails or other human disturbance, extending out into the wilderness were the most effective technique for discovering isolated weed patches under a wide range of possible distributions. We found that all of the weed species declined in frequency (best quantified as a diffusion gradient) with distance from roads and trails. In addition, vegetation dominated by Idaho fescue and big sagebrush had a significantly higher frequency of weed species. The approach, although applied in YNP, has general applicability for low frequency weed detection, which may be crucial for effective management of highly invasive plant species. We used this start-up grant to get further funding (through 2003) from the USDI Park Service to complete the development of the inventory/survey methodology.