

# Appendix A: Key to Acronyms

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<b>AAC</b>	Alaska Administrative Code
<b>AACD</b>	Alaska Association of Conservation Districts
<b>ADFG</b>	Alaska Department of Fish and Game
<b>AFS</b>	Alaska Fire Service
<b>AISWG</b>	Alaska Invasive Species Working Group
<b>AKEPIC</b>	Alaska Exotic Plant Information Clearinghouse
<b>AKNHP</b>	Alaska Natural Heritage Program
<b>AKPRAC</b>	Alaska Pest Risk Assessment Committee
<b>AKRR</b>	Alaska Rail Road
<b>APHIS</b>	Animal Plant Health Inspection Service
<b>ARS</b>	Agricultural Research Service
<b>AS</b>	Alaska Statute
<b>BLM</b>	Bureau of Land Management
<b>BMP</b>	Best Management Practice
<b>CAPS</b>	Cooperative Agricultural Pest Survey
<b>CBP</b>	Customs and Border Protection
<b>CES</b>	University of Alaska Fairbanks Cooperative Extension Service
<b>CNIPM</b>	Alaska Committee for Noxious and Invasive Plant Management
<b>CTF</b>	Campbell Tract Facility
<b>CWMA</b>	Cooperative Weed Management Area
<b>DEC</b>	Alaska Department of Environmental Conservation
<b>DNR</b>	Department of Natural Resources
<b>DOA</b>	Division of Agriculture
<b>DOF</b>	Division of Forestry
<b>DOI</b>	Department of the Interior
<b>DOT&amp;PF</b>	Alaska Department of Transportation and Public Facilities
<b>DMLW</b>	Division of Mining Land and Water
<b>EDDMapS</b>	Early Detection and Distribution Mapping System
<b>EDRR</b>	Early Detection and Rapid Response
<b>ELI</b>	Environmental Law Institute
<b>EPA</b>	Environmental Protection Agency
<b>GIS</b>	Geographic Information Systems
<b>GPS</b>	Global Positioning System
<b>IPM</b>	Integrated Pest Management
<b>ISER</b>	Institute for Social and Economic Research
<b>MOU</b>	Memorandum of Understanding
<b>NAWMA</b>	North American Weed Management Association
<b>NMFS</b>	National Marine Fisheries Service
<b>NOAA</b>	National Oceanic and Atmospheric Administration
<b>NPS</b>	National Park Service
<b>SWCD</b>	Soil and Water Conservation District
<b>USDA</b>	United States Department of Agriculture
<b>USFS</b>	United States Forest Service
<b>USFWS</b>	United States Fish and Wildlife Service
<b>USGS</b>	United States Geological Survey

# Appendix B: Works Cited

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# Appendix C: Authorizing Legislation

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## **Alaska Statutes Sec. 03.05.027.**

### **Noxious weed, invasive plant, and agricultural pest management and education.**

- (a) The commissioner of natural resources shall employ or appoint a state coordinator for noxious weed, invasive plant, and agricultural pest management and education.
- (b) The state coordinator employed or appointed under (a) of this section shall oversee the enforcement of state statutes and regulations regarding noxious weeds, invasive plants, and agricultural pests and shall coordinate with state and federal agencies, state land users, public groups, and private organizations to
  - (1) develop, implement, and annually review a comprehensive state strategic plan for the control of noxious weeds, invasive plants, and agricultural pests; the plan must include an early detection and rapid response system for invasive plants consistent with federal guidelines;
  - (2) design and execute a geographically based plant and pest management area program;
  - (3) develop and maintain a statewide database for mapping and monitoring noxious weeds, invasive plants, and agricultural pests;
  - (4) develop integrated plant and pest management programs;
  - (5) regulate and control the entry into the state and transportation of seeds, plants, and other horticultural products;
  - (6) contact and provide educational materials to state land users and other audiences regarding noxious weed, invasive plant, and agricultural pest issues, including identification, management, potential hazards, and landowner responsibilities;
  - (7) accept contributions of service, materials, or equipment, and, subject to appropriation of money from the United States or its agencies, from a department or agency of the state, or from any other source for use in carrying out the purposes of this section; and
  - (8) review and make recommendations to state departments and agencies concerning revisions to state regulations and statutes, including revisions and additions to state noxious weed lists.
- (c) Each state department, agency, and institution shall cooperate with the state coordinator employed or appointed under (a) of this section in carrying out the tasks specified in (b) of this section.
- (d) The state coordinator employed or appointed under (a) of this section shall coordinate with the University of Alaska Cooperative Extension Service, the Alaska Association of Conservation Districts' board of directors, and the Department of Fish and Game in fulfilling the coordinator's responsibilities under (b) of this section.



# Appendix D: Alaska Checklist of 33 State Tools for the Management of Invasive Species

Tool	Yes	No	Funding Identified
Definition of Invasive Species**		X	
<b>Coordination</b>			
Comprehensive invasive species council**		X	
Comprehensive Invasive species plan	X	X	X
Interagency invasive species council		X	
<b>Prevention</b>			
Identifying and mitigating future threats		X	
<i>Detection</i>			
Surveying for invasive species	X		
Mapping invasive species and sensitive locations	X		
Inspection authority**	X		
<i>Introduction/import/Release requirements</i>			
Standards**	X*		
Advisory committee		X	
<i>Quarantines</i>			
Specific species and facilities***	X		
Transportation**	X		
Mandatory		X	
Education	X		
<b>Regulation</b>			
Permits and licenses**	X*		X
<i>Transportation and shipping requirements</i>			
Prohibitions		X	
Permits and licenses**	X*		
Inspection authority**	X		
Labeling requirements	X		
Registration of shippers		X	
Monitoring		X	
Bonds and insurance		X	

\* Tool is for Plants Pests and Diseases, excluding weeds and other invasive species.

\*\* Tools required for a state to be considered to have more than the minimum authorities necessary to effectively manage invasive species.

Tool	Yes	No	Funding Identified
<b>Control and Management</b>			
<i>General control and management authority</i>			
Authority over public and private lands**	X*	X	
Notice to state agency of presence of invasive species		X	
Statewide program	X		
Emergency powers**		X	
<i>Biological control agents</i>			
Permit and license		X	
Standards		X	
Restoration		X	
<b>Enforcement and implementation</b>			
<i>Enforcement</i>			
Criminal and civil sanctions**	X		
Liability for damages		X	
Positive incentives		X	
Funding**	X		

\* Tool is for Plants Pests and Diseases, excluding weeds and other invasive species.

\*\* Tools required for a state to be considered to have more than the minimum authorities necessary to effectively manage invasive species.

The above table lists the recommended tools for invasive species management according to the Environmental Law Institute (ELI 2002). The chart is meant for use to grade state programs as Bronze (at least 13 tools), silver (at least 24 tools), and Gold (all 33 tools). For invasive weeds and agricultural pests Alaska has established statutes and regulations allowing government to implement 17 of the 33 tools. If analysis of the tools includes an implementation component associated with funding identified for each specific tool, far fewer tools are in place. Three key components are missing that according to ELI are necessary to have effective management of invasive species: Definition of invasive species, comprehensive invasive species council and emergency powers. While Alaska does not presently have a suite of regulations for invasive species that would place it into a gold standard by the ELI, it is recognized as having established several regulations allowing for effective management to begin. Effective regulations for Alaska do not necessarily require adoption of the gold standard.



# Appendix E: Forest Insect and Disease Activity

2010 forest insect and disease activity as detected during aerial surveys in Alaska by land ownership<sup>1</sup> and agent. All values are in acres<sup>2</sup>.

TABLE 1	national forest	native	other federal	state & private	Total ACRES
Abiotic causes <sup>3</sup>	968	2,274	2,970	5,807	12,019
Alder canker	817	8,971	11,537	22,906	44,230
Alder defoliation <sup>4</sup>	635	24	244	6,092	6,995
Aspen defoliation <sup>4</sup>				1,750	1,750
Aspen Leaf Miner		108,295	144,395	200,967	453,658
Birch defoliation <sup>4</sup>		154	4,295	28,842	33,290
Black-headed budworm		252		91	343
Cedar decline faders <sup>5</sup>	28,666	630		1,212	30,507
Conifer defoliation	4,408	4,005	2,187	2,454	13,053
Cottonwood defoliation <sup>4</sup>	178	4,612	4,027	5,268	14,085
Hardwood defoliation		715	865	665	2,245
Hemlock canker	314	83			397
Hemlock sawfly	6,932	1,236	110	824	9,101
IPS and SPB <sup>6</sup>		1,550	470	178	2,198
Ips engraver beetle		7,866	11,663	2,071	21,600
Large aspen tortrix		1,517	2,088	4,986	8,592
Porcupine damage	638	12		269	919
Spruce aphid	20,331	1,543	5,120	13,686	40,680
Spruce beetle	1,567	6,648	56,317	13,452	77,983
Spruce needle rust	61	144	501	50	756
Willow defoliation <sup>4</sup>	178	231,270	233,900	97,328	562,675
Willow dieback		37	199	489	725

1 Ownership derived from 2008 version of Land Status GIS coverage, State of Alaska, DNR/Land records Information Section. State & private lands include: state patented, tentatively approved, or other state acquired lands, and of patented disposed federal lands, municipal, or other private parcels.

2 Acre values are only relative to survey transects and do not represent the total possible area affected. The affected acreage is much more extensive than can be mapped. Table entries do not include many of the most destructive diseases (e.g., wood decays and dwarf mistletoe) which are not detectable in aerial surveys.

3 Damage acres from some types of animals and abiotic agents are also shown in this table. Acres recorded from abiotics include windthrow, freezing injury, flooding, snow slides and land slides

4 Significant contributors include leaf miners and leaf rollers for the respective host. Drought stress also directly caused reduced foliation or premature foliage loss.

5 Acres represent only spots where current faders were noticed.

6 These acreage values are a cumulative effect from IPS engraver beetle (*Ips perturbatus*) and Spruce Bark Beetle (*Dendroctonus rufipennis*) working in tandem on the same stand of trees.

# Appendix F: Action Strategy Completion Timeline

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## Strategies for completion July 2011- June 2012

**Goal A: Prevent the introduction and spread of invasive weeds and agricultural pests.**

*Objective 1*, action strategies 1, 2

*Objective 2*, action strategies 1, 2, 3, 6

**Goal B: Establish and enforce sound invasive weeds and agricultural pest regulations and policies.**

*Objective 1*, action strategies 1, 2, 3, 4, 5

*Objective 2*, action strategies 1, 2

**Goal C: Coordinate invasive weeds and agricultural pest management strategies statewide and locally.**

*Objective 1*, action strategies 1, 3, 5

*Objective 2*, action strategies 1

**Goal D: Facilitate and implement EDRR for invasive weeds and agricultural pests that are beginning to arrive to Alaska or regions within Alaska.**

*Objective 1*, action strategies 2, 7, 9

*Objective 2*, action strategies 1, 3, 4

*Objective 3*, action strategies 1, 2, 3

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

*Objective 1*, action strategies 1, 2, 3, 4

*Objective 2*, action strategies 1, 2, 3, 4

**Goal F: Record the location and movement of invasive weeds and agricultural pests across the landscape.**

*Objective 1*, action strategies 1, 2

*Objective 2*, action strategies 1, 2

*Objective 3*, action strategies 1

**Goal G: Educate the public about invasive weeds and agricultural pests.**

*Objective 1*, action strategies 1, 3, 4

*Objective 2*, action strategies 3



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## Strategies for completion July 2012- June 2013

**Goal A: Prevent the introduction and spread of invasive weeds and agricultural pests.**

*Objective 2*, action strategies 4, 2

**Goal B: Establish and enforce sound invasive weeds and agricultural pest regulations and policies.**

*Objective 1*, action strategies 1, 2, 3, 4

*Objective 2*, action strategies 2

**Goal C: Coordinate invasive weeds and agricultural pest management strategies statewide and locally.**

*Objective 1*, action strategies 1, 4

**Goal D: Facilitate and implement EDRR for invasive weeds and agricultural pests that are beginning to arrive to Alaska or regions within Alaska.**

*Objective 1*, action strategies 2, 6, 8

*Objective 2*, action strategies 5

*Objective 3*, action strategies 1

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

*Objective 1*, action strategies 3, 4

*Objective 2*, action strategies 3

**Goal F: Record the location and movement of invasive weeds and agricultural pests across the landscape.**

*Objective 1*, action strategies 1, 2

*Objective 2*, action strategies 3

*Objective 3*, action strategies 2

**Goal G: Educate the public about invasive weeds and agricultural pests.**

*Objective 1*, action strategies 2, 3

*Objective 2*, action strategies 1, 2, 3

*Objective 3*, action strategies 1, 3



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## Strategies for completion July 2013- June 2014

**Goal A: Prevent the introduction and spread of invasive weeds and agricultural pests**

*Objective 2*, action strategies 2

**Goal B: Establish and enforce sound invasive weeds and agricultural pest regulations and policies**

*Objective 1*, action strategies 5

*Objective 2*, action strategies 2, 5

**Goal C: Coordinate invasive weeds and agricultural pest management strategies statewide and locally.**

*Objective 1*, action strategies 1

**Goal D: Facilitate and implement EDRR for invasive weeds and agricultural pests that are beginning to arrive to Alaska or regions within Alaska.**

*Objective 1*, action strategies 2

*Objective 3*, action strategies 1

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

*Objective 1*, action strategies 3, 4

*Objective 2*, action strategies 3

**Goal F: Record the location and movement of invasive weeds and agricultural pests across the landscape.**

*Objective 1*, action strategies 1, 2

**Goal G: Educate the public about invasive weeds and agricultural pests.**

*Objective 1*, action strategies 3

*Objective 2*, action strategies 3

*Objective 3*, action strategies 2, 3

**Goal H: Fill gaps in knowledge that will facilitate prevention, management and understanding of invasive weeds and agricultural pests.**

*Objective 2*, action strategies 3



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## Strategies for completion July 2014- June 2015

**Goal A: Prevent the introduction and spread of invasive weeds and agricultural pests**

*Objective 2*, action strategies 2

**Goal B: Establish and enforce sound invasive weeds and agricultural pest regulations and policies**

*Objective 2*, action strategies 2

**Goal C: Coordinate invasive weeds and agricultural pest management strategies statewide and locally.**

*Objective 1*, action strategies 1

**Goal D: Facilitate and implement EDRR for invasive weeds and agricultural pests that are beginning to arrive to Alaska or regions within Alaska.**

*Objective 1*, action strategies 2

*Objective 3*, action strategies 1

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

*Objective 1*, action strategies 3, 4

*Objective 2*, action strategies 3

**Goal F: Record the location and movement of invasive weeds and agricultural pests across the landscape.**

*Objective 1*, action strategies 1, 2

**Goal G: Educate the public about invasive weeds and agricultural pests.**

*Objective 1*, action strategies 3

*Objective 2*, action strategies 3

*Objective 3*, action strategies 3



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## Strategies for completion July 2015- June 2016

**Goal A: Prevent the introduction and spread of invasive weeds and agricultural pests**

*Objective 2*, action strategies 2

**Goal B: Establish and enforce sound invasive weeds and agricultural pest regulations and policies**

*Objective 1*, action strategies 5

*Objective 2*, action strategies 2

**Goal C: Coordinate invasive weeds and agricultural pest management strategies statewide and locally.**

*Objective 1*, action strategies 1, 2

**Goal D: Facilitate and implement EDRR for invasive weeds and agricultural pests that are beginning to arrive to Alaska or regions within Alaska.**

*Objective 1*, action strategies 1, 2, 4

*Objective 2*, action strategies 2

*Objective 3*, action strategies 1

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

*Objective 1*, action strategies 3, 4

*Objective 2*, action strategies 3

**Goal F: Record the location and movement of invasive weeds and agricultural pests across the landscape.**

*Objective 1*, action strategies 1, 2

**Goal G: Educate the public about invasive weeds and agricultural pests.**

*Objective 1*, action strategies 3

*Objective 2*, action strategies 3

*Objective 3*, action strategies 3

**Goal H: Fill gaps in knowledge that will facilitate prevention, management and understanding of invasive weeds and agricultural pests.**

*Objective 1*, action strategies 1, 2, 3, 4

*Objective 2*, action strategies 1, 2

