

Control and Management

Goal E: Decrease invasive weeds and agricultural pest presence in Alaska through strategic management using integrated pest management strategies.

Control and management may include eradication, containment or suppression depending on the extent of the infestation and potential harm that the species may cause (Table 2). If few isolated populations of an invasive species exist in an area of Alaska eradication may be the priority. However, once the species is well established, containment to a particular region or ecosystem (such as roadsides) may be the most appropriate option. Suppression is used to manage invasive weeds and agricultural pests that are widespread throughout the state and do not present an immediate risk to agriculture and public resources. For example, weeds that are ranked by the Alaska Natural Heritage Program (AKNHP) as 59 or less are considered modestly, weakly or very weakly invasive (Carlson et al 2008). Species such as dandelion (*Taraxacum officinale*) rank in this category and are widespread in the state. Eradication, control and containment of such weeds are not likely to succeed, however, efforts to suppress their growth and spread should occur where possible.

Regardless of the management goal: eradication, control and containment, or suppression, the principles of integrated pest management (IPM) should be used. IPM seeks to use the most effective combination of methods available to manage an invasive weed or agricultural pest (Figure 4). The most effective combination will likely cost less over the long term, and provide greater benefit to the areas natural and

agricultural resources. Methods used in effective IPM plans include cultural, mechanical and chemical controls either in combination or alone. The Environmental Protection Agency (EPA) has significant information about IPM available online (<http://www.epa.gov/opp00001/factsheets/ipm.htm>).

Paramount in prioritizing which species to manage is the potential affect the species will have on resources of concern. To aid in this prioritization with invasive plants the Alaska Natural Heritage Program developed a ranking system (Carlson et al 2008). The Alaska Committee for Noxious and Invasive Plant Management (CNIPM) developed a “Treatment Prioritization Tool” that uses the ranking and other factors to help guide organizations in managing infestations in their area (AKEPIC 2005). Tools such as these are important guides to development of local management plans, particularly when funding limits the number of infestations that can be managed.

Public Identified Priorities

During the scoping process several issues were identified as important to control and management. The Alaska Natural Heritage Program ranks of invasive plants were interpreted as valuable with the majority of respondents stating they use or would like to use this information to develop their weed management strategies. Respondents stated the treatment prioritization tool in Invasive Plants of Alaska (AKEPIC

Table 5. Invasive weeds and their potential for eradication

May not eradicate infestations > 1 hectare	Cumulative Hectares	Rank*	Can eradicate infestations < 1 hectare	Cumulative Hectares	Rank*
<i>Melilotus alba</i> ,** White sweetclover	1062	81	<i>Centaurea stoebe</i> , Spotted knapweed	0.52	86
<i>Phalaris arundinacea</i> , Reed canarygrass	380	83	<i>Cytisus scoparius</i> , scotchbroom	0.42	69
<i>Vicia cracca</i> , Bird vetch	168	73	<i>Bromus tectorum</i> , cheatgrass	0.20	78
<i>Hieracium aurantiacum</i> , Orange hawkweed	74	79	<i>Lythrum salicaria</i> , Purple loosestrife	0.24	83
<i>Cirsium arvense</i> , Canada thistle	25	76	<i>Iris pseudacorus</i> , Yellow flag iris	<0.01	NA
<i>Polygonum cuspidatum</i> , Japanese knotweed	20	87	<i>Rubus armeniacus</i> , Himalayan blackberry	<0.01	77

* Rank is identified from Carlson et al. 2008

** *Melilotus alba* is considered *Melilotus officinalis* by the USDA however, still treated as *M. alba* in AKEPIC.

Table 5 depicts selected invasive weeds in Alaska, and their potential for successful eradication. Cumulative size of the infestations is used as a measure of potential for eradication as it relates to a study by Rejmanek and Pitcairn 2002 which shows that exotic weed eradication is usually possible when professionals act on infestations smaller than 1 hectare. Certain species of weed may be more or less vulnerable to eradication when infestations are smaller or larger than 1 hectare. Data is derived from AKEPIC downloaded 12-08-09 (<http://akweeds.uaa.alaska.edu/index.htm>).

Figure 6. Cooperative weed management area locations in Alaska



Figure 6 shows an example of a well implemented IPM strategy coordinated by the Homer Soil and Water Conservation District (SWCD) to manage 2 small isolated patches of Canada thistle (*Cirsium arvense*) on private property. The infestations were mowed multiple times during the growing season to starve this perennial of its root reserves and prevent it from flowering. Subsequently, the infestations were treated with herbicides in the fall. By 2009, the 1 acre patch had been reduced to 1% Canada thistle cover, while the 1/2 acre patch had been completely eliminated. An outreach effort was implemented that resulted in discovery of two additional infestations which were promptly treated with the same management strategy. The implemented IPM strategy resulted in achieving the desired outcome while using a minimum amount of herbicide (Slemmons and Graziano 2008, Photos courtesy Caleb Slemmons, Homer SWCD).

2005) is used less often indicating low value. However, many participants were unfamiliar with the tool indicating it is not promoted well enough to encourage use. Developing a treatment prioritization tool and ranking species were identified as a high priority for agricultural pests other than weeds. Participants overwhelmingly found it important for the state to provide guidance to land managers, volunteers and concerned citizens in determining when an infestation can be managed with or without herbicides.

Barriers to management were identified in the scoping process. Regulations, public perception and funding were the most often cited because pesticide use permits are necessary in most situations and public opposition to pesticide use is common. Respondents felt access to land is sometimes an important barrier to management. Access issues exist for both public and private lands where permission to manage infestations is needed, or infestations are remote and difficult to get to. Other barriers identified include lack of information on control practices, species locations, and identifying high priority infestations for management.



Objective 1:

Facilitate utilization of IPM strategies for strategic management of invasive weeds and agricultural pests.

Action Strategies

1. Develop online interactive control manual, modeled after or coordinated with Invasipedia (<http://wiki.bugwood.org/Invasipedia>) including steps to ensure safe application and describe the specificity of application methods.
Suggested participants: DOA, DEC, DOI, USDA, CES, EPA, NMFS
Timeline: Set up website by June 2012 update site annually
2. Increase the use of the treatment prioritization tool through development of trainings and/or incorporation in the control manual described in action strategy 1.
Suggested participants: DOA, CES, DEC, DOI, USDA, NMFS
Timeline: June 2012
3. Work with partners to control 5 additional high priority species and/or infestations each year.
Suggested participants: CWMA groups, SWCD, DOA, other local partners, Federal Land Managers, State Land Managers, Native Corporations and Associations
Timeline: Average 5 additional per year
4. Control 5 additional infestations each year along pathways for invasive species movement such as roadsides, utility rights of way, and railroad tracks.
Suggested participants: DOT&PF, SWCD, DOA, CWMAs, DOI, USDA, AKRR
Timeline: Average 5 additional per year

Objective 2:

Address identified barriers to management of invasive weeds and agricultural pests.

Action Strategies

1. Develop regulatory lists that encompass invasive weeds and agricultural pest management priorities for local groups. For more information see “Regulatory and Policy” section.
Suggested participants: DOA, SWCD, CWMA and other stakeholders
Timeline: June 2012
2. Review DEC pesticide use permit requirements to explore easing the process for all legitimate management activities identified statewide and by local invasive weed and agricultural pest management groups.
Suggested participants: DEC, DNR, DOT
Timeline: June 2012
3. Improve public and agency perception and understanding of management through education and outreach about IPM, health and safety, and efficacy of chemical control practices by ensuring 5 outreach events per year are conducted.
Suggested participants: DOA, SWCD, CES, DEC, DOT, USDA, DOI
Timeline: June 2012
4. Develop funding mechanism or grant programs for control and management of invasive weeds and providing matching funds for federal grants.
Suggested participants: Governor’s Office, DNR, DOA, Federal Agencies
Timeline: June 2012
5. Identify and establish permanent funding source for weed and pest management coordinators in SWCDs and CWMAs throughout the state.
Suggested participants: Governor’s Office, DNR, DOA, Federal Agencies
Timeline: June 2013