

Appendix 1: Pacific Region Template of Programmatic Guidelines to Minimize the Introduction of Invasive Species by Service Activities

This template is associated with the Pacific Region's Policy on Minimizing the Introduction of Invasive Species by Service Activities and utilizes terms defined in that document. Programs have the flexibility to use some or all of the **optional prevention guidelines provided in this template**, or to develop other customized guidelines that best fit their range of activities. Appendix 2 is a compendium of detailed decontamination and risk assessment procedures and references to support development of prevention guidelines.

Note that the Service lacks standardized methods to prevent the introduction of invasive species due an absence of consistent effectiveness data for prevention techniques, scarcity of protocols that are uniformly accepted by other natural resource agencies, and the propensity of cases where multiple invasive species risks need to be managed simultaneously. However, some Federal, State, Tribal or other jurisdictional requirements do mandate the use of specific prevention protocols for certain situations, and Program guidelines need to incorporate those requirements when warranted (see Appendix 3 for a list of applicable laws, regulations, and policies).

A. Field Activities by Program Employees

1. Risk Evaluation

For field activities that have an uncertain risk of invasive species introduction, and therefore require further assessment in order to determine effective prevention guidelines, a risk evaluation approach will be utilized that incorporates the following:

- Description of the activity, including listing of each associated task or phase that could introduce invasive species.
- Identification of potential invasive plants, animals, and other organisms (including pathogens and parasites) that could be introduced during each task or phase associated with the activity, and assessment of the significance of each associated risk based on probability and potential impact.
- For each significant risk: Identification of at least one prevention tactic that will reduce the risk to acceptable levels.
- For each prevention tactic to be applied to the activity: Identification of the tactic's limits, methods to measure those limits or determine that the tactic is providing sufficient prevention, and methods to take corrective action when it is not.

The [Hazard Analysis and Critical Control Point \(HACCP\)](#) process is one option for applying the above approach; more information about HACCP and other risk assessment options can be found in Appendix 3.

The Service lead for the activity will sign off on the resulting risk evaluation product, and develop and implement any activity-specific prevention protocols warranted by the risk evaluation findings.

For several of the seven critical elements identified within Section 2.B of the Pacific Region Policy on Minimizing the Introduction of Invasive Species by Service Activities (for example "Inspection, Removal, and Decontamination"), optional prevention guidelines in this Appendix are organized into Level 1 (low risk situation) and Level 2 (high risk situation). Note that categorizing risk is context-dependent, and Programs should consider the scope of their activities when considering how to apply the Level 1/Level 2 framework. More information on methods to assess and categorize risk can be found in Appendix 2.

Examples of Level 2 (high risk situations) may include activities:

- Within designated wilderness

- Affecting sensitive caves
- On remote islands
- Within post-fire areas
- In pristine, uninvaded terrestrial ecosystems or water bodies
- Movement between still-water habitats (lakes, marshes, or ponds) that have no surface water connection to streams or other aquatic habitats

2. Low-risk sources of materials

- **Plants:** When possible, use locally-sourced materials that would not present any invasive species risks not already found extensively at the activity site. Plants, seeds, and bulbs necessary for habitat restoration or other purposes should be from sources certified as free of invasive species (including weed seeds) or otherwise evaluated to ensure that they are not harboring invasive species.
- **Hay and other animal feed:** Use certified weed-free hay and other feed products when available. Feeding operations should occur in established feed sites to reduce the potential introduction of invasive species to other areas. Survey feed sites frequently for new introductions, and treat accordingly.
- **Soil and other non-woody fill material:** When possible, use locally-sourced materials that would not present any invasive species risks not already found extensively at the activity site. Soil, rocks, gravel, mulch, and other fill material needed for habitat restoration, road construction, or other purposes should be from sources that have been screened for the presence of invasive species or quarantined to evaluate invasive species presence prior to transport.
- **Water:** When possible, water transported for fire management, irrigation of newly planted materials, or other purposes should come from potable sources, non-invaded water bodies, or be certified to be free of aquatic invasive species.
- **Wood:** When possible, use locally-sourced materials that would not present any invasive species risks not already found extensively at the activity site. Logs, branches, and other natural woody material for habitat restoration or other purposes should be inspected and treated to make sure they are not harboring invasive species, including wood-boring insects. Acquire firewood from clean sources.

3. Reduce Exposure: Take measures to minimize contact with invasive species at field sites to reduce the potential for unwanted introductions, recognizing that some activities may require contact for control or other purposes.

- Employees working in invaded sites should be acquainted with the status and location of known invasive species that occur along trails, roads, riparian zones, or other sites where exposure vulnerability is significant. Where possible, avoid routes of transit through areas of heavy invasive species density.
- When working in partially invaded areas, work in invaded portions last to avoid introduction into uninvaded portions. Follow field work in invaded areas with inspection, removal, and decontamination as soon as practical (see Section A.4 Inspection, Removal, and Decontamination below).
- In flowing waterways, start upstream and proceed downstream to avoid introducing invasive species to upstream areas.
- When feasible, park vehicles on pavement, gravel, or other sites that are away from vegetation; or in designated parking (for example, hunter or visitor use) or management access areas that help contain the spread of invasive species.
- When feasible, avoid activity in areas when invasive species are in flowering or seed stage.
- Minimize wading; consider using bank sampling poles instead when feasible.
- Avoid running boats onto sediment when feasible.

4. Inspection, Removal, and Decontamination:

a. Terrestrial field gear and equipment

Unless an activity has been determined to have no risk of introducing invasive species, one or more of the following actions should be taken (a) before going into the field, (b) before moving between field sites, and (c) before or upon return from field site:

- Level 1 (Low risk situation):
 - Inspect gear and equipment, and use a stiff-bristled brush or other appropriate cleaning tool to remove all visible debris, with special attention to frequently overlooked and more prone areas (such as laces and treads of boots; folds of packs).
- Level 2 (High risk situation):
 - As conditions allow and warrant, apply at least one additional cleaning or decontamination method, including but not limited to pressurized water spray (using hot water when appropriate to the conditions and invasive species risk), brushes, freezing, and chemical decontaminants.
 - Use of the latter is contingent upon avoiding unacceptable harm by the chemical agents to human health and safety, gear and equipment, or the environment.
 - Launder washable items after each trip.
 - Use dedicated field gear for each site with unique invasive species risks. Dedicated gear does not need to be cleaned or decontaminated after each use if labeled and kept isolated from other equipment to avoid cross-contamination.

b. Terrestrial vehicles

Unless an activity has been determined to have no risk of introducing invasive species, one or more of the following actions should be taken (a) before going into the field, (b) before moving between field sites, and (c) before or upon return from field site:

- Level 1 (Low risk situation):
 - Inspect vehicles and use an appropriate cleaning tool to remove all visible debris.
 - The inside of field vehicles should be vacuumed, and the exterior should be thoroughly washed and truck beds swept out, recognizing this may not always be feasible when moving between field sites. Consider use of commercial car washing facilities when available.
- Level 2 (High risk situation): Level 1 procedures must be conducted prior to conducting Level 2 procedures.
 - Wash vehicles by hand, directing special attention to seats, floors, door jambs, truck bed, grill, tires (especially treads), bumpers, wheel wells, and undercarriage. Visually inspect and clean the engine compartment, specifically the area at the base of the front window, where plant material can accumulate.

c. Water-based field gear and equipment

Unless an activity has been determined to have no risk of introducing invasive species, one or more of the following actions should be taken (a) before going into the field, (b) before moving between field sites, and (c) before or upon return from field site:

- Level 1 (Low risk situation):
 - Practice “[Clean, Drain, Dry](#)” upon leaving water body
 - Use a stiff-bristled brush to remove any visible sediment, organisms, or debris from surface areas of any equipment that was in contact with the water (such as stadia rods, temperature loggers, and waders); pay special attention to small crevices such as wader laces and net corners.
 - Drain any water back into the water body from which it came or in a suitable disposal facility.
 - Rinse all surface areas with potable water (including the stiff-bristled brush or other cleaning tool).
 - Dry thoroughly, preferably for at least 48 hours.
- Level 2 (High risk situation): Level 1 procedures must be conducted prior to conducting one or more Level 2 procedures.
 - Immerse equipment in 140° F or hotter water for at least five minutes. If necessary, weigh it down to ensure it remains immersed.
 - Place in a freezer 32°F or colder for a minimum of 8 hours.
 - Use chemical decontaminants appropriate to the invasive species risk, and contingent upon avoiding unacceptable harm by the chemical agents to human health and safety, gear and equipment, or the environment.
 - Dry gear at least 5 days before going to other waters and landings.
 - Use dedicated field gear for each site with unique invasive species risks. Dedicated gear does not need to be cleaned or decontaminated after each use if labeled and kept isolated from other equipment to avoid cross-contamination. Dedicated gear must be decontaminated using Level 2 (High risk situation) prior to use in another water body.

d. Watercraft Decontamination

Unless an activity has been determined to have no risk of introducing invasive species, one or more of the following actions should be taken (a) before going into the field, (b) before moving between field sites, and (c) before or upon return from field site:

- Level 1 (Low risk situation):
 - Thoroughly inspect watercraft, trailer, and associated equipment; remove all plants, mud, or other debris and dispose in the trash.
 - Drain all water from watercraft and dry all areas, including motor, motor cooling system, live wells, bilges, and lower-end unit.
- Level 2 (High risk situation): Level 1 procedures must be conducted prior to conducting one or more Level 2 procedures.
 - Upon return to base facilities, pressure-wash the watercraft and trailer with 140° F water, including all of the boat equipment (such as ropes and anchors) that came into contact with the water.
 - Flush the engine with 140° F water (measured at the point of contact, or 155° F at the nozzle) for at least 10 minutes and run 140° F water through the live wells, bilges, and

all other areas that could contain water. To ensure 100 percent mortality the water needs to be 140° F at the point of contact or 155° F at the nozzle.

5. Movement of Animals

- Level 1 (Low risk situation):
 - Ensure that any movement of animals, as well as discharge of water or other media associated with movement of those organisms, complies with existing Service protocols for controlling pathogens, parasites, and toxins that can cause disease (for example, [713FW 5: Special Case Aquatic Animal Movements and Controlled Propagation Programs](#); refer to Appendix 2 for other related protocols)
 - When traveling with a dog, horse, or other animal, check their fur, paws and hoofs, and tail before entering and leaving a site; and remove caked mud, dirt clods, reproductive plant parts (seeds, berries, fruit, cones, flower or seed stalks, and roots), and feces. Ensure the animals are dry before allowing them to contact a new water source.
- Level 2 (High risk situation): Level 1 procedures must be conducted prior to conducting Level 2 procedures.
 - Apply quarantine procedures when other decontamination methods are insufficient to minimize invasion risks.

6. Reducing Invasive Species Introductions by Visitors

- Level 1 (Low risk situation):
 - At key locations on Service lands and facilities, and via the internet or other electronic means as warranted, provide information that helps visitors understand the impacts of invasive species and how they can minimize introductions through simple methods (such as cleaning footwear prior to entry and exit). When appropriate, incorporate widely-used invasive species outreach messages or graphics (for example, "[Clean, Drain, Dry](#)"). Provide information about known on-site invasive species that helps visitors understand how to avoid inadvertent contact that could lead to introduction of those species to uninvaded areas.
- Level 2 (High risk situation): Level 2 procedures should be conducted in addition to Level 1 procedures.
 - At key points of entry to Service lands and facilities, provide resources (for example, boot brushes; boat-washing equipment) to facilitate decontamination of visitor gear, vehicles, clothing, animals, or other potential pathways of invasive species introduction.
 - For highly sensitive habitats, such as remote islands, caves, or post-fire areas, institute mandatory protocols for quarantine, dedicated materials, and/or mandatory decontamination (for example, require use of new footwear, clothes, and soft gear that have all been frozen for at least 48 hours prior to arrival).

B. Service Funding of Partner Field Activities

1. When providing funding to partners for field activities that could introduce invasive species, Program employees should consider the risk of invasive species introduction from the funded work and incorporate prevention stipulations into funding agreements and contracts as warranted, selecting from at least one of the following provisions:

- Prior to implementing any field-based activities, the funding recipient shall conduct a risk evaluation (such as HACCP plan) and receive Service approval prior to finalization and implementation of the associated prevention measures.
- Prior to implementing any field-based activities, the funding recipient shall: [insert any applicable elements of Sections A.1-A.6 above].

C. Service Oversight of Other Parties' Field Activities

1. When providing regulatory and technical oversight over field activities by other parties (including but not limited to Refuge Special Use Permit, Endangered Species Act consultations, Section 10 Incidental Take Permits, and project environmental reviews) that could introduce invasive species, Program employees should consider the risk of invasive species introduction and incorporate stipulations or recommendations as warranted, including the following potential provisions:
 - The activity lead should (or “shall”, if warranted or authorized) consider the inadvertent introduction of invasive species by the activity, identify invasive species that occur at the activity site or may be introduced from other sites, and establish prevention measures that will reduce the risks.
 - Prior to implementing any field-based activities, the activity lead should (or “shall”, if warranted or authorized) conduct a risk evaluation (such as HACCP plan) and receive Service approval prior to finalization and implementation of the associated prevention measures.
 - Prior to implementing any field-based activities, the activity lead should (or “shall”, if warranted or authorized): [insert any applicable elements of Sections A.1-A.6 above].