



Department of Defense Legacy Resource Management Program

Project #11-114

STRATEGIC MANAGEMENT OF INVASIVE SPECIES

Center for Invasive Plant Management
Montana State University

August 15, 2012



FINAL REPORT
**Strategic Management of Invasive Species in
the Northwest United States Workshop**

May 21–25, 2012
University Place Hotel and Conference Center
Portland, Oregon



**Center for Invasive
Plant Management**

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BACKGROUND

Invasive species prevention and management is an important element of the Integrated Natural Resource Management Plans for military installations. Invasive species directly impact military missions by infesting open space needed for military operations; rendering training grounds hazardous with dense, spiny, flammable, or otherwise noxious vegetation; and reducing the extent of realistic training areas.

Department of Defense (DoD) natural resource managers are not only responsible for being stewards of installation lands, which often provide habitat for threatened, endangered, and rare species, they must also manage the lands to support the installation's mission to provide military training opportunities and enhance readiness. To achieve these goals, a DoD conservation land management program must include provisions for managing the introduction and spread of invasive species—plants and animals that pose a direct threat to DoD conservation and military goals.

2012 WORKSHOP

Building on a successful, Legacy-funded workshop that was presented in Phoenix, Arizona in October 2009, the Center for Invasive Plant Management (CIPM) offered a similar five-day workshop for DoD natural resource personnel at the University Place Hotel and Conference Center in Portland, Oregon from May 21–25, 2012. The primary goal of the *Strategic Management of Invasive Species in the Northwest United States* workshop was to provide a comprehensive overview of invasive species issues, and prevention and management strategies for natural resource personnel at DoD installations across the northwest US.

The workshop was attended by 16 individuals from the DoD, state and federal agencies, and Tribes. An additional 23 individuals participated in the workshop via live webinar link, which consisted of a live broadcast of all classroom presentations (Appendix A: Participant List). Despite trying to advertise the workshop through as many avenues as possible, including the DoD Legacy Natural Selections e-newsletter and the CIPM e-newsletter, several CIPM listservs, outreach to military installation personnel by CIPM staff, and direct requests to specific DoD personnel, CIPM was unable to effectively reach a large number of the target audience: natural resource personnel on DoD installations in northwest US. We do not completely understand why this was the case, but after months of effort, we continued to hear from many DoD managers that they had never gotten notice of the workshop. We are confident that if CIPM had had access to additional DoD communications channels, such as DoD electronic mailing lists and/or natural resource-focused listservs, the workshop and webinar would have attracted a much larger number of regional participants.

Planning and Implementation

Planning for the workshop officially began on August 5, 2011, when CIPM (Montana State University) signed Cooperative Agreement #W9132T-11-2-0033 with the US Army Corps of Engineers (on behalf of the DoD Legacy Resource Management Program). Over the next several months, the workshop dates and location were chosen, a workshop website was launched, the workshop facility was secured, field trip site selection began, and CIPM began advertising the event.

In November and December 2012, CIPM surveyed natural resource program managers at military installations in the northwest US for information vital to developing the workshop curriculum. The survey collected information about: the most pressing invasive species problems specific to the military, including present populations and potential invaders; staff knowledge gaps in invasive species management; and challenges in working across jurisdictional boundaries on invasive species management with public land management agencies and private landowners. Only four individuals responded to the survey (Appendix B: Installation Survey Results Summary), even though requests for feedback were sent out multiple times during this two-month period. Feedback from the surveys, as well as results of the 2009 workshop evaluations, was used to develop specific workshop objectives and refine the workshop topics and format.

Workshop Objectives

Through presentations, case studies, group exercises, and a field trip, workshop participants achieved the following objectives:

- Learned how to translate broad ecological information into goals and objectives for invasive species prevention and management on their installation;
- Learned about the causes and consequences of species invasions;
- Became familiar with an adaptive management framework for preventing and managing invasive species infestations;
- Learned which strategies are most effective for invasive species prevention and management;
- Improved their skills in monitoring for invasive species;
- Learned about available tools and techniques for invasive species management;
- Learned how to build local and regional partnerships with natural resource management entities and stakeholders;
- Developed and/or refined an invasive species management plan for their installation; and
- Received peer review while developing their management plan.

Furthermore, specific learning outcomes for each day were defined and used to select instructors and plan the agenda. A total of 22 instructors from universities, state and federal agencies (including the DoD), conservation organizations, Tribes, and private companies shared their knowledge and expertise to help participants achieve installation goals for military training and land stewardship, including: terrestrial and aquatic invasive species biology, ecology, and impacts; invasive insects and pathogens; climate change; inventory, survey, and mapping methods; case studies from DoD installations; enhancing communications and building effective partnerships; and management and control tools and techniques (Appendix C: Workshop Agenda and Daily Outcomes). All of the formal classroom presentations were broadcast live via webinar for those unable to physically attend the workshop (Appendix D: Webinar Agenda).



Left: Workshop participants engaged in small group discussions. *Right:* Field trip participants learned about Scotch broom control at Joint Base Lewis-McChord. Photos by Kitty Weiss and Liz Galli-Noble.

In addition to formal presentations, the workshop incorporated hands-on species identification labs, classroom and group discussions, and homework assignments to better engage participants. The agenda was further enhanced by a day-long field trip to Joint Base Lewis-McChord (JBLM), during which participants learned about specific management challenges faced by JBLM's natural resource managers and personnel.

Homework

Participants were asked to complete a pre-workshop homework assignment to help them prepare for the discussions and presentations included in the workshop (Appendix E: Pre-Workshop Homework Assignment). The assignment required participants to become knowledgeable about the status of invasive species at their installation, as well as their installation's available resources and limitations. This information was used to assist participants in planning their installation's future course of action for invasive species prevention and management. Participants were also asked to complete daily homework assignments to help them develop and refine an invasive species management plan for their installation, and to enhance workshop discussions.

Evaluations

Participants were asked to complete short daily evaluations of workshop topics and instructors. On the final day, participants were asked to evaluate the workshop as a whole, including its relevance to their invasive species work, level of satisfaction with the topics presented, and suggestions for improvement. CIPM compiled the evaluation responses, which indicated that the workshop was an overall success (Appendix F: Workshop Evaluation Results Summary).

ISAC Reception

On the evening of Tuesday, May 22, CIPM and the DoD co-hosted a reception with the National Invasive Species Council (NISC), Invasive Species Advisory Committee (ISAC). The goal of the event was to celebrate exceptional invasive species prevention and management work being accomplished in the northwest region of the US, as well as providing an opportunity for DoD personnel to network with the ISAC members. Approximately 75 DoD workshop participants and presenters, ISAC members, NISC staff, and their guests attended the two-hour networking session. In addition to informal discussions and exchange of ideas, NISC staff also presented outgoing ISAC members with plaques and gifts as part of the event.

Additional Duties

As outlined in the Cooperative Agreement, CIPM performed the following duties and accomplished the following tasks during the contract period of August 2011 to September 2012:

- Developed and distributed a flyer advertising the workshop;
- Developed and circulated a survey to gather information from installation natural resource managers in the Northwest for planning purposes;
- Advertised the workshop via CIPM and DoD e-newsletters and listservs, and targeted specific DoD installation personnel with the assistance of Pete Egan, Jane Mallory, and Peter Boice (Legacy Program);
- Built and maintained a workshop website to house the agenda, registration and logistical information, and pre-workshop homework assignment;
- Developed an online workshop registration form and online webinar registration form;
- Developed the workshop agenda and selected the instructors;
- Negotiated, signed, and administered subcontracts with several workshop instructors to perform contracted services during the workshop;
- Wrote and submitted reports to the USACE, reporting on project progress, as required in the Cooperative Agreement;
- Worked directly with the event facility, University Place Hotel and Conference Center, to secure conference meeting rooms, catering services, and participant accommodations;
- Planned and orchestrated a field trip to Joint Base Lewis-McChord, including field trip instructors and transportation to and from the base;
- Held monthly organizational meetings over a 10-month period;
- Developed a workshop binder for participants that contained the agenda, instructor bio sketches, workshop objectives, daily homework assignments, daily workshop evaluations, relevant handouts, and an invasive species resources CD;
- Worked directly with Montana State University Extension Services to develop and host a live web broadcast (webinar) of the workshop for those unable to physically attend;
- Compiled results of workshop evaluations;
- Issued instructor invitations and thank you letters; and
- Prepared the final workshop report.

CIPM sub-contracted with the following individuals and companies to provide services for the event:

- Dr. Mandy Tu functioned as CIPM's scientific advisor, worked closely with CIPM throughout the entire planning and organizing process, and assisted with workshop facilitation;
- University Place Hotel and Conference Center provided workshop meeting rooms, catering services, participant accommodations, and general event support;
- Coach America/Raz Transportation provided transportation for the field trip;
- Steve Manning, Invasive Plant Control, Inc. organized and presented the "Management of Invasive Plants: Tools and Techniques" session, which included three workshop presentations;
- Dr. Sarah Reichard gave the "Invasive Species Biology and Ecology in a Landscape Context" presentation at the workshop;
- Tania Siemens gave the "Introduction to Invasive Terrestrial and Emergent Plants, and Early Detection and Rapid Response of New Plant Invaders in the Northwest US" presentation and conducted a species identification lab at the workshop; and

- Kim Edvarchuk gave the “Assessing an Invasive Species Situation: Inventory, Survey, and Mapping” presentation and led several interactive activities at the workshop.

In addition, CIPM also provided travel assistance to the following workshop presenters: Jeffrey Dukes, Virgil Dupuis, Rob McCoy, and Valerie Vartanian.

In-kind Contributions

Documented in-kind and cash contributions for the workshop, totaling more than \$9,500, were made by: CIPM, NISC, the Northwest Weed Management Partnership, Washington State Department of Agriculture, University Place Hotel and Conference Center at Portland State University, and several federal agencies (DoD, USDA–APHIS, USFS, and USFWS). An estimated \$4,000 in additional in-kind contributions of time and materials were also provided by 10 other workshop instructors (see Appendix G: Summary of In-kind Match and Contributions).

Benefits to the Military

The workshop provided a platform for the exchange of ideas, experiences, and resources among participants and instructors. The knowledge gained by participants will help them to strengthen their invasive species prevention and management strategies, develop regional partnerships, educate and provide leadership to other installation personnel and project partners, and advance DoD installation conservation goals.

Products

In addition to coordinating and conducting the five-day workshop, CIPM developed three products that will support participants’ continuing invasive species prevention and management efforts, and help them disseminate workshop information to their staffs and project partners:

Webinar

Three days of classroom presentations were broadcast live via interactive webinar for those unable to physically attend. The broadcasts were recorded and made available on the workshop website shortly after the event.

Invasive Species Resource CD

A CD containing a wide variety of invasive species resource materials from workshop organizers and instructors was compiled and included in the workshop binders. Resource materials included: instructor handouts and references from the workshop, technical papers, fact sheets, and web-based resources. All resource materials included on the CD were also made available on the workshop website.

Workshop Website

CIPM developed a workshop website (www.weedcenter.org/dod2012) to serve as the primary source of information for participants. Prior to the workshop, it contained the agenda, registration information, a pre-workshop homework assignment, and more. Shortly after the workshop concluded, all instructor PowerPoint presentations, webinar audio recordings, a full list of participants, and invasive species resource materials were posted on the website, which will be maintained by CIPM into the future.

Appendix A: Participant List

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Washington State Military Department
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Appendix B: Installation Survey Results Summary

Survey Respondents:

Michael Medina

Regional Pest Management Consultant, Naval Facilities Engineering Command Southwest

Eric Beckley

Natural Resources Manager, US Navy

Jason Gibbons

Conservation Program Manager, Malmstrom Air Force Base

William Vagt

Natural Resources Specialist, Oregon Army National Guard

1. Does your installation have an invasive species management plan (either as a stand-alone plan or as part of a larger installation management plan) already in place? If yes, please answer the following questions. If no, please skip to Question 1(i).

Medina: The Naval Radio Station (Jim Creek, WA) plan is specific to Scotch broom control in antenna field; the Naval Weapons System Training Facility (Boardman, OR) is prioritized management of all invasive species. I am not aware of plans for most of the other installations.

Gibbons: Yes

Vagt: Yes

1(a). Is there a current assessment (within the last five years) of your installation's invasive species problems?

Medina: Not that I am aware of.

Gibbons: Yes

Vagt: No. Invasives management is in the INRMP. Go to: <http://www.oregon.gov/OMD/AGI/ENV/>. Links to the INRMP are on the right hand of the screen.

1(b). Is there a current invasive species map or inventory of your installation? Please summarize or provide a link to it if possible.

Medina: Not known.

Gibbons: Yes

Vagt: No

1(c). Does the plan address all invasive taxa (plants, animals, and insects, as well as terrestrial and aquatic components)?

Medina: No

Gibbons: No

Vagt: No

1(d). What specific taxa does the plan address?

Medina: Plants only

Gibbons: Plants

Vagt: Plants

1(e). Is the plan being implemented?

Medina: Yes

Gibbons: Yes

Vagt: No

1(f). How could your installation's plan be improved or better implemented?

Gibbons: Broaden to include animals and insects

Vagt: Only legally mandated projects are funded

1(g). What were the main challenges you experienced or faced when developing an invasive species management plan for your installation? Explain.

Medina: Some installations (Naval Base Kitsap, Naval Air Station Whidbey Island) are using their grounds maintenance contractors for invasive weed control. They are not trained in conducting invasive weed monitoring and control or proper disposal of plant materials.

Gibbons: Funding for surveys and incorporating data collection procedures into ArcGIS

1(h). Is there a specific portion or aspect of your installation's plan that you would like to discuss during the workshop? Expert advice will be available as part of the workshop. Please provide details about the issue you would like to discuss.

Medina: Developing plans for installations that currently do not have a plan

Vagt: How to kill English holly

1(i). Why hasn't your installation developed an invasive species management plan? Please identify the specific knowledge gaps, constraints, or challenges preventing your installation from developing a plan.

Beckley: Lack of funding. Unless impacting waterways/wetlands; its hard to maintain funding year to year to support a strong program.

2. Are invasive species a priority at your installation? Why or why not?

Medina: Yes. On some installations, particularly ranges and operational areas.

Beckley: Yes. Impact to wetlands or open water has potential to impact ESA listed species. In other areas, a stronger push to reduce/limit landscaping costs means increased use of native plants and removal of invasives.

Gibbons: Prevention of landowner complaints at missile sites; prevention of alarms at missile sites caused by weeds and other vegetation swaying in the wind.

Vagt: No. No money to implement.

3. Do invasive species interfere with your installation's mission? If yes, how do they interfere?

Medina: Yes. Scotch broom at Jim Creek affects operational communications.

Beckley: No. Not at this time.

Gibbons: Yes. They cause outer zone alarms at launch facilities.

Vagt: Yes. Impenetrable thickets of Himalayan blackberries, Scot's broom, English holly, poison oak (native), and hawthorn. Sunset lake is so choked with invasive species it is a listed impacted water under the Clean Water Act and can no longer be used for training. English ivy is a trip hazard.

4. Please identify the three topics that you are most interested in learning more about.

- Developing an invasive species management plan
- Biology and ecology of invasive species
- Integrated threats of invasive species and climate change, fire, or altered hydrology
- Implementing prevention and early detection and rapid response to new invaders
- Preventing the introduction of new invaders through public policy efforts
- Mapping invasive species to assess threats
- Assessing threats and prioritizing for management
- Species identification: terrestrial plants
- Species identification: aquatic plants and animals
- Species identification: insects and pathogens

- Control strategies, tools, and techniques for specific invaders (i.e., what tools and/or herbicide to use)
- Restoration
- Monitoring and measuring impacts, and monitoring management success
- Working to form successful partnerships

Medina:

- Developing an invasive species management plan
- Assessing threats and prioritizing for management
- Control strategies, tools, and techniques for specific invaders

Beckley:

- Developing an invasive species management plan
- Implementing prevention and early detection and rapid response to new invaders
- Assessing threats and prioritizing for management

Gibbons:

- Biology and ecology of invasive species
- Assessing threats and prioritizing for management
- Monitoring and measuring impacts, and monitoring management success

Vagt:

- Biology and ecology of invasive species
- Control strategies, tools, and techniques for specific invaders
- Restoration

4(a). Are there topics that you are interested in learning about that are not listed above? If yes, please list and explain.

Vagt: How to get funding for control measures.

4(b). Would you prefer that we not address any of the topics listed above during the workshop? If yes, please explain.

Beckley: Limit time on Species Identification. Maybe just some nice handouts that can be used in the field? Not enough time for this in a workshop and folks who attend should know this or are working on learning identification. A handout or other tool to use once back at base would be more useful than a slideshow taking up time.

Gibbons: Integrated threats of invasive species and climate change, fire, or altered hydrology. These is the least applicable topic from our perspective.

5. What expectations do you have for a week-long workshop on invasive species? Please be specific.

Medina: Obtaining enough knowledge to be able to advise and provide resources for installations to develop invasive species prevention and control programs.

Beckley: Advice on how to implement a strong invasives plan, how to keep it functioning and up to date, how to prioritize small invasives budgets. Lessons learned from other bases. Applicable NPDES permit info.

Vagt: Good field trips. Seeing successes and failures is always the most informative.

6. Which invasive species (exotic plants, animals, and insects; aquatic nuisance species; or others) are you most concerned about at your installation?

Medina: Exotic plants; gypsy moth; forest pests

Beckley: Knotweed, Spotted knapweed, Thistle spp., Scotch broom, Common teasel, St. Johnswort, Reed canary grass, Japanese knotweed, Tansy ragwort, Common groundsel, Canada goose

Gibbons: Kochia, field bindweed, Russian olive

Vagt: Spurge laurel, barberry, English holly, English ivy, Himalayan blackberries, false dandelion, European iris, European beach grass, purple loosestrife, false brome, reed canary grass, cheatgrass, European pasture grasses, such as orchard grass, Scot's broom, hawthorn, Californian bush lupine, knapweed, and poison oak.

7. Does your installation work across jurisdictional boundaries on invasive species management efforts with public and private agencies and landowners? If yes: Please describe those partnerships and/or working relationships.

Medina: Yes. Jim Creek works closely with USFS; Boardman works with TNC.

Beckley: Yes. USDA for certain wildlife issues.

Gibbons: Yes. We've worked with MT Dept. of Agriculture for weed surveys - cost free cooperative effort. Landowners let us know when our weeds get on their property.

Vagt: Yes. County extension agents, NRCS, State Parks, National Parks, and some NGOs. Mostly seed collection/propagation. It is very difficult to find local native-seed sources.

7(a). What made those partnerships successful or unsuccessful?

Medina: Communication

Beckley: Building good relationships

Gibbons: As the only active-duty installation in MT, our land holdings been overlooked by many natural resources management agencies. Our showing of interest to work with outside agencies has generated a lot of in-kind/cost-free support.

Vagt: Money

7(b). What are the keys to success and what are the major challenges when working within multi-jurisdictional partnerships?

Medina: Effective communication and identifying mutual goals.

Gibbons: Reducing Base access headaches for local, state, and federal employees. USAF funding opportunities have not been the determining factor. Base travel budget and level of Command interest in pursuing off-base cooperative efforts is not high.

Vagt: Grant funding

7(c). If no: Why hasn't your installation worked collaboratively?

—

7(d). What are the keys to success and what are the major challenges when working within multi-jurisdictional partnerships?

—

8. What is your level of knowledge on invasive species ecology and management?

Medina: Much better since I took the Strategic Management of Invasive Species in the Southwest course a couple of years ago. I am more familiar planning, monitoring and control methods. I still can't identify plants!

Beckley: We have a broad range of professionals from foresters, to biologists, marine biologists, geographers, etc. No one is focused solely on this issue; but have worked many projects where invasive removal was the goal.

Gibbons: I have a great deal of knowledge with vertebrate pests via 8 years with USDA/Wildlife Services program. Building knowledge with plant species via 5 years with DoD.

Vagt: Novice

8(a). Describe the general level of knowledge on invasive species ecology and management among other natural resource professionals at your installation.

Medina: There are NR personnel at or supporting the installations that have much more knowledge than I do.

Gibbons: Slight. Our pest management shop focuses on rodents and insects in housing, as well as weed spraying throughout the deployment area (launch facilities and missile alert facilities).

Vagt: Fair

9. How many individuals from your installation do you think would be interested in attending this workshop?

Medina: I don't know

Beckley: 1-6. But hard to predicted due to the federal budget

Gibbons: 4

Vagt: 2

9(a). We will be making one or two days of this workshop available online via web-linked sessions. Do you think that personnel from your installation might participate in the workshop via web-link?

Medina: Yes

Beckley: Yes

Gibbons: Yes

Vagt: No

10. If your installation plans to send one (or more) participants to this workshop, would you be willing to give a short presentation on the current situation of invasive species or a specific project at your installation?

Medina: Yes

Gibbons: No

Vagt: Yes

10(a). If yes: Please briefly describe that situation or project.

Medina: I could provide a regional perspective based on the Southwest installations that I oversee as well.

Vagt: Field trip to Camp Rilea or Camp Adair.

Appendix C: Workshop Agenda and Daily Outcomes

MONDAY, MAY 21

Monday Outcomes

Through presentations, case studies, and group activities on Monday, participants will:

- Understand the concepts and principles integral to invasion biology and ecology;
- Understand the landscape contexts, impacts, and pertinent issues related to invasive species;
- Become familiar with common invasive aquatic species, insects, and pathogens, and potential new invaders to the region; and
- Understand predictions for climate change in the northwest US and learn how to integrate these predictions into management planning.

- 8:00 Introductions and Welcome
Mandy Tu and Liz Galli-Noble, Center for Invasive Plant Management
Department of Defense Welcome
Peter Egan, US Department of Defense
- 9:00 Invasive Species Biology and Ecology in a Landscape Context
Sarah Reichard, University of Washington
- 9:40 Impacts of Invasive Species on Natural Resources and Fire Ecology
Shawna Bautista, USDA Forest Service
- 10:20 Department of Defense Management of Invasive Species
Valerie Vartanian, Naval Facilities Engineering Command (NAVFAC) Southwest
- 10:45 Break
- 11:00 Aquatic Invasive Species in the Northwest US: Impacts to Systems
Mark Sytsma and Robyn Draheim, Center for Lakes and Reservoirs, Portland State University
- 11:30 Lab: Aquatic Invasive Species Identification
Robyn Draheim and Vanessa Morgan, Center for Lakes and Reservoirs, Portland State University
- 12:00 Lunch
- 1:00 Climate Change and Invasive Species: Case Studies on Climate Change Adaptations
Jeff Dukes, Purdue University
- 1:30 Planning for Climate Change at a Department of Defense Facility: A Case Study
Valerie Vartanian, NAVFAC Southwest
- 2:00 Invasive Insects and Pathogens in the Northwest US: Pest Pathways, Prevention, Impacts, and Management
Mark Hitchcox and Gary Brown, USDA Animal and Plant Health Inspection Service (APHIS)
- 2:40 Break
- 3:00 Lab: Common Invasive Plants Threatening the Northwest US, and Weed Biocontrol Agents
Mark Hitchcox and Gary Brown, USDA-APHIS
- 4:00 Group Discussion
- 4:40 Monday Wrap-up and Daily Summary

TUESDAY, MAY 22

Tuesday Outcomes

Through presentations, case studies, and group activities on Tuesday, participants will:

- Become familiar with adaptive management framework for preventing and managing invasive species infestations;
- Understand the strategies most often involved in invasive species management;
- Understand how to implement prevention, and early detection and rapid response efforts at their installation;
- Learn how to assess their installation's invasive species situation and how to prioritize management strategies and actions; and
- Become familiar with common invasive terrestrial and emergent plant species, and potential new invaders to the region.

8:00 Daily Welcome

8:15 Introduction to an Adaptive Management Framework: Goals, Objectives, and Assessing the Situation
Mandy Tu

8:30 Assessing an Invasive Species Situation: Inventory, Survey, and Mapping
Kim Edvarchuk, Utah State University

10:00 Mapping Exercise

10:45 Break

11:00 Mapping Exercise (continued)

11:40 Adaptive Management Framework: Strategies and Priorities
Mandy Tu

12:00 Lunch

1:00 Group Exercise: Strategies and Priorities for Prevention and Management

1:40 Case Study from Camp Adair, Oregon: What Are Your Management Priorities?
Bill Vagt, Oregon Army National Guard, Oregon Military Department, Environmental Branch

2:10 The "Path-ology" of Invasion: Managing Vectors
Paul Heimowitz, US Fish and Wildlife Service, Pacific Region

2:50 Break

3:05 Introduction to Invasive Terrestrial and Emergent Plants, and Early Detection and Rapid Response of New Plant Invaders in the Northwest US
Tania Siemens, Oregon Sea Grant

3:45 Lab: Invasive Terrestrial and Emergent Plant Identification
Tania Siemens, Oregon Sea Grant

4:40 Tuesday Wrap-up and Daily Summary

Evening Event

6:30– Reception co-hosted by the Center for Invasive Plant Management, Department of Defense,
8:00 National Invasive Species Council, and Invasive Species Advisory Committee
Lincoln Station Grill (University Place Hotel)

WEDNESDAY, MAY 23

Field Trip to Joint Base Lewis-McChord

Wednesday Outcomes

Through field tours, presentations, and discussion on Wednesday, participants will:

- Witness firsthand the landscape-scale threats invasive plants pose to active installations;
- Learn how to identify, articulate, and plan for a desired future condition;
- Experience several in-progress invasive plant management and restoration projects;
- Discuss how to measure or quantify their installation's invasive species threats and management progress; and
- Discuss invasive species management tools.

7:50 Meet in the hotel lobby (near the front desk)

8:00 Depart University Place

10:30 Arrive at Joint Base Lewis-McChord and begin tour

2:30 Depart Joint Base Lewis-McChord

~5:00 Arrive at University Place

THURSDAY, MAY 24

Thursday Outcomes

Through presentations, case studies, demonstrations, and group activities on Thursday, participants will:

- Learn about many of the available tools and techniques for managing invasive species infestations;
- Learn how to select the most appropriate management tool for a particular situation;
- Understand the benefits, consequences, and limitations of specific tools and techniques;
- Become more familiar with partnership opportunities in the northwest US involving military installations, including: state and regional invasive species initiatives; ongoing programs of tribes, NGOs, and county, state, and federal land management agencies; and how to participate in Cooperative Weed Management Areas (CWMAs) and Cooperative Invasive Species Management Areas (CISMAs);
- Become more familiar with (and model from) how other installations or land management groups are implementing successful, multi-jurisdictional partnerships at the local, state, and regional scales;
- Learn where to find resources, information, and contacts for partnerships throughout the northwest US; and
- Be immersed in an environment and provided with opportunities (formal and informal) that encourage collaboration and information sharing among installations and other regional invasive species management partners. This will include interactions with university and agency scientists and researchers, and industry experts throughout the week.

8:00 Daily Welcome

8:15 Recap: Adaptive Management Framework and Strategies for Management
Mandy Tu

8:20 Group Exercise: Developing Your Management Plan

Management of Invasive Plants: Tools and Techniques Session

8:45 Management of Invasive Plants: Control Tools and Techniques
Steve Manning, Invasive Plant Control, Inc.

9:45 Developing Bid Specifications for Invasive Plant Control Work
Steve Manning, Invasive Plant Control, Inc.

10:45 Break

11:00 Demonstration: Web Tools
Steve Manning, Invasive Plant Control, Inc.

Missouri River Watershed Coalition EDDMapS
Liz Galli-Noble, Center for Invasive Plant Management

11:35 Group Time: Management Plans

12:00 Lunch

Working Partnerships and Communications Session

1:00 Introduction

Liz Galli-Noble, Center for Invasive Plant Management

1:10 Working with States to Develop Invasive Species Partnerships in the Pacific Northwest

Greg Haubrich, Washington State Department of Agriculture

1:40 Combating Invasive Species

La Donna Carlisle, USDI Bureau of Indian Affairs, Northwest Region (Oregon, Idaho, Washington, and parts of Alaska and Montana)

2:00 Tribal Strategies for Natural Resource/Noxious Weed Management

Rob McCoy, Makah Tribe, Olympic Peninsula, Washington

2:30 Implementing Noxious Weed Management in Tribal, County, State, and Federal Multi-jurisdictional Settings

Virgil Dupuis, Salish Kootenai College (Montana)

3:00 Break

3:15 Proactive Invasive Species Prevention and Management: State and Regional Collaboration

Vern Holm, Northwest Weed Management Partnership

3:45 Coordinating Aquatic (and other) Invasive Species Partnerships at the Regional and National Scale

Paul Heimowitz, US Fish and Wildlife Service, Pacific Region (Oregon)

4:15 Federal, State, and Private Partnerships with the Forest Service and Bureau of Land Management

Shawna Bautista, USDA Forest Service (Oregon)

4:35 Q&A Session

4:45 Thursday Wrap-up and Daily Summary

FRIDAY, MAY 25

Friday Outcomes

Through presentations, case studies, and group activities on Friday, participants will:

- Learn how to apply the topics, concepts, and strategies presented throughout the week to develop an invasive species management plan for their installation;
- Have topics, concepts, and practices learned over the past week reinforced;
- Develop and finalize a list of action steps for their installation's invasive species management plan;
- Participate in a peer review of their management plans; and
- Review their management plan with other participants.

8:00 Daily Welcome

8:15 Recap of the Workshop: Developing a Management Plan

Mandy Tu

8:30 Group Exercise and Case Studies

10:30 Break

10:45 Group Time: Pulling It All Together and Making an Action Plan for Your Installation

11:30 Group Discussion

11:45 Workshop Evaluations

12:00 Adjourn

Appendix D: Webinar Agenda

MONDAY, MAY 21

- 8:00–9:00 Introductions and Welcome
Mandy Tu and Liz Galli-Noble, Center for Invasive Plant Management
Department of Defense Welcome
Pete Egan, US Department of Defense
- 9:00–9:40 Invasive Species Biology and Ecology in a Landscape Context
Sarah Reichard, University of Washington
- 9:40–10:20 Impacts of Invasive Species on Natural Resources and Fire Ecology
Shawna Bautista, USDA Forest Service
- 10:20–10:45 Department of Defense Management of Invasive Species
Valerie Vartanian, Naval Facilities Engineering Command (NAVFAC) Southwest
- 10:45–11:00 Break
- 11:00–11:30 Aquatic Invasive Species in the Northwest US: Impacts to Systems
Mark Sytsma and Robyn Draheim, Center for Lakes and Reservoirs, Portland State University
- 12:00–1:00 Break
- 1:00–1:30 Climate Change and Invasive Species: Case Studies on Climate Change Adaptations
Jeff Dukes, Purdue University
- 1:30–2:00 Planning for Climate Change at a Department of Defense Facility: A Case Study
Valerie Vartanian, NAVFAC Southwest
- 2:00–2:40 Invasive Insects and Pathogens in the Northwest US: Pest Pathways, Prevention, Impacts, and Management
Mark Hitchcox and Gary Brown, USDA Animal and Plant Health Inspection Service (APHIS)
- 2:40–4:00 Break
- 4:00–4:40 Group Discussion
- 4:40–5:00 Monday Wrap-up and Daily Summary

TUESDAY, MAY 22

- 8:00–8:15 Daily Welcome
- 8:15–8:30 Introduction to an Adaptive Management Framework for Invasive Species Management: Making a Plan, Setting Goals and Objectives, Assessing the Situation, and Setting Priorities
Mandy Tu
- 8:30–10:00 Assessing an Invasive Species Situation: Inventory, Survey, and Mapping
Kim Edvarchuk, Utah State University
- 10:00–11:40 Break
- 11:40–12:00 Adaptive Management Framework: Strategies and Priorities for Prevention, Early Detection and Rapid Response, and Management and Control
Mandy Tu
- 12:00–1:40 Break
- 1:40–2:10 Case Study from Camp Adair, Oregon: What Are Your Management Priorities?
Bill Vagt, Oregon Army National Guard, Oregon Military Department, Environmental Branch
- 2:10–2:50 The “Path-ology” of Invasion: Managing Vectors
Paul Heimowitz, US Fish and Wildlife Service, Pacific Region
- 2:50–3:05 Break

- 3:05–3:45 Introduction to Invasive Terrestrial and Emergent Plants, and Early Detection and Rapid Response of New Plant Invaders in the Northwest US
Tania Siemens, Oregon Sea Grant
- 4:40–5:00 Tuesday Wrap-up and Daily Summary

THURSDAY, MAY 24

- 8:00–8:15 Daily Welcome
- 8:15–8:20 Recap: Adaptive Management Framework and Strategies for Management
Mandy Tu

Management of Invasive Plants: Tools and Techniques Session

- 8:45–9:45 Management of Invasive Plants: Control Tools and Techniques
Steve Manning, Invasive Plant Control, Inc.
- 9:45–10:45 Developing Bid Specifications for Invasive Plant Control Work
Steve Manning, Invasive Plant Control, Inc.
- 10:45–11:00 Break
- 11:00–11:35 Demonstration: Web Tools
Steve Manning, Invasive Plant Control, Inc.
Missouri River Watershed Coalition EDDMapS
Liz Galli-Noble, Center for Invasive Plant Management
- 11:35–1:00 Lunch

Working Partnerships and Communications Session

- 1:00–1:10 Introduction
Liz Galli-Noble, Center for Invasive Plant Management
- 1:10–1:40 Working with States to Develop Invasive Species Partnerships in the Pacific Northwest
Greg Haubrich, Washington State Department of Agriculture
- 1:40–2:00 Combating Invasive Species
La Donna Carlisle, USDI Bureau of Indian Affairs, Northwest Region (Oregon, Idaho, Washington, and parts of Alaska and Montana)
- 2:00–2:30 Tribal Strategies for Natural Resource/Noxious Weed Management
Rob McCoy, Makah Tribe, Olympic Peninsula, Washington
- 2:30–3:00 Implementing Noxious Weed Management in Tribal, County, State, and Federal Multi-jurisdictional Settings
Virgil Dupuis, Salish Kootenai College (Montana)
- 3:00–3:15 Break
- 3:15–3:45 Proactive Invasive Species Prevention and Management: State and Regional Collaboration
Vern Holm, Northwest Weed Management Partnership
- 3:45–4:15 Coordinating Aquatic (and other) Invasive Species Partnerships at the Regional and National Scale
Paul Heimowitz, US Fish and Wildlife Service, Pacific Region (Oregon)
- 4:15–4:35 Federal, State, and Private Partnerships with the Forest Service and Bureau of Land Management
Shawna Bautista, USDA Forest Service (Oregon)
- 4:35–4:45 Q&A Session
- 4:45–5:00 Thursday Wrap-up and Daily Summary

Appendix E: Pre-Workshop Homework Assignment

Name:

Installation/Project Site:

The purpose of this assignment is to help you prepare for the discussions and presentations included in the workshop. The assignment requires you to become somewhat knowledgeable about the current status of invasive species at your installation (or project site) as well as your available resources and limitations. This background information will help you throughout the week as you plan your installation's future course of action for invasive species management.

You are expected to spend no more than two hours on this assignment. Please answer the questions below and send your responses to Emily Rindos (emily.rindos@montana.edu) no later than Tuesday, May 15. All completed homework assignments will be included in a workshop folder for other participants to review. If possible, bring a map of your installation or project site with you to the workshop. On your map, indicate two or three invasive species of concern (even just hand-drawn approximations). Maps will be shared with other workshop participants.

Questions

Briefly answer each question in 1–3 sentences.

1. Please state the mission and/or objectives of your installation. How do invasive species interfere with this mission and/or objectives?
2. Does your installation have a stand-alone invasive species management plan? If yes, please include a copy of it with this homework assignment.
3. If your installation does not have a stand-alone invasive species management plan, are invasive species adequately addressed in a larger installation management plan (such as a natural resources work plan)? Explain. If not, how might invasive species issues be addressed?
4. Do you know which invasive species are major threats to your installation? If yes, how were these species identified (for example, interference with installation goals, determined through literature review, or by the state Department of Agriculture)?

5. Is there a recent map and/or assessment (within the past five years) of invasive species distributions on your installation? Do you have an overall understanding of the current status or threats invasive species pose to your installation?

6. Please describe any factors that might make it difficult for your installation to effectively manage invasive species, such as: lack of funding, personnel, or institutional support; restrictions on chemical use; difficulty obtaining permits; or presence of threatened or endangered species.

7. State at least two invasive species management objectives for your installation that you are currently working on or would like to accomplish in the near future. These objectives may include management actions, desired outcomes, or next steps toward assessing your installation's invasive species situation. Make sure that these objectives are SMART (Specific, Measurable, Achievable, Realistic, and Time Sensitive), and also think about what you might use as measurable indicators.

Examples of SMART objectives include:

- Starting in 2012, prevent the establishment of all new invasive plant and/or animal species on my installation.
- By end of 2012, develop a work plan for inventory and survey of invasive species for my installation.
- By 2013, identify all potential pathways for invasive plant dispersal and distribution at my installation.
- By 2014, secure \$15,000 to complete invasive plant surveys across the entire installation.
- By 2015, reduce the mean percent cover of invasive plants to less than 5% of 2010 levels within 3,000 acres of invaded wetlands.

Objective 1:

Objective 2:

Objective 3 (optional):

Appendix F: Evaluation Response Summary

Workshop Evaluation Responses: Monday

Content

Session participants have an enhanced understanding of:

3 = MET THE OBJECTIVE; 2 = SOMEWHAT MET THE OBJECTIVE; 1 = DID NOT MEET THE OBJECTIVE

Objective	Avg. score	Comments
Concepts and principles integral to invasion biology and ecology	2.8	<ul style="list-style-type: none">• Very good background on how and why invasive species are successful or alter environments• Very thought provoking and time given for us to meditate on these topics in applied situations
Landscape contexts, impacts, and pertinent issues related to invasive species	2.7	<ul style="list-style-type: none">• Good overview• A little limited, but this is the first day
Common invasive aquatic species, insects, and pathogens, and potential new invaders to the region	2.8	<ul style="list-style-type: none">• Probably overlooked as threat; eye opener for me
Predictions for climate change in the northwest US and how to integrate these predictions into management planning	2.3	<ul style="list-style-type: none">• Good overview but lower emphasis with general information• Hard to use due to long-term concepts• Still lots of specifics missing

Topics and Instructors

Please score the following session topics and instructors for value and effectiveness:

4 = EXCELLENT; 3 = VERY GOOD; 2 = FAIR; 1 = POOR

Topic	Avg. score	Instructor	Avg. score
Invasive species biology and ecology	3.6	Sarah Reichard	3.4
Invasive species impacts on natural resources and wildlife; integrated threats of invasives and fire	3.2	Shawna Bautista	2.9
DoD management of invasive species at an installation scale	3.2	Valerie Vartanian	3.8
Aquatic invasive species in the northwest US	3.4	Mark Sytsma	3.2
Climate change and invasive species	3.5	Jeff Dukes	3.2
DoD planning for climate change	3.0	Valerie Vartanian	3.5
Invasive insects and pathogens in the northwest US	3.4	Mark Hitchcox Gary Brown	3.5

1. How could Monday's topics and/or exercises be improved?

- Having a break in the afternoon is very important, especially during the first day where there is information overload
- I think more back-and-forth discussion would help
- Use a DoD base example that is more common
- Not much—very good

2. Which topics and/or presentations did you find most valuable for addressing your invasive species management challenges?

- Invasive species presentation by Shawna Bautista
- Biology and ecology, DoD efforts, aquatics, insects and pathogens
- "DoD Management of Invasive Species" presentation by Valerie Vartanian
- Invasive insects and pathogens
- Mark Hitchcox and Gary Brown, Sarah Reichard

Workshop Evaluation Responses: Tuesday

Content

Session participants have an enhanced understanding of:

3 = MET THE OBJECTIVE; 2 = SOMEWHAT MET THE OBJECTIVE; 1 = DID NOT MEET THE OBJECTIVE

Objective	Average score	Comments
Adaptive management framework for preventing and managing invasive species infestations	2.9	—
Effective strategies to abate invasive species threats	2.9	—
How to implement prevention, and early detection and rapid response efforts at their installation	3.0	—
How to assess their installation's invasive species situation and approaches to prioritizing management strategies and actions	2.9	—
Common invasive terrestrial and emergent plant species, and potential new invaders to the region	3.0	—

Topics and Instructors

Please score the following session topics and instructors for value and effectiveness:

4 = EXCELLENT; 3 = VERY GOOD; 2 = FAIR; 1 = POOR

Topic	Avg. score	Instructor	Avg. score
Assessing the invasive species situation: inventory, survey, mapping	3.8	Kim Edvarchuk	3.9
Adaptive management framework: strategies and priorities	3.6	Mandy Tu	3.6
Case study from Camp Adair, Oregon	3.4	Bill Vagt	3.5
Invasive species prevention: managing pathways and vectors	3.3	Paul Heimowitz	3.5
Terrestrial and emergent invasive plants in the northwest US	4.0	Tania Siemens	4.0

1. How could Tuesday's topics and/or exercises be improved?

- I can't think of anything
- Couldn't be improved
- Great class
- No comment, all good
- None
- Good all day

2. Which topics and/or presentations did you find most valuable for addressing your invasive species management challenges?

- Assessing the invasive species situation: inventory, survey, mapping; and Case Study from Camp Adair
- Inventory mapping and survey
- All was good
- Mapping was highlight of day!
- Kim then Mandy and Tania
- Summaries from previous day were excellent! Good examples of other programs
- Mapping/terrestrial and emergent invasives
- Managing pathways and vectors

Workshop Evaluation Responses: Wednesday (Field Trip)

Content

Field trip participants have an enhanced understanding of:

3 = MET THE OBJECTIVE; 2 = SOMEWHAT MET THE OBJECTIVE; 1 = DID NOT MEET THE OBJECTIVE

Objective	Average score	Comments
How an installation might identify, articulate, and plan for a desired future condition	2.7	<ul style="list-style-type: none"> • After the day, I understand the scope of what the installation is trying to accomplish, but not to scale • Very good, showed widespread objectives
Different land management and restoration approaches to achieve a desired future condition	3.0	<ul style="list-style-type: none"> • Very good examples of varied approaches
How they might measure or quantify their installation's invasive species threats and management progress	2.8	<ul style="list-style-type: none"> • Not sure how you can gauge success with such widespread problems

1. *Did you find the field trip relevant, informative, and useful?*

- Overwhelmed with scale of problem; got a better feel for the frustrations of trying to balance the base mission with environmental protection/restoration
- Very relevant! Great to see such a big problem (Scotch broom) controlled on a prairie site. Excellent handout!
- Extremely
- Very much so
- I thought it was worth the distance, made a good comparison
- Yes

2. *How could the workshop field trip be improved?*

- Eliminate rain and Portland traffic
- Less rain
- More bombs, maybe some interactive firing
- Sunshine
- Weather
- More videos on the way, conduct the review on the way home

3. *Which aspects of the field trip did you find most valuable for addressing your invasive species management challenges?*

- Ideas for alternative treatments of Scotch broom
- Great to hear from different managers and their perspectives
- The entire trip. Very well done!
- The amount of invasive species in all areas
- Importance of coordination

Workshop Evaluation Responses: Thursday

Content

Management of Invasive Plants: Tools and Techniques Session

Session participants have an enhanced understanding of:

3 = MET THE OBJECTIVE; 2 = SOMEWHAT MET THE OBJECTIVE; 1 = DID NOT MEET THE OBJECTIVE

Objective	Average score	Comments
Many of the available tools and techniques for managing invasive species infestations	3.0	<ul style="list-style-type: none"> • Very informative • Instructor was great
Considerations for selecting the most appropriate management tool for a particular situation	3.0	<ul style="list-style-type: none"> • Manning talk was very informative
The benefits, consequences, and limitations of specific tools and techniques	3.0	—

Working Partnerships and Communications Session

Session participants have an enhanced understanding of:

3 = MET THE OBJECTIVE; 2 = SOMEWHAT MET THE OBJECTIVE; 1 = DID NOT MEET THE OBJECTIVE

Objective	Average score	Comments
Potential partnership opportunities in the northwest US involving military installations; state and regional invasive species initiatives; ongoing programs with tribes, NGOs, and county, state, and federal land management agencies; and how to engage with CWMAs and CISMAs	2.4	<ul style="list-style-type: none"> • Good talk on CWMAs and invasive plant councils
How other installations and/or land management groups are implementing successful, multi-jurisdictional partnerships at the local, state, and regional scales	2.7	—
Where to find resources, information, and contacts for establishing partnerships	2.7	—

Topics and Instructors

Please score the following session topics and instructors for value and effectiveness.

4 = EXCELLENT; 3 = VERY GOOD; 2 = FAIR; 1 = POOR

Topic	Avg. score	Instructor	Avg. score
Invasive plant management control tools and techniques	4.0	Steve Manning	4.0
Developing bid specifications for invasive plant control work	4.0	Steve Manning	4.0
Working with states to develop invasive species partnerships in the Pacific Northwest	2.8	Greg Haubrich	2.8
Combating invasive species	3.0	La Donna Carlisle	3.2
Tribal strategies for natural resource/noxious weed management	3.5	Rob McCoy	3.4
Implementing noxious weed management in tribal, county, state, and federal multi-jurisdictional settings	3.0	Virgil Dupuis	3.5
Proactive invasive species prevention and management: state and regional collaboration	3.0	Vern Holm	3.2
Coordinating aquatic (and other) invasive species partnerships at the regional and national scale	3.0	Paul Heimowitz	3.2
Federal, state, and private partnerships with the Forest Service and Bureau of Land Management	3.3	Shawna Bautista	3.3

1. *Were the workshop organizers successful in immersing you in an environment and providing you with opportunities (formal and informal) that encourage collaboration and information sharing among installations and other regional invasive species management partners (including interactions with university and agency scientists and researchers, and Industry experts) throughout the week? How so?*
 - Yes, provided contact info of experts
 - Yes/No, yes—great info, no—lots of repeat info
 - Yes, good presentations, very pertinent to our work
 - Yes, I was presented with sufficient information that I know in large part who is responsible for what and where to go for help and information
 - Very much

2. *How could Thursday's topics and/or exercises be improved?*
 - Interactions in the apps, stick to schedule
 - None
 - Need something in afternoon, more interaction with audience
 - Not much—most presenters and presentations have been very good and very interesting
 - The day was well put together

3. *Which topics and/or presentations did you find most valuable for addressing your invasive species management challenges?*
 - Apps—EDDMapS!!! and IPC apps
 - Hands down Steve Manning. Great job
 - Tools!
 - Steve Manning, invasive species management and bid specs
 - The computer-based management systems
 - Steve Manning's topics

Workshop Evaluation: Friday

Content

Session participants were able to:

3 = MET THE OBJECTIVE; 2 = SOMEWHAT MET THE OBJECTIVE; 1 = DID NOT MEET THE OBJECTIVE

Objective	Average score	Comments
Apply the topics, concepts, and strategies presented throughout the week to develop an invasive species management plan for their installation	3.0	—
Develop an invasive species management plan for their installation	3.0	—
Prioritize invasive species for prevention and management	3.0	—
Develop a short list of action steps for their installation's invasive species management plan	3.0	—

Topics and Instructors

4 = EXCELLENT; 3 = VERY GOOD; 2 = FAIR; 1 = POOR

Topic	Avg. score	Instructor	Avg. score
Workshop recap: Developing a management plan	3.7	Mandy Tu	4.0
Participate in a peer review of their management plans	4.0	—	—
Review their management plan with other participants	4.0	—	—

1. How could Friday's topics and/or activities be improved?

- It was outstanding
- Half-way through the exercise, throw in a problem or two—change of commander with new priorities, budget freeze, etc.

2. Which topics and/or presentations did you find most valuable for addressing your invasive species management challenges?

- Hearing others talk
- Invasive Plant Control presentation—good insight into private contractor

Workshop Evaluation: Overall

1. Which days of the workshop did you attend?

- Monday Tuesday Wednesday Thursday Friday

2. Was the workshop applicable to your work in managing invasive species? Explain.

- Yes, provided me some guidelines/template to get my program goals.
- The species talks all pertain to me.
- Yes, a lot of topics that other meetings/workshops have not covered.
- Yes, I work at all levels of invasive species—inventory, prescriptions, coordination, implementation, and evaluations.
- Not in my case, since I deal primarily in non-selective type herbicides. However, many of the people that manage invasive species also manage non-selective sites on their installations.

3. What aspects of the workshop did you find the most valuable?

- Tools: maps, apps, guidelines, networks
- The interchange with others
- Contact with DoD people that I never had a chance to interact with
- Small group numbers, presentations were conversational and informal, allowing interaction and questions
- The topics covered were definitely covered in detail and not just a brief overview on the subject

4. What aspects of the workshop did you find the least valuable?

- Some of the topics were repeated
- None
- All I attended was valuable, great review and new information presented.
- None

5. Did you find the field trip helpful? Explain.

- Yes, able to see on-the-ground progress. Maybe before the field trip and pictures of the site before the management would help show the success in the effort.
- Yes, many of the weed issues discussed were important to me.
- Did not attend due to knee injury.
- Couldn't attend
- Yes, the field trip was helpful. It really showed the challenges that the base is facing, and the decision process that is involved in dealing with them.

6. Please list any additional topics that you would like to see covered in future workshops.

- List of grants available to the public
- I can't think of any.
- Consultation process for ESA listed species. I wish I had training before I got thrown into the fire.

Additional comments:

- Suggest a slide listing the objectives of the day and for the week
- Thanks for letting me attend this workshop. It was very well-planned and covered some very interesting topics.

Webinar Evaluation: Monday, Tuesday, and Thursday

1. *Was the workshop webinar applicable to your work in managing invasive species?*

- Yes, very. I am attempting to update our INRMP and our management philosophy toward invasives in the face of budget constraints and climate change. Very applicable topics.
- Yes, the workshop was directly related to my work—I'm running an invasive plant management program.
- Yes, I coordinate the local weed control district.
- Yes. Some was applicable to concerns with regulatory permitting. Considering efforts to prevent spread of invasive species.
- The Adaptive Management information provided some good reminders, as well as support for much of the work we're already doing.
- Yes, very relevant
- Yes, prioritizing, analyzing risk of projects for spreading other non-natives
- Yes, EDRR is something we need to focus on more at our installation—actually going through the steps and explaining why we manage (or don't manage) how we do.
- Discussions regarding how different entities partner are always helpful, and the presentation about EDDMapS was interesting.
- Yes, Thursday was the best day. We are starting a CWMA and the presentations were interesting.

2. *What aspects of the workshop webinar did you find the most valuable?*

- An excellent platform for webinar. Really liked being able to hear the presenter while seeing the slides.
- The talks at the beginning of the day about invasive plant ecology and biology were especially helpful, as was the climate change talk.
- The prevention and projection tools that have been implemented and monitored.
- Considering pathways of spread and addressing control.
- The adaptive management, inventory and mapping, and EDRR sessions were most valuable to me today.
- I really enjoyed the talk by Kim—very helpful right now because I am in the planning stage and always easier to listen to a talk about it than read a guidebook.
- Tania's and Paul's presentations
- I will find the PPT postings and recorded videos helpful since today's audio-visual process was not working very well on my machine/internet connection.
- For our purposes, the EDDMapS presentation today was most valuable. It was new information, and seems to offer options to existing mapping programs.

3. *What aspects of the workshop webinar did you find the least valuable?*

- The mic had limited range and was sometimes problematic (could hear lots of paper and clothing movement). But overall it was great.
- Climate change case study
- The specific site activities whose landscape differs vastly from that in which I work
- Staying close to the schedule would be helpful but I found all the talks I listened to on Tuesday to be helpful—missed the case study and pathology talk.
- Case study from Camp Adair
- The presenter that kept asking the audience questions to make the presentation—unless we can hear the audience members, this means that webinar folks only get the question (but thanks for summarizing the questions in the comment field). The lag was somewhat off-putting.

4. *If offered, would you consider participating in another invasive species workshop webinar?*

Yes: All responded "yes" No: —

Explain:

- Yes, definitely! It is sometimes tough for me to get out of Alaska, even to Portland. Being able to

- stream the conference (and ask questions of the presenters!) is a very close second to being there.
- This type of format is very easy to participate in from both a workload and getting-approval perspective.
 - Techniques are always being tested and refined—more of similar topics.
 - I'd make sure to have EXCELLENT internet connection though, since A/V issues are distracting.

5. *List any additional topics you would like to see covered in future workshops or webinars.*

- Creating and maintaining good partnerships to accomplish education/outreach and on-the-ground control
- Additional topic suggestion: ideas for sources of funding for DoD installations who keep getting their money diverted from higher levels. Specifically if USFWS or BLM is presenting—maybe they could talk about partnerships with DoD and what Cooperative Agreements exist to pursue collaborative management. Or perhaps with TNC since Ft. Lewis works with them quite a bit—Or research organizations working with DoD. Anything to help DoD managers feel a little more useful in tackling a big problem with dwindling money, staff, and institutional motivation (outside the legal, but unenforceable, mandates).
- Specific information regarding training citizens to help with inventories and/or monitoring efforts; discussion on how to motivate legislation to uphold existing legal requirements and support new funding efforts with respect to invasive species prevention and control.

Additional comments:

- I will ideally be attending all days of the webinar, so this survey is just for Monday or in case I get pulled away the rest of the week.
- The sound was cutting in and out a bit and half of the time the slides were not showing up.
- Thanks so much for holding this workshop! It takes a lot of effort to put these together.

Appendix G: Summary of In-kind Match and Contributions

Contributor Name and Affiliation	Description of Contribution	Amount (rounded to nearest \$)
Elizabeth Galli-Noble <i>Director, Center for Invasive Plant Management</i>	Food for workshop: •May 23 field trip lunch for participants and presenters	\$563
Lori Williams <i>Executive Director, National Invasive Species Council</i>	Sponsorship of May 22 evening networking event (food and non-alcoholic beverages)	\$500
Greg Haubrich <i>Noxious Weed Coordinator, Washington State Department of Agriculture</i>	Workshop instructor: •Professional services •Travel, per diem, and lodging	\$921
Valerie Vartanian <i>Natural Resource Specialist, US Navy</i>	Workshop instructor: •Professional services •Per diem expenses	\$1,772
Mark Hitchcox <i>Pest Survey Specialist, USDA-APHIS Plant Protection and Quarantine</i>	Workshop instructor: •Professional services •Parking fee	\$765
Shawna Bautista <i>Regional Invasive Plant and Pesticide Use Coordinator, USDA Forest Service</i>	Workshop instructor: •Professional services •Travel expenses	\$293
Gary W. Brown <i>Officer, USDA-APHIS Plant Protection and Quarantine</i>	Workshop instructor: •Professional services •Handouts and booklets	\$756
Vern Holm <i>Coordinator, Northwest Weed Management Partnership</i>	Workshop instructor: •Professional services •Travel	\$104
Total Match		\$6,337

Other Contributions:

1. Documented University Place at Portland State University reduce rate for sleeping rooms:

Standard room rate: \$159 + tax; Reduced workshop room rate: \$79 + tax

Nine workshop participants stayed a total of 40 nights = 40 x \$80 = \$3,200

2. An estimated \$4,000 in additional in-kind contributions of time and materials were made by the following workshop presenters:

- Virgil Dupuis, Salish Kootenai College (Montana)
- Rob McCoy, Makah Tribe (Washington)
- Mark Sytsma, Robyn Draheim, and Vanessa Morgan, Center for Lakes and Reservoirs, Portland State University (Oregon)
- Jeffrey Dukes, Purdue University (Illinois)
- William Vagt, Oregon Army National Guard, Oregon Military Department Environmental Branch
- Todd Zuchowski, David Clouse, Jeffrey Foster, and Nancy Benson, Joint Base Lewis-McChord (Washington)
- Casey Dennehy, Center for Natural Lands Management (Oregon)
- LaDonna Carlisle and Simone Ballard, Bureau of Indian Affairs Northwest Region

Total In-kind and Cash Match Contributions = \$13,537

Note: Documentation for above-stated in-kind match and other contributions are on file with the Center for Invasive Plant Management at Montana State University.