

## Project Summary

### Rocky Mountains Cooperative Ecosystem Studies Unit

**Project Title:** Assessment of Integrated Pest Management Tools and Techniques for Managing Invasive Plants in Ten Small Parks served by the Northern Rocky Mountains Exotic Plant Management Team (EPMT)

**Discipline:** Natural Resources  
**Type of Project:** Technical Assistance  
**Funding Agency:** National Park Service  
**Other Partners/Cooperators:** Montana State University  
**Effective Dates:** June 10, 2009 – September 30, 2010  
**Funding Amount:** \$29,134 (FY10: \$5,834; FY09: \$23,300)

**Investigators and Agency Representative:**

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**Project Abstract:** The work completed under this task agreement will provide an analysis of up-to-date tools and techniques for managing invasive plants in the ten small parks located in the northern Rocky Mountains. These parks vary widely in size and are located in the Pacific West (PWR) and Intermountain (IMR) regions of the National Park Service (NPS) in Idaho, Montana, Wyoming, and Utah.

Selected tools and techniques will comply with NPS and other accepted integrated pest management (IPM) standards and include a range of treatments that begin at the lowest level (of expense, effort, impact, etc.) and move toward more intensive methods.

The technical information generated from this agreement will complement an Invasive Plant Management Plan already in development for the ten Northern Rocky Mountain parks. The Invasive Plant Management Plan is intended to describe existing weed species for each park, the circumstances under which plants will be treated, and help the parks establish treatment priorities. To ensure its flexibility, analysis will include modifications in treatment as a result of new products or methods as well as a worst case scenario of areas that could be treated with the most intensive methods (e.g. herbicides, biological control, and fire).

The specific objectives of the work to be completed under this task agreement are:

1. Create a comprehensive list of current and potential invasive plants for each of the 10 parks involved in the plan.
2. Conduct a literature review of the latest 'state of the art' practices to control weeds currently in the parks and those likely to invade. Investigate all treatment options (mechanical, cultural, biological, chemical, and fire) for each identified invasive plant (currently more than 45 known species). This information will then be summarized in a table or matrix (MS Excel). For weed species on which extensive research is available, the effectiveness of each control measure will be ranked as highly effective, moderately effective, or not recommended (likely to make the problem worse).
3. Provide species-specific information to be used in ranking invasive plants to determine treatment priorities. Complete those portions of the ranking criteria (from *Handbook for Ranking Exotic Plants for Management and Control* by Hiebert & Stubbendieck) that are not specific to individual parks. The information to be provided includes the innate ability of a species to become a pest and the ease with which it can be controlled. Other information needed to complete the ranking, such as the current level of impact and distribution of the species within a park, will be supplied by the parks.
4. Create 3-5 monitoring protocols to detect change and determine effectiveness when applying a treatment. (These monitoring protocols will be distinct from any protocols and activities designed for the parks by the NPS Inventory and Monitoring programs, which are designed to detect trend.) Multiple protocols will be developed in order to account for differences in species and their distribution patterns (e.g. methods to detect change in a sparsely distributed annual, will be different from a widespread, rhizomatous perennial). Protocols developed will place special emphasis on monitoring for potential impacts from chemical treatments. Monitoring protocols are required to be simple, repeatable, avoid observer bias, adequate to detect change, not overly time consuming, and able to be used by someone with limited vegetation monitoring experience. In addition, the protocols developed to monitor invasive plants should enable the parks to be accountable to the public, employ adaptive

management, document results of invasive plant treatments (for future park managers), verify that treatments are not causing undue harm (to surrounding native species, for example), and be able to confidently share with other parks what is working or not working.

**Outcomes with Completion Dates:**

List of Products:

- A comprehensive list of current and potential invasive plants for each of the 10 parks involved in the plan.
- A literature review of the latest 'state of the art' practices to control weeds currently in the parks and those likely to invade. For weed species on which extensive research is available, the effectiveness of each control measure (chemical, mechanical, cultural etc.) will be ranked as highly effective, moderately effective, or not recommended (likely to make the problem worse). This information may be presented in a narrative report format, but will also be summarized in a spreadsheet table or matrix (MS Excel).
- A list of species-specific information to be used in ranking invasive plants to allow parks to determine treatment priorities based on the *Handbook for Ranking Exotic Plants for Management and Control* by Hiebert and Stubbendieck. This information will be provided in a format that can be used to complete the ease of control section in the ranking criteria software program. Parks will be responsible for identifying distribution information.
- A report describing 3-5 easily-implemented monitoring protocols designed to detect change and determine effectiveness when applying a treatment. Multiple protocols will be developed to account for differences in species and their distribution patterns. The monitoring protocols will be designed for use by park staff with limited vegetation monitoring experience, and must meet the project objectives detailed in Article I, below.

Due Date for Final Report and/or Other Products: March 12, 2010

**Keywords:** Invasive Plant Management Plan, Northern Rocky Mountains Exotic Plant Management Team (EPMT. Pacific West (PWR) and Intermountain (IMR) regions of the National Park Service (NPS), Idaho, Montana, Wyoming, and Utah, Montana State University