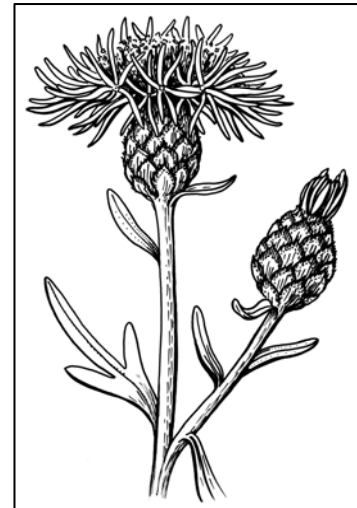


# Upper Columbia Basin Network Invasive/Exotic Plants Protocol Development Summary

(August 2007)



**Protocol:** Invasive/Exotic Plants

**Parks Where Protocol Will Be Implemented:**

All UCBN Parks (BIHO, CIRO, CRMO, HAFO, JODA, LARO, MIIN, NEPE, and WHMI)

**Justification/Issues being addressed:**

Invasions of exotic plant species represent one of the most serious threats to natural ecosystem integrity (NRC 2002). Biological invasions are occurring at accelerated rates in nearly every major ecosystem (Mooney and Hobbs 2000). Invasive exotic plant species are of concern given their ability to quickly expand into new areas, compete with and exclude native species, and alter ecosystem processes across multiple scales. The management and control of invasive non-native species has been identified as a high priority issue within the NPS and reduction of invasive plants is a goal for all UCBN park units under the Government Performance and Results Act of 1993. Executive Order 13112 signed on February 3, 1999, further identifies and strengthens the obligations of federal agencies to address significant economic and biological threats posed by non-native species. Additionally, the NPS has emphasized the importance of invasive species issues and their associated impacts by identifying non-native species as one of three major areas of focus under the Natural Resource Challenge. Most recently, the 2001 NPS Management Policies (NPS 2001) stated “high priority will be given to managing exotic species that have, or potentially could have, a substantial impact on park resources, and that can reasonably be expected to be successfully controllable.” In the UCBN, invasive plants, most of which are non-native exotic species, pose one of the greatest threats to natural and cultural resources of our parks and has been identified as a high-priority vital sign.

Prevention of plant invasions is the most effective, economical, and ecologically sound approach to managing invasive species (Center for Invasive Plant Management 2004). When preventative measures are not successful, early detection of new invasions is the next critical step. Hobbs and Humphries (1995) identified a significant time lag between the initial establishment of an invasive exotic plant and its rapid expansion toward local carrying capacity. Control efforts initiated during this lag phase are likely to cost less and achieve higher success rates compared to efforts begun later in the invasion cycle (Hobbs and Humphries 1995). Regular, comprehensive monitoring of the distribution and abundance of all exotic plant species within UCBN units is beyond the fiscal capabilities of the Network and parks. However, status and trend detection of a prioritized list of target species is important and will be accomplished in a cost-effective approach that will rely heavily on integration with other terrestrial vegetation monitoring efforts.

**Monitoring Questions and Objectives to be Addressed by the Protocol:**

Monitoring questions addressed by this protocol include:

- What are the invasive plant species of greatest concern to UCBN parks management?
- Where are incipient populations of targeted (high-priority species of greatest management concern) invasive plants located in UCBN parks?
- Is the rate of invasion increasing across parks and target species?
- What is the status and trend of established target invasive plants in UCBN parks?

Monitoring objectives addressed by this protocol include:

- 1) Detect incipient populations and new occurrences of selected invasive nonnative plants before they become established.  
*Justification: Invasive plants are one of the greatest threats to natural and cultural resources in all UCBN parks and are a major focus of the UCBN vital signs monitoring program. Our invasive plants monitoring will provide for early detection of incipient invasions and will address the status and trend of established species.*
- 2) Estimate the status and trend of established target weed species frequency and abundance in UCBN parks.  
*Justification: Invasive plants are one of the greatest threats to natural and cultural resources in all UCBN parks and are a major focus of the UCBN vital signs monitoring program. Our invasive plants monitoring will provide for early detection of incipient invasions and will address the status and trend of established species. Trend detection will be integrated into our camas lily, sagebrush-steppe vegetation, and integrated riparian vital signs monitoring protocols.*

**Basic Approach:**

We will follow guidelines drafted in the forthcoming invasive species early detection handbook (Geissler and Welch *in prep*) which provides recommended steps in the development of early detection protocols. One of the first steps is development of prioritized invasive plant lists for each park in the UCBN. Draft lists are currently available in Garrett et al. (2005), and these suggest that overlap of target species across network parks will be high and a network priority list may be feasible. A number of national and regional efforts are underway to develop consistent status and trend methodologies and protocols for invasive plants and we will rely heavily on those that are complete, or nearly so, when we initiate protocol development. This protocol will meet the standards for NPS I&M protocols as outlined by Oakley et al. (2003).

Our invasive species monitoring effort will involve two distinct parts. The first will involve the early detection of species of greatest management concern and will be conducted in park areas of greatest concern, typically weed-free areas exhibiting relatively high ecological integrity. The second part to our invasive species monitoring will involve estimation of status and trend in the frequency and abundance of targeted species. This will primarily be achieved through integration with existing terrestrial vegetation monitoring related to camas lily, sage-steppe, and riparian areas. Integration with existing protocols will be cost-effective and will allow additional network resources to be allocated to status and trend detection in remaining high-priority terrestrial park areas not included in other network vegetation sampling frames.

**Principal Investigators and NPS Lead:**

NPS lead: UCBN project lead to be determined. Collaborators for design and implementation for this protocol are being sought.

**Development Schedule, Budget and Expected Interim Products:**

A servicewide effort is underway to standardize NPS monitoring of invasive species. Protocols and a database are scheduled for completion in 2007. The UCBN will employ the national protocols (with modifications if necessary). Development of prioritized invasive plant lists will begin in FY 2008 and the UCBN protocol, adapted as necessary from the national template, will be produced in FY 2009. Monitoring of targeted established species (objective 2, above), will be included in three vegetation monitoring protocols, 2 of which are scheduled for completion in 2007, and the third in 2008.

**Literature Cited:**

- Center for Invasive Plant Management. 2004. Invasive plant prevention guidelines. Online. [http://www.weedcenter.org/prevention/prev\\_overview.htm](http://www.weedcenter.org/prevention/prev_overview.htm).
- Garrett, L., T. J. Rodhouse, L. Svancara, and C. Caudill. 2005. Phase II vital signs monitoring plan: Upper Columbia Basin Network. National Park Service Upper Columbia Basin Network, Moscow, ID.
- Geissler, P. H., and B. A. Welch. In Prep. Early detection of invasive plants: A handbook. US Geological Survey, Reston VA and National Park Service, Ft. Collins, CO. Online. <http://www.pwrc.usgs.gov/brd/invasiveHandbook.cfm>.
- Hobbs, R. J., and S. E. Humphries. 1995. An integrated approach to the ecology and management of plant invasions. *Conservation Biology* **9**: 761-770.
- Mooney, H. A., and R. J. Hobbs editors. 2000. Invasive species in a changing world. A project of SCOPE, the Scientific Committee on Problems of the Environment. Island Press, Washington, D.C.
- National Park Service. 2001. Management policies, 2001. Department of Interior, National Park Service, Washington, DC. Online. <http://data2.itc.nps.gov/npspolicy/index.cfm>. Accessed 9 December 2004.
- National Research Council. 2002. Predicting invasions of nonindigenous plants and plant pests. National Academy of Sciences, Washington, DC.
- Oakley, K. L., L. P. Thomas, and S. G. Fancy. 2003. Guidelines for long-term monitoring protocols. *Wildlife Society Bulletin* **31**:1000-1003.