

## Reducing Accidental Introductions of Invasive Species Prevention Protocols for Land and Water

Invasive species often are spread accidentally by humans. The Washington State Invasive Species Council has developed protocols recommended for use when working or recreating outdoors to prevent the inadvertent spread of invasive species.

### Terrestrial Protocol

#### 1. Minimize contact.

In general, stay on trails or cleared paths to minimize contact between yourself and potential sources of invasive species, particularly mud and weeds. This can include the following:

- Avoid walking, driving, or mowing through weed patches when seeds are present.
- Stay on trails and avoid walking through areas of tall grass or brush.

Seek out basic information about where high-priority invasive species are known to occur, and pay particular attention to minimizing contact with them. Location information is found on the following Web sites:

- [www.invasivespecies.wa.gov/documents/BAP\\_Maps.pdf](http://www.invasivespecies.wa.gov/documents/BAP_Maps.pdf)
- [www.ecy.wa.gov/programs/eap/lakes/aquaticplants/index.html#classa](http://www.ecy.wa.gov/programs/eap/lakes/aquaticplants/index.html#classa)

#### 2. Inspect and clean.

**After being outdoors**, inspect and clean all equipment and clothing that touched soil or vegetation.

- Remove any visible vertebrates, invertebrates, plants, plant fragments, seeds, algae, and dirt. If necessary, use a scrub brush and rinse with clean water either from the site or brought for that purpose. Continue this process until the equipment and apparel are clean. If on-site cleaning is not an option, clean equipment at a commercial car wash facility.
- For vehicles and other large equipment, pay particular attention to the undercarriage and treads of tracks and tires (see Figure 1). Brushing and using a high-pressure wash (with or without hot water) are effective options.

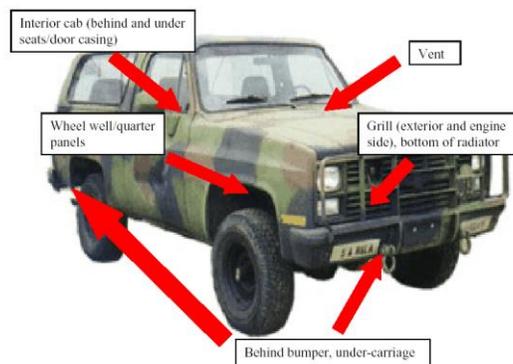


Figure 1. Recommended inspection sites for large equipment (USACE, 2006).

# Aquatic Protocol

## 1. Minimize contact.

Conduct field activities to minimize contact between equipment and potential sources of invasive species, particularly aquatic plants, sediment, and weeds. This may include the following:

- Minimize wading and avoid running boats onto sediment. For example, use bank sampling poles instead of wading.
- Avoid getting plants, sediment, and fish inside boats or other sampling gear.
- Use a catch pan underneath dredges, etc., to keep potential invasive species off boat decks and out of bilges.

Seek out basic information about where high-priority invasive species are known to occur, and pay particular attention to minimizing contact with them. Location information is found on the following Web sites:

- [www.invasivespecies.wa.gov/documents/BAP\\_Maps.pdf](http://www.invasivespecies.wa.gov/documents/BAP_Maps.pdf)
- [www.ecy.wa.gov/programs/eap/lakes/aquaticplants/index.html#classa](http://www.ecy.wa.gov/programs/eap/lakes/aquaticplants/index.html#classa)

## 2. Clean, Drain, Dry.

**After working in the water**, inspect and clean all equipment (see Figure 2 for boat example) and clothing that touched the water, dirt, and vegetation.

- **CLEAN** – Remove any visible vertebrates, invertebrates, plants, plant fragments, seeds, algae, and dirt. If necessary, use a scrub brush and rinse with clean water either from the site or brought for that purpose. Continue this process until the equipment is clean.
- **DRAIN** all water in bilges, samplers, and other equipment that could hold water before leaving the site.
- **DRY** – Fully wiped down all equipment until dry.



Figure 2. Recommended inspection sites for boats ([www.100thmeridian.org](http://www.100thmeridian.org)).

### 3. If possible, decontaminate.

The treatment options listed in the table below use temperature (heat or cold) or chemicals to ensure that any species or pathogens that may have been missed during the initial treatment will be killed. **At this time, hot water and drying are the recommended treatments for large equipment such as boats and boat trailers.**

Decontamination treatments should take place where the procedure can be carried out effectively and safely. For all chemicals, follow the pesticide label and read the material safety and data sheet. Keep in mind that wash and rinse water must not drain to surface water, and all chemicals must be disposed of according to applicable regulations.

Decontamination Options for Aquatic Invasive Species

Treatment	Concentration or Temperature	Exposure Time	Comments
Hot water wash or soak	60° C (140° F)	5 minutes for felt-soled boots and nets; 10 seconds for all other equipment	Ensure all parts of the equipment reach temperature for the full exposure time.
Cold/Freezing	-4° C	4 hours minimum	Time starts after the equipment reaches -4° C.
Drying	low humidity, in sunlight is best	48 hours on average (temperature and humidity dependent: see dry time calculator link below)	Time starts after the equipment is thoroughly dry.
Formula 409 All-Purpose Cleaner <sup>1</sup>	100 percent (full strength)	10 minutes	Follow proper procedures for storage and handling.
Hydrogen peroxide	30,000 ppm (3 percent)	15 minutes	Spray on until soaked, then keep damp for contact time (cover or place gear in a dry bag)

<sup>1</sup> Must be antibacterial. (Make sure it has quaternary ammonia, otherwise it is ineffective.)

### Specialized Considerations for Construction and Restoration Projects

- Avoid moving weed-infested gravel, rock, and other fill materials to relatively weed-free locations. Gravel and fill should come from weed-free sources. Inspect gravel pits and fill sources to identify weed-free sources.
- Identify existing noxious weeds along access roads and control them before equipment moves into relatively weed-free areas.
- Minimize the removal of roadside vegetation during construction, maintenance, and other ground-disturbing activities.
- Use only certified, weed-free straw and mulch for erosion control projects. Consider the use of weed-free fiber roll barriers or sediment logs.

- Keep construction sites that are in relatively weed-free areas closed to vehicles that are not involved with construction.
- Provide training to management and workers on the identification of noxious weeds, the importance of noxious weed control, and measures to minimize their spread.

### **Additional Information:**

- Dry Time Calculator, [www.100thmeridian.org/emersion.asp](http://www.100thmeridian.org/emersion.asp)
- Stop Aquatic Hitchhikers, [www.protectyourwaters.net](http://www.protectyourwaters.net)
- Hazard Analysis and Critical Control Points planning, [www.haccp-nrm.org](http://www.haccp-nrm.org)
- U.S. Forest Service Noxious Weed Prevention, [www.fs.fed.us/invasivespecies/documents/FS\\_WeedBMP\\_2001.pdf](http://www.fs.fed.us/invasivespecies/documents/FS_WeedBMP_2001.pdf)
- U.S. Bureau of Reclamation Equipment Inspection and Cleaning Manual, [www.usbr.gov/mussels/prevention/docs/EquipmentInspectionandCleaningManual2010.pdf](http://www.usbr.gov/mussels/prevention/docs/EquipmentInspectionandCleaningManual2010.pdf)