

# Human Activities

**Protocol:** Invasive/Exotic Species

**Parks Where Protocol Will Be Implemented:** LACL, KATM, ANIA, ALAG, KEFJ

**Justification/Issues Being Addressed:** Invasive exotic species are plants and animals that are introduced into an ecosystem through human activities, as opposed to native species that are part of an ecosystem through natural migration, succession, or evolution. Invasive exotic species can often thrive in natural systems, outcompeting native species and disrupting successional patterns. SWAN has identified invasive exotic plants as a vital sign based on the need for early detection and effective management response, as well the prediction of potential impacts to natural ecosystems (Bennett et al. 2004).

Currently, the level of invasive exotic species infestation is very low in SWAN parks, especially when compared with parks and lands in the lower 48 states. Until recently, it was thought that Alaska environments were too remote and harsh to allow invasions of exotic plants (Densmore et al. 2001). However, the combined effects of environmental warming and human activities in previously remote areas will increase the rate of exotics introduction and facilitate their establishment in park ecosystems. Surveys conducted in Alaska parks by the Alaska Exotic Plant Management Team (EPMT) and U.S. Geological Survey-Biological Resources Division show that exotic plants in most SWAN parks are associated with areas of human disturbance. However, in interior and south-central Alaska, white sweet clover (*Melilotus alba*) is spreading rapidly along undisturbed glacial river systems, affecting the stability of sand bars and hydrologic flow paths, and replacing native vetches and willows, prime browse species for moose and hares.

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

### *Question:*

- Are nonnative species of vascular plants invading areas in or near SWAN parks and, if so, at what rate?

### *Objectives:*

- Monitor number of nonnative, vascular plant species in or near SWAN parks.
- Monitor amount of acreage colonized by nonnative vascular plant species in or near SWAN parks.
- Estimate long-term rate of change in acreage colonized by nonnative vascular plant species in or near SWAN parks.

**Basic Approach:** Data collection for monitoring invasive exotic species will primarily be conducted by the NPS-EPMT. Alaska EPMT survey data (species distribution and control monitoring) are stored in the Alien Plant Control and Management (APCAM) Database and will be acquired by SWAN staff. Procedures for data collection and management are documented in the APCAM procedures manual (APCAM 2005). Additionally, many other agencies also conduct exotic plant surveys and control actions in Alaska. These data, including the NPS-EPMT data, are captured in the Alaska Exotic Plants Information Clearinghouse (AKEPIC) and database (AKEPIC 2004).

The AKEPIC database will be reviewed annually. If invasive exotic plants are reported in or near SWAN parks, tabular and geographic information system data will be downloaded from AKEPIC into the SWAN centralized database. If appropriate, SWAN may develop a monitoring plan for specific species that may pose a serious threat.

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

Surveys and monitoring of nonnative vascular plant species are ongoing, following established NPS-EPMT survey methods (Heys and Bauder 2005). Data collection and management are documented in a variety of locations, including the APCAM and AKEPIC databases for vascular plants.

2007 Review ongoing data collection by EPMT and draft data management protocol and SOPs.

2008 Test protocol.

2009 Implement protocol.

No anticipated costs other than Network staff salaries.

**Literature Cited:**

- AKEPIC. 2004. The Alaska Exotic Plant Information Clearinghouse (AKEPIC) mapping project Collaborator's manual. Online. ([http://akweeds.uaa.alaska.edu/pdfs/akepic\\_manual\\_05\\_final.pdf](http://akweeds.uaa.alaska.edu/pdfs/akepic_manual_05_final.pdf)). Accessed 25 October 2005.
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- Bennett, A. J., K. L. Oakley, and D. C. Mortenson. 2004. Phase II vital signs monitoring report, Southwest Alaska Network. National Park Service, Anchorage.
- Densmore, R. V., P. C. McKee, and C. Roland. 2001. Exotic plants in Alaskan national park units. USGS in-house report to NPS. Anchorage.
- Heys, J., and P. Bauder. 2005. Alaska EPMT data collection protocol. In-house report. Alaska Regional Office, Anchorage.