Aquatic and Riparian Effectiveness Monitoring Program

Interagency Monitoring Program – Northwest Forest Plan Area

New Zealand mudsnail photo by D.L. Gustafson

Aquatic Invasive Species Survey Report 2007 Field Season

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A copy of this report is available on our watershed monitoring website:
http://www.reo.gov/monitoring/reports/watershed-reports-publications.shtml

Background:
In 2007, the Aquatic and Riparian Effectiveness Monitoring Program (AREMP) collaborated with personnel from the U.S. Forest Service (USFS) and Oregon State University Sea Grant College Program and Extension (OSU) services to incorporate surveys for aquatic and riparian invasive species. Invasive species have been identified as one of four critical threats to the Nation's ecosystems by the Chief of the USFS. The broad geographic area sampled by AREMP provides an excellent opportunity to monitor aquatic invasive plants and animals while working in randomly-selected watersheds from Point Reyes, California north to the Canadian Border, providing information for planning control efforts at a program and project-scale.

Development:
In early 2007, personnel from AREMP, OSU, and the USFS met to develop an Aquatic Invasive Species Early Detection/Rapid Response (AIS EDRR) protocol that outlines how field personnel collect data on thirteen species of plants and animals considered of primary concern to Northwest National Forest waterways as well as fourteen species of secondary concern. The species of concern were chosen on three criteria (see Table 1 for the list of species of primary and secondary concern):

1. The species is on the Oregon Department of Agriculture's A list (http://www.oregon.gov/ODA/PLANT/WEEDS/statelist2.shtml) or the Oregon Invasive Species Councils 100 most dangerous list (http://oregon.gov/OISC/most_dangerous.shtml); *or*
2. The species has a large management program which could benefit from additional spatial distribution knowledge; *and*
3. The species invades stream or riparian habitats, is not yet widely distributed on National Forest lands, and constitutes a significant threat to National Forest aquatic ecosystems.

The initial planning efforts also included data form design, data management, and reporting mechanisms. Tania Siemens and Sam Chan of OSU developed a field protocol which incorporates opportunistic searches for aquatic invasives while field crews perform their standard watershed monitoring protocols.

Tania Siemens trained AREMP field coordinators and crew leaders. Tania provided training on why AIS EDRR is important, field identification of the eleven primary invasive species of concern, as well as documentation and reporting procedures. Tania was well prepared with materials such as custom made photo guides and protocols and was able to bring some live specimens as examples. Additional training was then provided to field crew members by AREMP staff using materials provided by OSU and the USFS.

Results:
Throughout the 2007 field season (June through September), AREMP field crews surveyed 149 sites in 31 unique watersheds (Figure 1) for invasive species in addition to performing their standard watershed monitoring protocol. Himalayan Blackberry, an invasive on the secondary list of concern, was documented at seven different sites in three watersheds. Also, seven other identifications of invasive species (five snails and two plants) were recorded. However, after samples or photographs were examined by Sam Chan of OSU for confirmation, these seven detections were deemed to be misidentifications of native species. AREMP crews found no other aquatic invasive species.

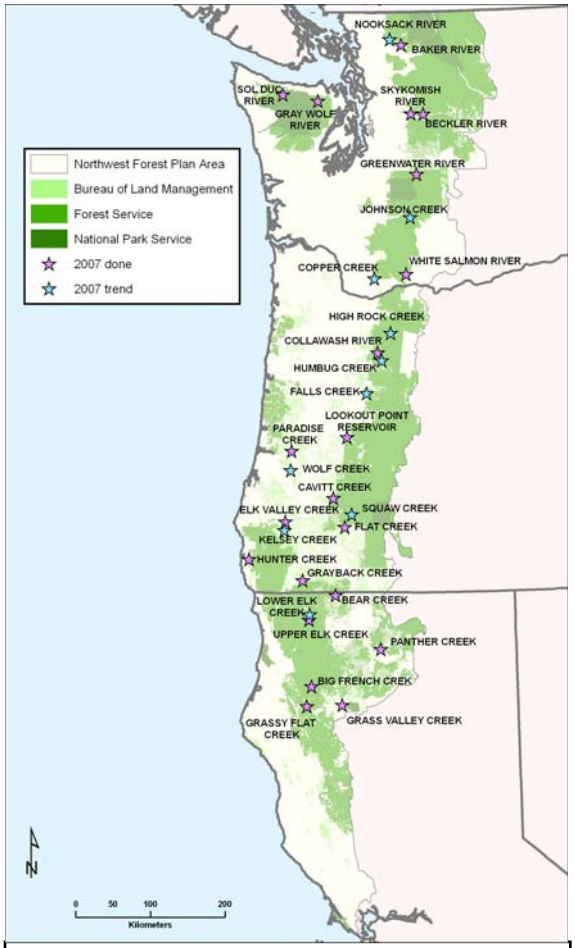

Figure 1. Map of the watersheds surveyed during 2007 summer field season.

Recommendations:

- **Better and more intensive training at the beginning of the field season.**
  Because native species were misidentified, AREMP staff suggest using more live or preserved specimens in training so that each crew member can get hands-on experience with each of the primary invasive species. (AREMP uses this training method for amphibian species and our excellent track record of correct species identification demonstrates that this is a successful method for training field crews.) AREMP staff also recommend having experts in aquatic invasive species provide training to all members of the field crews, not just crew leaders and field coordinators.

- **Implement standardized protocols for future surveys.**
  Opportunistic surveys are the first thing to be shortened or dropped during a "long day in the field." Therefore, some sites were not examined as thoroughly as others (inconsistency in efforts between crews) because of other time constraints. Therefore, AREMP staff recommends implementing more standardized protocols in future years. Specifically, each site should be examined for invasive riparian plants from start to finish by walking the bank on each side of the stream staying within three meters of the bankfull line. A non-opportunistic protocol will ensure that each site is examined in an equal manner and will provide managers with more useful and accurate data.

- **Standardized data forms and reporting pathways within the US Forest Service need to be improved.**
  After the field season ended, we were informed all data must be entered into the US Forest Service Natural Resource Information System (NRIS) Terra module. Because we were unaware of required fields in the NRIS Terra module, data for several required fields were not collected. AREMP staff recommends NRIS staff provide a data form with required data fields to all groups collecting aquatic invasive species data that will be entered into NRIS Terra.

- **Invasive species surveys need to be funded.**
  AREMP staff want to support the agencies' emphasis on detecting invasive species so we supported an unfunded pilot program. However, implementing a yearly rigorous survey protocol requires resources for training, surveys, and data entry. Without adequate funding (about $7000 to sample 150 sites each year) aquatic invasive species surveys may not be done.

Giant knotweed was one of the primary species of concern we looked for during our aquatic invasive species surveys. *Photo by Jan Samanek, State Phytosanitary Administration, Bugwood.org*

- **Develop a coordinated approach with other entities for sharing data.**
  It is not clear what the overarching plan is for sharing aquatic invasive species data with state, federal, tribal, and citizen groups (e.g., Nature Conservancy, watershed councils). A coordinated approach is needed to get an accurate aquatic and riparian invasive species assessment, so strategies for reducing or eliminating invasive species can be developed.

Table 1. Designation of species surveyed for during the 2007 field season.

Common name	Genus species
Primary species of concern	
New Zealand mudsnails	*Potamopyrgus antipodarum*
Zebra mussels	*Dreissena polymorpha*
Quagga mussels	*Dreissena rostriformis bugensis*
Rusty Crayfish	*Orconectes rusticus*
Red Swamp Crayfish	*Procambarus clarkia*
Ringed Crayfish	*Orconectes neglectus*
Northern Crayfish	*Oronectes virilis*
Chinese Mitten Crab	*Eriochier sinensis*
Hydrilla	*Hydrilla verticillata*
Japanese Knotweed	*Polygonum cuspidatum*
Cultivated Knotweed	*Polygonum polystachyum*
Giant Knotweed	*Polygonum sachalinese*
Yellow Flag Iris	*Iris pseudacorus*
Secondary species of concern	
Parrot feather Water milfoil	*Myriophyllum aquaticum*
Eurasian Water milfoil	*Myriophyllum spicatum*
Brazilian Elodea	*Ergeria densa*
Old Man's beard	*Clematis vitalba*
Himalayan blackberry	*Rubus discolor*
English Ivy	*Hedera helix*
Feral Swine	*Sus Scrofa*
Didymo	*Didymosphenia geminata*
Garlic Mustard	*Alliaria petiolata*
Yellow Floating heart	*Nymphoides peltata*
European Water Chestnut	*Trapa natans*
Giant Reed	*Arundo donax*
Sudden Oak Death	*Phytophthora ramorum*
Chytrid fungus	*Batrachochytrium dendrobatidis*
Whirling Disease	*Myxobolus cerebralis*

New Zealand mudsnails, zebra mussels and quagga mussels are sometimes too small to be readily seen in the field. However, their presence would be detected when the macroinvertebrate samples we collect are processed.
Photo by Pete Gruendike

Want to know more? Please contact:

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