

Aquatic and Riparian Effectiveness Monitoring Program Interagency Monitoring Program – Northwest Forest Plan

Invasive Species Disinfection Protocol

Invasive species are increasingly becoming a matter of concern in the Pacific Northwest. Species such as the New Zealand mud snail have been detected in stream systems of 9 Western states (including Oregon's Columbia River estuary) and are steadily expanding their range. The Aquatic and Riparian Effectiveness Monitoring Program, hereafter referred to as "the program," works in the field across the Northwest Forest Plan area (all federal lands from Point Reyes National Park to the Canadian border and from the Pacific Ocean to the eastern flanks of the Cascade mountains) in a variety of aquatic and terrestrial habitats. Because of the spatial extent to which the field crews travel, the potential to serve as a vector for exotic species and diseases is great. The program has proactively developed this protocol as a mechanism to reduce the potential for spreading exotic species and diseases. The procedures that follow assume that all appropriate field gear starts each trip into the field in a clean (disinfected) state.



New Zealand mud snails are small (< 5mm) and extremely prolific. Each female broods from 20-120 embryos each year.

Survey gear to be disinfected:

- Large electrofishing dip net and handle
- Small electrofishing dip net and handle
- Macroinvertebrate collection vessel
- Macroinvertebrate net and handle
- Decanting sieve
- Wading boots
- Chest waders
- Neoprene booties
- Periphyton collection toothbrush
- Fingernail brush (supplied for scrubbing mud from gear)

Disinfection equipment provided:

Field crews

- Large 40 gallon Tupperware bin (stored at Corvallis headquarters)
- Bleach
- Stiff bristle fingernail brush
- Car wash certificates

QAQC, Trend site and Reconnaissance crews

- Propane burner stand
- Propane
- Large quart canning pot
- Stiff bristle fingernail brush
- Metal tongs
- Large 40 gallon Tupperware bin
- Bleach
- Reimbursement for carwashes

Field Crews

Survey crews perform the initial visit to a watershed, surveying multiple sites but remaining within the watershed boundary the entire work stint.

- 1) At the site: Before leaving the stream all waders, boots, nets and net handles, carried to the site that day, will be rinsed with stream water and any mud or dirt will be scrubbed off with a stiff bristle fingernail brush.
- 2) At camp: The gear should be hung to dry overnight and rigorously shaken out the next morning to remove any remaining debris/organisms.
- 3) In Corvallis: The crew disinfects their waders, boots and nets in a standard bleach solution (5ml bleach per 1 liter water).
 - a. Fully immerse boots (laces as well), waders, nets and net handles in large tub with bleach solution for a minimum of 2 minutes.
 - b. Remove gear from tub and lay out or hang up outside for 10 to 15 minutes to remove any excess water. Hang equipment in cages over the break and allow for it to dry for the entire duration (5-6 days) between the field trips.
 - c. Before packing the bags on departure day, the crew should shake out all the waders, boots and nets to remove any residual mud or debris.

Note: These techniques only apply if the gear will have the full 5-6 days to thoroughly dry between trips in the field. If this is not the case, please refer to the steps below for QAQC and Trend crews.

QAQC, Trend Site and Reconnaissance Crews

Quality control and Trend crews will travel to multiple watersheds during a work stint, sometimes visiting two separate watersheds in one day. These steps will be completed before entering and working in a new watershed.

- 1) At the site: Before leaving the stream all waders, boots and nets will be rinsed and any mud or dirt will be scrubbed off.
- 2) At camp:
 - a. Bring bleach solution (5ml bleach per 1 liter water) to a rolling boil using a large canning pot and propane burner stand. Completely submerge all surfaces of nets, waders, neoprene booties and boots (making sure not to miss the eyelets of the wading boots). If a piece of gear is too large to fit in the pot, pour boiling water over the gear ensuring all the surfaces have been



New Zealand mud snails are small enough to be transported in the eyelets of wading boots making it important for crews to fully submerge their boots in the boiling bleach solution.

covered with substantial amounts of the solution. (Boiling water is the best method found that will kill the New Zealand Mud Snail and needs to be done after each site before traveling into the next watershed.)

- b. The gear should then be hung to dry overnight and rigorously shaken out the next morning to remove any residual mud or debris.

Vehicles

The tires and undercarriage need to be sprayed off with a high pressure hose (if available, check at a nearby government field station or office) or by going through a car wash.

For QAOC, Trend site and Reconnaissance crews: The vehicle should be cleaned of mud before driving (use a high pressure commercial carwash whenever possible) into the next watershed.

Field Crews: Back in Corvallis the vehicles will be run through a car wash to ensure the undercarriage is clean and free of debris.



Mud transported on vehicles has been proven to carry and be a major cause of spreading multiple species of invasive weeds as well as Sudden Oak Death Syndrome and Port Orford Cedar root rot. Here, an AREMP crew has taken their vehicles to a car wash where they will use high pressure hoses to ensure all mud and debris have been removed from tires and undercarriages.

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