

Invasive Species Strategy 2006-2010

The Alaska Region, USDA Forest Service

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Submitted by the Alaska Region Invasive Species Team

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Introduction

Invasive species are widely recognized as a growing threat to ecosystem integrity and sustainability across the landscape. Preventing invasive species introductions and controlling established populations is a serious challenge for land managers. In Alaska the situation is especially urgent because many systems still have few or no invasive organisms, unlike the lower 48 states and Hawaii where numerous invasive species are established over large areas. Effects of changing climate, increasing levels of disturbance (both natural and human caused) and increasing tourism and population growth make Alaska highly vulnerable to invasive organisms in the coming years. Because invasive species are a relatively new addition to Alaskan systems, the problem may be most manageable right now as populations have not yet become established over extensive areas. We believe the time for substantial investment in invasive species management is now.

Knowing the pathways by which invasive species are introduced and spread is essential. Generally, once populations become established they are very difficult, sometimes impossible, to control. Invading species are usually associated with human activities such as landscaping, building construction, road maintenance and logging activities, vehicle transport, marine vessels or watercraft, livestock and feed, and movement of people in recreational areas. Introduced invasive species generally have no natural predators in their new environment, and are often pioneer species that thrive in disturbed environments. Introduced insects and pathogens may be particularly destructive because native plant species lack genetic resistance to them. Invasive species are often introduced on one land ownership and spread to another, highlighting the importance of coordination among many government entities and private landowners in invasive species management. Communication and coordination with experts in Canada and elsewhere in the world will help identify new threats and their pathways.

The primary focus of this Invasive Species Strategy and Action Plan is prevention, detection, and eradication of invasive organisms in Alaska National Forests. Although this strategy and action plan focus on the Chugach and Tongass National Forests, invasive species know no boundaries. Therefore, coordination and cooperation among all Alaska Region staffs/programs and with other agencies and organizations is essential in order to successfully manage invasive species. Alaska Region State and Private Forestry and the Pacific Northwest Research Station programs/staffs, and their cooperators, provide technical and financial assistance to address invasive plants issues on both national forest, state and private lands, and address invasive forest insect and pathogens on all lands.

This strategy identifies actions that Forest Service land managers in Alaska should implement to limit introductions and spread of invasive organisms, while working to eradicate and manage established populations of invasive species. The USDA Forest Service Invasive Species Program is multi-disciplinary in approach and addresses plants, aquatic and terrestrial vertebrates and invertebrates as well as tree pathogens. Currently, the Invasive Species Program is not an exclusive responsibility of any single Forest Service staff in Alaska. Rather, the program pools technical expertise and focuses funding from all appropriate programs to implement the highest priority actions.

Close cooperation internally and with other agencies in Alaska expands the scope of technical expertise, leverages funding, and addresses patterns of spread of invasive species from areas of human activities (i.e., the sources) to more remote locations (i.e., sinks). For example, the Alaska Region actively participates in Alaska's Committee for Noxious and Invasive Plants Management (CNIPM) and is also cooperating with other state and federal agencies to establish a statewide Alaska Invasive Species Working Group.

The definition of invasive species used in this document is taken from Executive Order 13112 (1999) and includes individuals from all taxonomic groups including invasive plants, vertebrates, invertebrates and plant pathogens. Species are considered invasive if they are not native to the ecosystem under consideration and are likely to cause harm to human health, the economy, or the environment.

Purpose

The purpose of the Alaska Region Invasive Species Program is to minimize, reduce, or eliminate the potential for introduction, establishment, spread, and impact of invasive species across all landscapes and ownerships (National Strategy and Implementation Plan for Invasive Species Management, USDA Forest Service 2004a). This Alaska Region Invasive Species Strategy and Implementation Plan provides guidance and support across the region to National Forest System (NFS), State and Private Forestry (S&PF), and Forest Service Research personnel by identifying five goals and 11 objectives and implementing 25 specific actions. These actions also directly support attainment of Goal 2 – Reduce impacts from invasive species – in the Alaska Region Strategic Business Plan for Fiscal Years 2006-2008.

This document directs units to employ a science-based approach in managing invasive species, to collaborate with partners, and to prioritize actions, while maintaining efficiency and accountability. We have engaged a multi-disciplinary team of specialist, managers, and researchers to develop this document in alignment with the National Strategy and Implementation Plan for Invasive Species Management (USDA Forest Service 2004a) hereafter referred to as the *National Strategy*. This strategy builds on and expands the 2005 document *Alaska Region Invasive Plant Strategy* (USDA Forest Service 2005b). The purpose of this strategy is to adopt an integrated, strategic approach that encompasses all taxonomic groups of invasive organisms.

Directives

The Forest Service has direction from the national, regional, and forest levels for managing invasive species. The following documents provide that direction:

In 1999 President Bill Clinton signed into law **Executive Order 13112** which directed federal agencies to use relevant programs and authorities to:

1. Prevent the introduction of invasive species
2. Detect and respond rapidly to and control invasive populations
3. Accurately monitor invasive populations
4. Provide for restoration of native species and habitat conditions in ecosystems that have been invaded
5. Conduct research on prevention and control of invasive species
6. Promote public education on invasive species

“Invasive species” is one of **Four Threats** to NFS lands identified by Forest Service Chief Dale Bosworth in 2003, along with fire and fuels, loss of open space, and unmanaged recreation.

The **Forest Service Strategic Plan** for Fiscal Years 2004-2008 (USDA Forest Service, 2004b) directs the agency to:

1. Implement and support actions to prevent and detect introduction of invasive species
2. Manage populations of established invasive species using prevention, suppression, and restoration tactics to reduce impacts and restore ecosystems
3. Implement risk-based detection surveys to identify forest vulnerability to invasive species based on availability of susceptible hosts, suitable environmental conditions for invasion, and the likely movement pathways of invasive species
4. Cooperate with other Federal, State, tribal, and nongovernmental partners in conservation education efforts that increase public awareness of invasive species and encourage support and participation in management actions.

The **National Strategy and Implementation Plan for Invasive Species Management** (USDA Forest Service 2004a) NFS management and focuses on four key elements:

- Prevention
- Early Detection and Rapid Response
- Control and Management
- Restoration/ Rehabilitation

The **Alaska Region Strategic Business Plan (2006-08)** (USDA Forest Service 2005a) provides more specific direction for invasive species management. The Business Plan directs Alaska Region managers to:

- Implement the existing Alaska Region Invasive Plant Strategy.
- Develop an Alaska Region Invasive Species Strategy (this document)
- Inventory NFS and state and private forested lands for outbreaks/infestations of invasive species.
- Conduct risk assessments as warranted for prevention and treatment activities by species.
- Provide outreach/education/technical assistance including an information/media campaign.
- Establish prevention, detection, control and eradication protocols, strategies and rapid response capability.
- Work with research to fill knowledge gaps concerning invasive species management.

- Deploy treatment/restoration resources for new selected invasive plants for S&PF and NFS lands through contracts, force account, agreements, and volunteers.
- Conduct appropriate monitoring of known populations and treatment areas.
- Enter data into Alaska Exotic Plant Information Clearinghouse (AKEPIC) and NFS corporate databases to ensure effective data migration and readily accessible inventory and monitoring information to end-users.
- Foster cooperation and coordinated invasive species management with adjacent landowners and partners.
- Work with Soil and Water Conservation Districts, tribal and native lands partners, and other cooperators to establish Weed Management Areas.

Current Status of Invasive Species in the Alaska Region

A comprehensive assessment of invasive species in Alaska was conducted during 2005, with emphasis on the State's two national forests (USDA Forest Service 2005c). Based on this assessment lists of invasive species were developed in several taxonomic groups including plants, terrestrial and aquatic organisms, tree pathogens and insects, with 42 of these species posing a significant threat for invasion. Qualitative invasive rankings of high medium, and low were given to all species other than plants and were based on analysis of existing literature and expert opinion. A more quantitative ranking, similar to the system developed for plants, is in progress and expected to be accomplished in 2007 for these taxa (see Action Item 6).

Invasive plants comprise the largest number of current invaders in Alaskan ecosystems. We use the AKEPIC and the Alaska Natural Heritage Program Weed Ranking Project to inform our risk assessment for invasive plant management (ranks range from 0 to 100). Currently, the highest ranking (≥ 70) invasive plant species occurring in Alaska include **spotted knapweed, Japanese knotweed, reed canarygrass, white sweetclover, ornamental jewelweed, purple loosestrife, cheatgrass, Himalayan blackberry, Canada thistle, bird vetch, orange hawkweed, garlic mustard, and Scotch broom.** Invasive plants that threaten to invade Alaska but are not yet found here include Eurasian water-milfoil, Atlantic cordgrass, and giant hogweed. Primary pathways for invasive plants include nursery and garden plants, seeds transported by hiking boots, vehicles and equipment; road maintenance and forest harvest practices and associated equipment; bedding/restoration materials; and livestock forage. Invasive plant management plans currently exist for the Alaska Region and both national forests. This strategy document is complementary to these documents, but in cases where they may conflict, this invasive species strategy document supercedes the existing plans.

Although many non-native wildlife species have been introduced or transplanted in Alaska, only one species is presently considered invasive to NFS lands -- **rats** in coastal ecosystems. Rats in coastal ecosystems have been accidentally introduced from ships. Of the nine invasive aquatic organisms identified as threats for Alaska, established populations of **northern pike** pose the greatest immediate concern, while the **Atlantic salmon, Chinese mitten crab, and New Zealand mudsnail** are likely to invade Alaska in coming years. These organisms can arrive as escaped farmed fish (Atlantic salmon) or in the ballast of ships (mitten crabs) or on muddy equipment or gear (mudsnails). Introduced **European slugs** may pose threats to estuaries near towns where they are found, and it is unclear what impacts introduced **red-legged and chorus frog** populations are having in southeast Alaska.

Invasive tree pathogens are not currently damaging Alaskan ecosystems, but there are numerous species that are being evaluated that could cause widespread tree mortality if introduced. Several introduced insects are currently established in Alaska, among the most serious in forested ecosystems are: **the larch sawfly, alder woolly aphid, spruce aphid, and amber-marked birch leafminer**. These insects are causing widespread tree defoliation and mortality. A number of other exotic insects pose a potential threat if introduced. The most likely method of introduction for pathogens and insects is on infested ornamental plants or wood products.

State and Federal Invasive Species Management Roles in Alaska

The Forest Service is just one of many agencies mandated to reduce the impact of invasive species in Alaska. A collaborative effort with clearly defined roles among federal and state agencies, as well as other parties, is needed to provide the best protection of Alaska's ecosystems from invasive species. Following is a list of state and federal agencies involved in cooperative management of invasive species in Alaska.

State of Alaska

- Department of Fish and Game – lead role in managing invasive fauna
- Department of Natural Resources, Division of Forestry – early detection of forest insects (in cooperation with Alaska Region S&PF)
- Department of Natural Resources, Division of Parks and Outdoor Recreation -
- support invasive species risk assessments for recreational facilities, trails and trailheads, and along major tourism routes, in addition to providing inventory and control
- University of Alaska
 - a. Cooperative Extension – public outreach on invasive species, early detection on invasive tree insects and pathogens through the Integrated Pest Management Program (in cooperation with Alaska Region S&PF)
 - b. Research – research into invasive species population biology, development of management tools, and production of educational materials
 - c. Natural Heritage Program –technical support for invasive species management, research in areas of species biology and development of ranking and assessment tools

Federal Agencies (Invasive species management and consultation on jurisdictional lands)

- Forest Service
- Bureau of Land Management
- U.S. Fish and Wildlife Service
- National Park Service
- NOAA Fisheries– regulatory and research activities concerning marine and anadromous resources, including the effects of invasive species on systems
- Natural Resource Conservation Service – provide consulting services to private land owners regarding detection, control and eradication of invasive plants
- US Geological Survey – research, inventory, and management of invasive species on Dept. of Interior lands

- USDA Animal and Plant Health Inspection Service (APHIS) – prevention, early detection of invasive species

Responsibilities of the USDA Forest Service in Alaska

The Forest Service has several lead roles in this effort, which include monitoring and controlling invasive plants, insects, and pathogens on NFS lands (e.g., Chugach and Tongass National Forests). S&PF has the additional authority to survey/monitor and provide technical and financial assistance for controlling invasive plants, insects, and pathogens on other federal, state, and private lands in Alaska. The Pacific Northwest Research Station is responsible for conducting research on invasive species, including monitoring invasive plants through the Forest Inventory and Analysis program.

Table 1. USDA Forest Service lead roles for monitoring and controlling invasive species on NFS Lands and other lands in Alaska.

Invasive Taxa	National Forest System Lands			Other Lands
	FS lead	FS cooperating	Other lead agency	FS cooperating ¹
Plants	X			X
Terrestrial fauna		X	State	
Aquatic species		X	State	
Pathogens	X			X
Insects	X			X

¹ Cooperation primarily through the Alaska Region S&PF Forest Health Protection Programs, which provide for survey/monitoring and technical financial assistance.

Fostering Development of the Alaska Region Invasive Species Program

A strong coordinated effort within the Alaska Region is needed in order to effectively prevent, detect and eradicate invasive species before they can become established. The Invasive Species Program is a multi-funded and interdisciplinary effort. As such, a cooperative approach to responsibilities and funding is necessary for success. The following descriptions offer potential ways line officers and directors can implement the Invasive Species Program.

The **Regional Forester, Forest Supervisors, and District Rangers** will be influential in setting expectations and providing direction for Invasive Species Management at respective levels in the organization. Examples of this leadership include but are not limited to:

- Appointing Invasive Species Coordinators at the Region, Forest, and District levels (or shared/zoned between units).
- Creating a multi-disciplinary Regional Invasive Species Team (responsibility of Regional Forester).

- Providing information on the status and threat of aquatic and terrestrial invasive species.
- Maintaining invasive species inventories.
- Developing and implementing invasive species management programs, including surveys and control treatments.
- Developing and offering recurring invasive species management training.
- Developing and delivering public information programs to improve invasive species awareness.
- Determining the risk of invasive species introduction or spread as part of the NEPA process for proposed activities.

Following line officer leadership and direction, many staff areas can contribute to the success of the Invasive Species Program. The following activities, while not exhaustive, represent examples of ways in which **staff areas** can contribute to successful program implementation.

Public Affairs

1. Develop invasive species communication plans.
2. Support public outreach efforts.
3. Prepare public service announcements.
4. Support preparation and publishing of identification and training guides (collaborate with specialists).
5. Support development of public information and education programs to improve awareness and understanding of invasive species, their biology, impacts, and management (collaborate with Recreation Interpretation Staff).
6. Develop websites for posting information about invasive species on Alaska's National Forests.

Ecosystem Planning

1. Provide financial support for initial surveys of invasive species population distribution using NFIM funds.
2. Assure that invasive species management is included in Forest Plans and discussed in Environmental Impact Statements and Assessments.
3. Provide advice on NEPA documentation for invasive species treatment and management activities.
4. Provide corporate data system support by funding GIS, development of other storage, and data input.
5. Provide advice to resource specialists to ensure data quality, adequate storage and availability to users.

Engineering and Aviation Management

1. Ensure that gravel pits and quarries on NFS lands are free of high ranking invasive plants.
2. Support and participate in roadside surveys for invasive species with trained specialists.
3. Ensure that roadsides are seeded with native seed where possible, and seed mixes are certified weed-free.
4. Ensure that contract vehicles and equipment are clean and are free of invasive organisms entering and leaving construction sites.
5. Use erosion-control materials that are certified weed-free when available.

6. Provide planning support and oversight for invasive species management along transportation routes and corridors, road and waterways.
7. Conduct assessment of floatplane and helicopter transport of invasive species in cooperation with trained specialists.
8. Contribute remote sensing and geospatial skills to monitoring and landscape risk assessments.

Forest Management

1. Support and participate in early detection efforts on all invasive plants, insects and pathogens.
2. Support invasive species risk assessment and management for all timber-related activities in cooperation with unit invasive species coordinators, including:
 - Provide support in planning, training and contract administration for invasive species issues associated with forest management activities.
 - Provide information and direction to contractors regarding vehicle and equipment cleaning requirements
 - Provide direction in reforestation/restoration efforts to maintain weed-free seed mixes and erosion-control materials.
3. Promote managing for mixed-species forest stands where appropriate to minimize susceptibility to invasive insects and pathogens.
4. Contribute to rehabilitation efforts following control measures for invasive species in forest environments.

Recreation, Lands, Minerals

1. Support invasive species risk assessments for recreational facilities, trails and trailheads, and along major tourism routes (with Region, Forest, District Invasive Species Coordinator as appropriate).
2. Provide leadership and support for invasive species inventory and control projects at developed recreation sites including visitor centers, campgrounds, day-use areas, and backcountry cabins (with Region, Forest, District Invasive Species Coordinator as appropriate).
3. Increase public awareness of the impacts of invasive species through development of interpretive programs and displays to be used at public contact points (coordinate with Region, Forest, and District invasive species coordinators as appropriate).
4. Develop and deliver Conservation Education Programs on invasive species.
5. Coordinate invasive species identification training for field personnel.
6. Support trailside surveys for invasive species.
7. Support incorporating invasive species prevention, detection, eradication, and restoration activities in annual program planning.
8. Assist PNW and other research partners in determining influence of recreation patterns on invasion.
9. Deploy treatment/restoration resources through contracts, force account, agreements, and a region-wide volunteer trail partnership network and coordinate with Forest and District invasive species coordinators.
10. Ensure that contract vehicles and equipment are clean and free of invasive organisms entering and leaving construction sites.
11. Foster cooperation and coordinated invasive species management with adjacent landowners and partners.

12. For Special Use Authorizations where land use occupancy is part of the specialized use (e.g., easements, permits, and leases), include within the authorization a clause that addresses management for invasive species.
13. Ensure that the Plans of Operations for active mining claims address management of invasive species.
14. Ensure that gravel pits and quarries on National Forest System lands are free of high ranking invasive species.

Wildlife, Fisheries, Ecology, Watershed and Subsistence

1. Provide program leadership for invasive species management, including advising on risk assessments, and developing management plans to address prevention activities, inventory and eradication efforts, and site restoration.
2. Maintain appropriate corporate databases to track invasive species detection and eradication efforts.
3. Ensure that invasive species monitoring and control efforts are strategic by assisting in coordinating activities along travel corridors, waterways, and in remote areas.
4. Coordinate invasive species training for field personnel.
5. Cooperate in development and delivery of Conservation Education Programs on invasive species.

Tribal Relations

Assist Invasive Species staff members to address important native Alaskan community issues including but not limited to:

1. Potential impacts and management of invasive organisms relating to local subsistence hunting and fishing, berry and other harvesting activities.
2. Providing important linkages with native Alaskan organizations concerning education and outreach on Invasive Species Management.

Fire and Fuels

1. Ensure that all equipment is free of invasive species before and after use. Clean boots, gear, and vehicles as appropriate.
2. Ensure that runways, helibases, camps, and staging areas are free of invasive species.
3. Avoid moving water buckets from infested lakes to lakes that are not infested.
4. Cooperate with the unit invasive species coordinator to ensure that field personnel receive training in invasive species identification, and encourage invasive species reporting from the field.
5. Limit prescribed burning in areas of high risk for invasive species establishment or spread due to fire effects.
6. Support invasive species surveys in conjunction with fire restoration/fuels reduction activities.
7. Support incorporating invasive species prevention, detection, eradication, and restoration activities in annual program planning.

State and Private Forestry

1. Provide lead expertise on forest insects and forest pathogens and conduct annual aerial surveys across all forested lands for insect and disease outbreaks (both native and exotic).

2. Coordinate monitoring and control projects on non-NFS lands.
3. Lead in the preparation of identification and training guides for invasive plants, insects, and pathogens.

Pacific Northwest Research Station (PNW, Research)

Critical information gaps can be addressed by PNW and other research partners. Funding is necessary to provide support for research needs. Currently, high priority research areas include:

1. Target invasive species in sampling during Forest Inventory and Analysis (FIA) sampling for monitoring, especially in remote locations.
2. Evaluate effects of global climate change on invasive species dynamics.
3. Conduct autecological studies of specific invasive species.
4. Determine ecosystem effects of invasion for specific species.
5. Develop protocols for monitoring targeted highly ranked invasive species.
6. Develop control tools, including biological control measures.
7. Perform DNA testing to identify questionable species.
8. Conduct research on hybridization with native species (genetic mixing/drift)
9. Determine influence of recreation patterns on invasion.
10. Determine spatial patterns of invasion by landscape analysis.
11. Develop risk management tools to help prioritize management actions.
12. Investigate social influences on spread of invasive species.

Setting Regional Priorities for Invasive Species Management

Implementing an effective invasive species management program across the Alaska Region requires focus, investment, and action. In this section the goals, objectives, and implementing actions for the program are outlined in order to focus investments and activities to effectively control invasive species in our region. A menu of implementing actions provides a wide variety of options to managers in battling invasive species in Alaska. Annual regional priorities will be established in the form of budget advice transmitted to the field through the annual blue- (regional) and green- (forest) page direction.

Goals, Objectives, and Implementing Actions

This Alaska Region Invasive Species Strategy and Implementation Plan is composed of the following five goals, 11 objectives, and 25 implementing actions. Nine high priority actions are identified (*) that require immediate attention.

The first goal of this plan speaks to regional investments and accountability in invasive species management. The other goals tier directly to the four “program elements” in the National Strategy (i.e. Prevention, Early Detection and Rapid Response, Control and Management, Rehabilitation and Restoration). Responsibilities in bold indicate lead role, with responsible Regional Leadership Team member(s) in parentheses.

The Attainment Measures/Tasks identified in the tables are a starting point for prioritizing invasive species program needs, and will be used to assess progress towards objectives. These Attainment Measures/Tasks are an incomplete list, and currently range from strategic to tactical in nature.

GOAL 1: Develop capacity and accountability for the Alaska Region Invasive Species Program.

GOAL 1, Objective 1. Strategically increase the Alaska Region’s investments in invasive species priorities to keep Alaska free of invasive species.

* designates high priority actions requiring immediate attention

	Implementing Action	Responsibility	Attainment Measure/Task	Status
*	1.) Implement annual Invasive Species Integrated Program of Work (IPOW) Process (consistent with future regional direction for IPOWs), which results in widely-supported allocation of funds from all appropriate NFS, S&PF, R&D BLIs to the highest priority actions in this document.	WFEW Director with other appropriate NFS, S&PF, PNW Research Station Directors	Demonstrated increase in Invasive Species investments over time that results in completion of priority actions and progress towards outcomes in Regional Business Plan	FY07 conducted for NFVW- Noxious Weeds BLI. Annually across all BLIs by March for the following fiscal year beginning FY08

GOAL 1, Objective 2. Integrate elements of the Invasive Species Strategy into supplemental performance standards.

	Implementing Action	Responsibility	Attainment Measure/Task	Status
*	2.) Increase leadership responsibility for Invasive Species Management	All FLT and RLT members	Percentage of performance plans containing at least one supplemental standard for invasive species elements	FY06 S&PF and WFEW Directors FY07 all FLT and RLT members

GOAL 2. Prevent new introductions of invasive species to Alaskan ecosystems (Prevention).

GOAL 2, Objective 1. Develop an understanding of the scope of threat from invasive species to Alaskan ecosystems.

	Implementing Action	Responsibility	Attainment Measure/Task	Status
	3.) Conduct literature review, assessment, and pathway analysis of current and potential invasive species in Alaska. Update annually.	Regional Invasive Species Team	Alaska Region Invasive Species Assessment	Completed August 2005, update species list annually
	4.) Develop and update every three years, a regional strategy and action plan to prevent, detect, and control invasive species in Alaska.	Regional Invasive Species Team	Alaska Region Invasive Species Strategy	Initiated, to be completed 8/2006 (update by 9/2009)
	5.) Continue support to the Alaska Natural Heritage Program Statewide Weed Ranking Project.	S&PF Ecologist, Regional Invasive Species Coordinator	Statewide Weed-Ranking Project	Established 2004 Update annually
*	6.) Develop ranking systems for vertebrates, invertebrates, and pathogens that threaten Alaskan ecosystems (with Alaska Natural Heritage Program).	Regional Invasive Species Coordinator, Fish and Wildlife Ecologists, S&PF, Forest Health Specialists	Statewide Invasive Vertebrate Ranking Statewide Invasive Aquatic Invertebrate Ranking Statewide Invasive Forest Insect and Pathogen Ranking International and National Coordination on invasive species threats to Alaska	Proposed: to be initiated in FY07 Proposed: to be initiated in FY08 Proposed: to be initiated in FY08 Ongoing

7.) Take active measures to prevent invasive species introductions into Alaskan National Forests.	Forest Invasive Species Coordinators, all staff areas	Establish local “invasive species sighting maps” for each Ranger District and update appropriate databases	Proposed
		Evaluate seed mixes used in construction/road maintenance activities to ensure weed-free status.	Proposed
		Promote/require vehicle washing where appropriate	Proposed
		Educate contractors and operators off NFS lands about weed free materials	Proposed
		Update timber and road construction contract provisions as needed	Proposed

GOAL 2, Objective 2. Raise awareness about invasive species issues and impacts to Alaskan ecosystems.

	Implementing Action	Responsibility	Attainment Measure/Task	Status
	8.) Develop internal and public websites for the Invasive Species Program.	Regional and Forest Invasive Species Coordinator, Regional Webmaster, and S&PF	Internal FS Website is functional, has full content on invasive species, and is continually updated	NFS site established 2005, fully functional March 2007

			Public Website is functional, has full content on invasive species, and is continually updated	S&PF site established and functional 2003
	9.) Develop and distribute educational materials for general public.	Regional Invasive Species Team, Forest Invasive Species coordinators	Production (S&PF) and distribution (S&PF and NFS) of invasive species brochures to external users and to Forests/Districts Invasive species interpretive materials produced and distributed Development and delivery of Invasive Species Conservation Education Programs	Ongoing Ongoing Proposed
	10.) Develop and distribute illustrated training materials to enable agency staff to detect threatening plants, invertebrates and vertebrates, and pathogens.	S&PF (for development), Region, Forest, District Public Affairs and Recreation Staffs (for distribution)	Educational materials available and accessible to users	Alaska Invasive Plant Pocket Guide, 2005 (S&PF) Alaska Invasive Plant Book, 2006 (S&PF) Alaska Invasive Insect leaflets (S&PF)
	11.) Coordinate training and technology transfer activities as requested by units.	Region, Forest, District Invasive Species Coordinators, S&PF	Number of trainings conducted Number of personnel receiving training	As requested Proposed

GOAL 2, Objective 3. Collaborate with partners to ensure prevention goal is met for the region.

	Implementing Action	Responsibility	Attainment Measure/Task	Status
	12.) Establish formal and informal invasive species networks with partners.	State & Private Forestry, Regional Office WFEWS Specialists, Forest and District invasive species coordinators	Statewide MOU signed	Initiated 2006
			Opportunistic Partnerships	Ongoing
			ADF&G – Pike Survey and Control	Proposed
			NPS – Cooperative Invasive Plant Survey	Proposed
			Cooperative Weed Management Areas (all Districts)	Girdwood CWMA established 2005, twelve CWMA's remaining to be established.

GOAL 3. Detect and eliminate new occurrences of targeted invasive species before they establish and spread (Early Detection and Rapid Response - EDRR).

GOAL 3, Objective 1. Identify and inventory habitats and ecosystems at high risk to invasion

	Implementing Action	Responsibility	Attainment Measure/Task	Status
*	13.) Assess ecosystem vulnerability of NFS lands in the face of changing climate and disturbance conditions, identifying priority habitats and survey needs.	Region, Forest Invasive Species Coordinators, Research Landscape and Ecosystem Ecologists	White paper describing ecosystem vulnerability of Alaska NFS lands	September 2007
			Map of Alaska NFS lands by invasive plant risk classes	September 2008 (E.Bella dissertation)
	14.) Conduct inventory	S&PF, Forest	Number of acres	Plant

	and monitoring activities documenting extent of invasions.	Health Program; Region, Forest, and District Invasive Species Coordinators , Botany, Ecology, Fisheries, Wildlife, and Inventory and Monitoring Staffs	or linear miles surveyed for invasive plants Number of completed inventories of identified invasive organism populations	inventories in progress: CNF and TNF (approx 4000 ac surveyed by 2005) Annual insect survey for birch leaf miner Pilot inventory slugs in Prince William Sound completed 2005 Red-legged frog surveys 2005-2006 Chorus frog surveys initiated 2006
*	15.) Conduct invasive plant surveys along travel corridors and accessible shorelines, at trailheads and high use trails, and at high-use visitor areas.	Forest and District Invasive Species Coordinators	Percent of roads, accessible shoreline, trailheads, trails, and visitor use areas inventoried for invasive plants Ensure regionally developed protocols are utilized	In progress Proposed
*	16.) Expand Forest Health Monitoring and Early Warning Program activities for insects and pathogens.	S&PF, Forest Health Program	Insects: Number of locations trapped; frequency of monitoring traps, early detection projects developed around points of entry	Insects: Continue annual gypsy moth and wood borer/bark beetle trapping; expand to other insects

			Pathogens: Monitoring program is developed and implemented with a number of detection sites monitored, early detection projects developed around points of entry	Pathogens: proposed
	17.) Develop and populate appropriate corporate databases with invasive species data for monitoring and tracking purposes.	S&PF, Forest Health Program; Region, Forest, and District Invasive Species Coordinators, Botany, Ecology, Fisheries, and Wildlife Staffs; Regional NRIS Coordinator	Data entered into corporate applications on an annual basis and at the completion of the project.	AKEPIC Database primary data repository (2004-2006) FY2007 Terra Invasive Plant module primary data repository for NFS invasive plant data Fauna Database existing Insect and Pathogen database proposed

GOAL 3, Objective 2. Eradicate new invasive species infestations

	Implementing Action	Responsibility	Attainment Measure/Task	Status
*	18.) Develop and implement emergency eradication plans for priority invasive species (develop and implement NEPA)	Region Invasive Species Coordinators, Ecosystem Planning Staffs	Eradication plans developed for priority species	Proposed
	19.) Monitor effectiveness of treatments	Forest and District Invasive Species Coordinators and S&PF	Percentage of treated areas monitored	Proposed

GOAL 4: Eradicate, reduce, control, and contain existing infestations of established invasive species (Control and Management).

GOAL 4, Objective 1. Develop and execute long-term management plans for established invasive species.

	Implementing Action	Responsibility	Attainment Measure/Task	Status
*	20.) Complete Invasive Plant NEPA to control infestations, evaluating all treatment techniques including herbicides.	Appropriate R10 line officer(s) from Region, Forest, and District Invasive Species Coordinators, Region and Forest Environmental Planning NEPA Specialists, S&PF	Identify proposed actions for NEPA analysis	Jan 2007
Complete weed NEPA workshop			Feb 2007	
One signed EA decision and one signed CE per forest			Apr 2008	
Use of all tools in successful eradication of invasive plant populations			May 2009	
	21.) Work with partners across ownerships in developing and implementing control measures.	District Rangers, S&PF, Regional and Forest, and District Invasive	Number of Cooperative Weed Management Areas	In progress

		Species Coordinators	established Number of consultations with outside agencies and landowners. Number of cooperative control projects implemented	Proposed Proposed (dependent on NEPA completion)
	22.) Develop, implement and assess post-treatment monitoring protocols.	Region, Forest, and District Invasive Species Coordinators, S&PF, PNW	Monitoring methods are developed and implemented Number of treatments monitored for effectiveness	Proposed Proposed

GOAL 4, Objective 2. Provide education to general public and resource managers on cost effective measures to control invasive species.

	Implementing Action	Responsibility	Attainment Measure/Task	Status
	23.) Develop a communication plan for control activities	Region and Forest Public Affairs; Region, Forest, and District Invasive Species Coordinator	Complete and implement communication plan	Ongoing

GOAL 5: Effectively restore or rehabilitate ecosystems impacted by invasive species to desired conditions and to conditions that reduce vulnerability to invasion or reinvasion by invasive species (Rehabilitation and Restoration).

GOAL 5, Objective 1. Develop, provide and use native plant materials for restoration activities.

	Implementing Action	Responsibility	Attainment Measure/Task	Status
*	24.) Support development of weed-free materials to be made available and used in restoration projects.	S&PF , Regional Invasive Species Coordinator, Regional Botanist	Expansion of WA/OR native plant materials program to include AK Certified weed-free materials are widely available for agency and contractor purchase and use.	Proposed Proposed

GOAL 5, Objective 2. Restore and manage forests for resistance to invasive species

	Implementing Action	Responsibility	Attainment Measure/Task	Status
	25.) Manage forests for multiple tree and understory species to limit the effects of new introduced insects, pathogens, and plants.	PNW Research Station; S&PF, Forest Health Program; Region/Forest Silviculturists and Ecologists (FM Director)	The Region's forests are diverse in species composition and resistant to invasive insects, pathogens, and plants.	Proposed

Summary

The Alaska Region is well positioned to meet the challenge of managing the threat of invasive species, but determination and dedication of resources and personnel are essential. Each staff area must be actively engaged in the Invasive Species Program. The Alaska Region has the capacity necessary to address this problem due to the considerable talent and expertise present at various administrative levels. Lessons from the pathways

of how invasive species are introduced and then spread give clear indication that a strategic approach and a high level of cooperation within and outside of the agency are needed. Implementing this program with our partners now, before invasive species become well established, may allow us to avoid the situation where invasive species are largely unmanageable.

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