

Aquatic and Riparian Effectiveness Monitoring Program Invasive Species Report 2011 Field Season



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Introduction

Invasive species have been identified as one of the four critical threats to the Nation's ecosystems by the Chief of the USDA Forest Service. The broad geographic area sampled by the Aquatic and Riparian Effectiveness Monitoring Program (AREMP) provides an excellent opportunity to detect the presence or absence of "high concern" invasive plants and animals (Table 1) on federal lands while surveying stream reaches in randomly-selected watersheds in the Northwest Forest Plan area (NWFP; "west of the Cascades" from Point Reyes, California north to the Canadian Border).

Methods

Searches for invasive terrestrial plants are performed at all sites within each watershed between longitudes A-B, F-G, J-K (Figure 1). AREMP field crews begin searches at the bankfull indicator of the upper transect (B, G, K) with one crew member on each bank. For 5 minutes crew members thoroughly search downstream in a zigzag pattern no more than 5 meters back from the wetted edge. When a non-native plant is encountered, the search time is paused and the longitude segment, species code, bank the plant was found on (left or right), and the photo numbers of the pictures taken are recorded. Additionally, a GPS location is recorded. If a suspected invasive plant species is encountered but cannot be clearly identified in the field, a specimen is collected

and placed in a plant press so that it can be later identified. To determine the presence of any non-native snails, mussels, or crayfish listed in Table 1, AREMP crews collect eight benthic macroinvertebrate subsamples in the first four fast-water riffles at each site using a kick net. After the field season those samples are sent to the Utah State National Aquatic Monitoring Center and processed under a microscope to ensure invasive species that may have been too small for field crews to identify are not

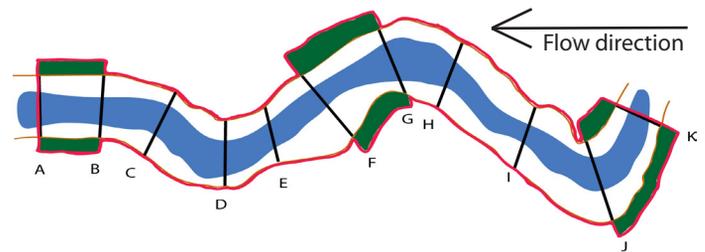


Figure 1. Schematic of search areas for AREMP terrestrial invasive species surveys, letters represent transect locations. Areas in green represent the area searched by crew members..

Table 1. Invasive species surveyed for during the 2011 field season.

Type	Common Name	Genus Species
Aquatic Invertebrates	New Zealand mudsnails	<i>Potamopyrgus antipodarum</i>
	Zebra mussels	<i>Dreissena polymorpha</i>
	Quagga mussels	<i>Dreissena rostriformis bugensis</i>
	Rusty crayfish	<i>Orconectes rusticus</i>
	Red swamp crayfish	<i>Procambarus clarkia</i>
	Ringed crayfish	<i>Orconectes neglectus</i>
Aquatic plants	Northern crayfish	<i>Oronectes virilis</i>
	Yellow flag iris	<i>Iris pseudacorus</i>
	Hydrilla	<i>Hydrilla verticillata</i>
	Parrot feather watermilfoil	<i>Myriophyllum aquaticum</i>
	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
	Giant reed	<i>Arundo donax</i>
	Brazilian elodea	<i>Ergeria densa</i>
Didymo	<i>Didymosphenia geminata</i>	
Terrestrial vertebrates	Feral swine	<i>Sus scrofa</i>
Terrestrial plants	Japanese knotweed	<i>Fallopia japonica</i>
	Himalayan knotweed	<i>Polygonum polystachyum</i>
	Giant knotweed	<i>Polygonum sachalinense</i>
	Old man's beard	<i>Clematis vitalba</i>
	Garlic mustard	<i>Alliaria petiolata</i>
	Giant hogweed	<i>Heracleum mantegazzianum</i>
	Himalayan blackberry	<i>Rubus discolor</i>
	English ivy	<i>Hedera helix</i>
	Reed canarygrass	<i>Phalaris arundinacea</i>
	Yellowtuft	<i>Alyssum corsicum</i>

present (results from the laboratory are still pending and any invasive species found will result in immediate notification of local managers). If a non-native snail, mussel or crayfish is suspected to be present in the field, photographs are taken and the specimen is preserved in 95% ethanol. After the original eight subsamples have been preserved, more samples at various locations within the site are collected until more of the non-native specimens are found. For invasive aquatic plants, AREMP crews search the wetted portion of the channel



Tracy Pennell

Ringed crayfish

and any off channel wetted areas during site layout. When a suspected non-native plant is encountered the longitudinal segment is recorded, photographs are taken and a specimen is collected and placed in a plant press to later verify identification.

while the other was English ivy (*Hedera helix*). None of the 15 detections occurred in Washington (fig. 2a), while six were in Oregon (fig. 2b) and nine occurred in California (fig. 2c).

Verified invasive species

During the 2011 field season (June through September) AREMP crews surveyed 184 sites in 29 watersheds for invasive species. AREMP crew's recorded a detection of invasive ringed crayfish (*Orconectes neglectus*) at the Bear Creek watershed (a tributary to the South Fork Umpqua River) which was identified as a range expansion. Crews also recorded 15 detections of invasive terrestrial plant species in seven watersheds. Fourteen out of 15 of those detections were Himalayan blackberry (*Rubus discolor*)

Washington

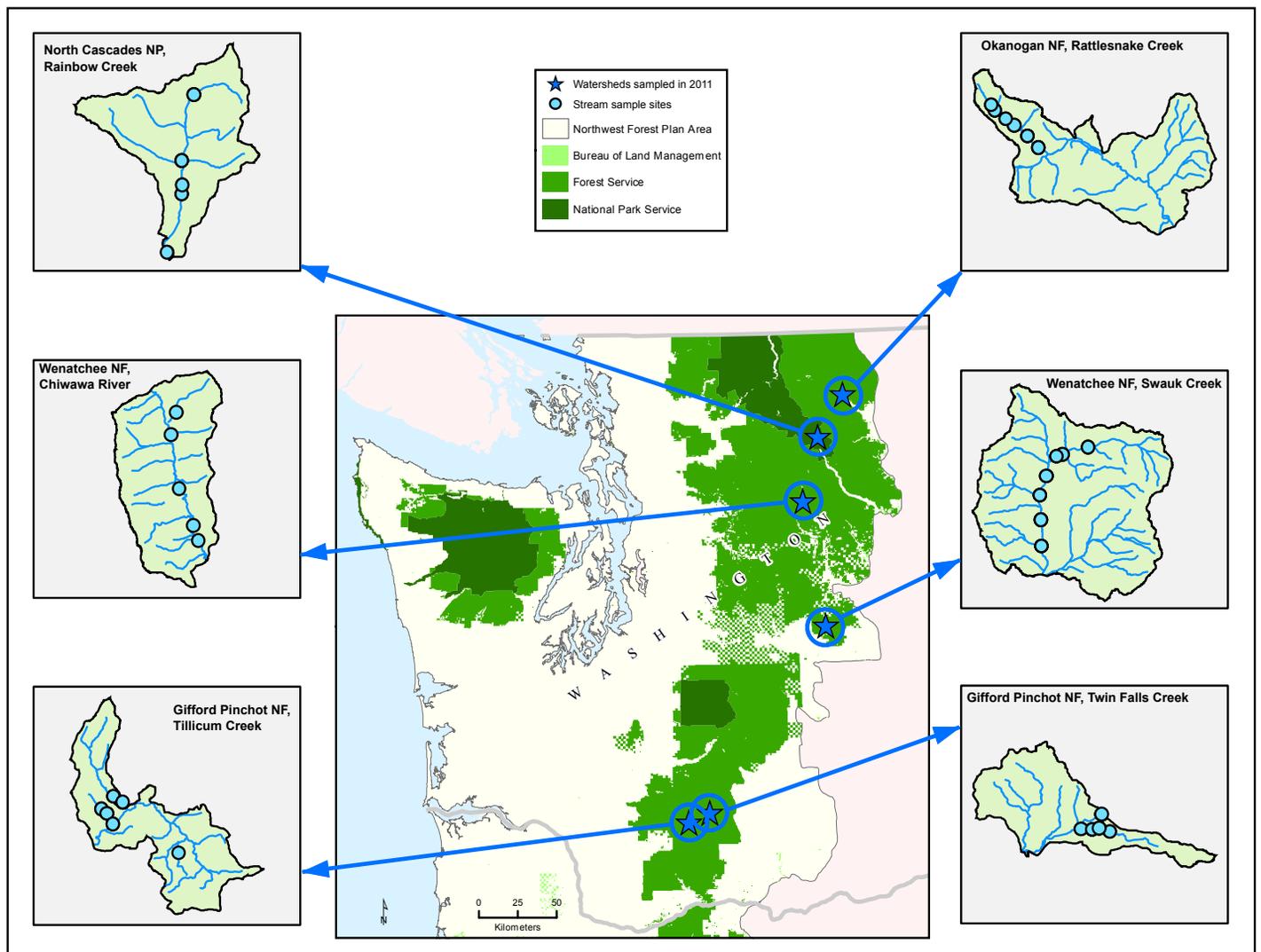


Figure 2a. Map of Washington watersheds surveyed by AREMP crews during the 2011 field season. Blue lines represent watersheds where invasive species were not found. Dark green represents lands managed by the National Park Service (NP). Green represents lands managed by the Forest Service (NF).

Oregon

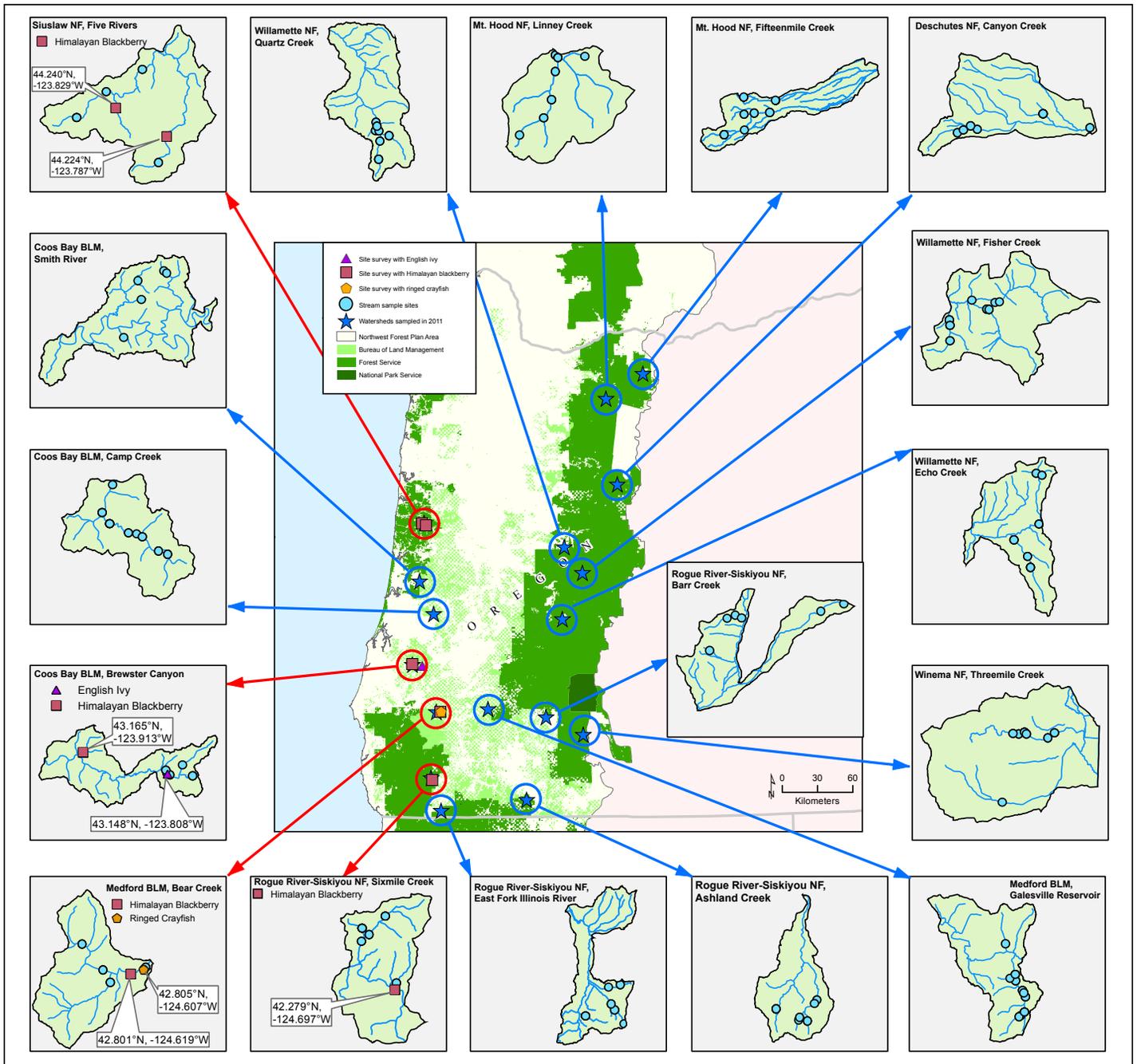


Figure 2b. Map of Oregon watersheds surveyed by AREMP crews during the 2011 field season. Blue lines represent watersheds where invasive species were not found; red lines depict watersheds where invasive species were detected. The latitude and longitude of sites are also shown for where a detection occurred. Green represents lands managed by the Forest Service (NF). Light green represents lands managed by the Bureau of Land Management (BLM).

Northwestern California

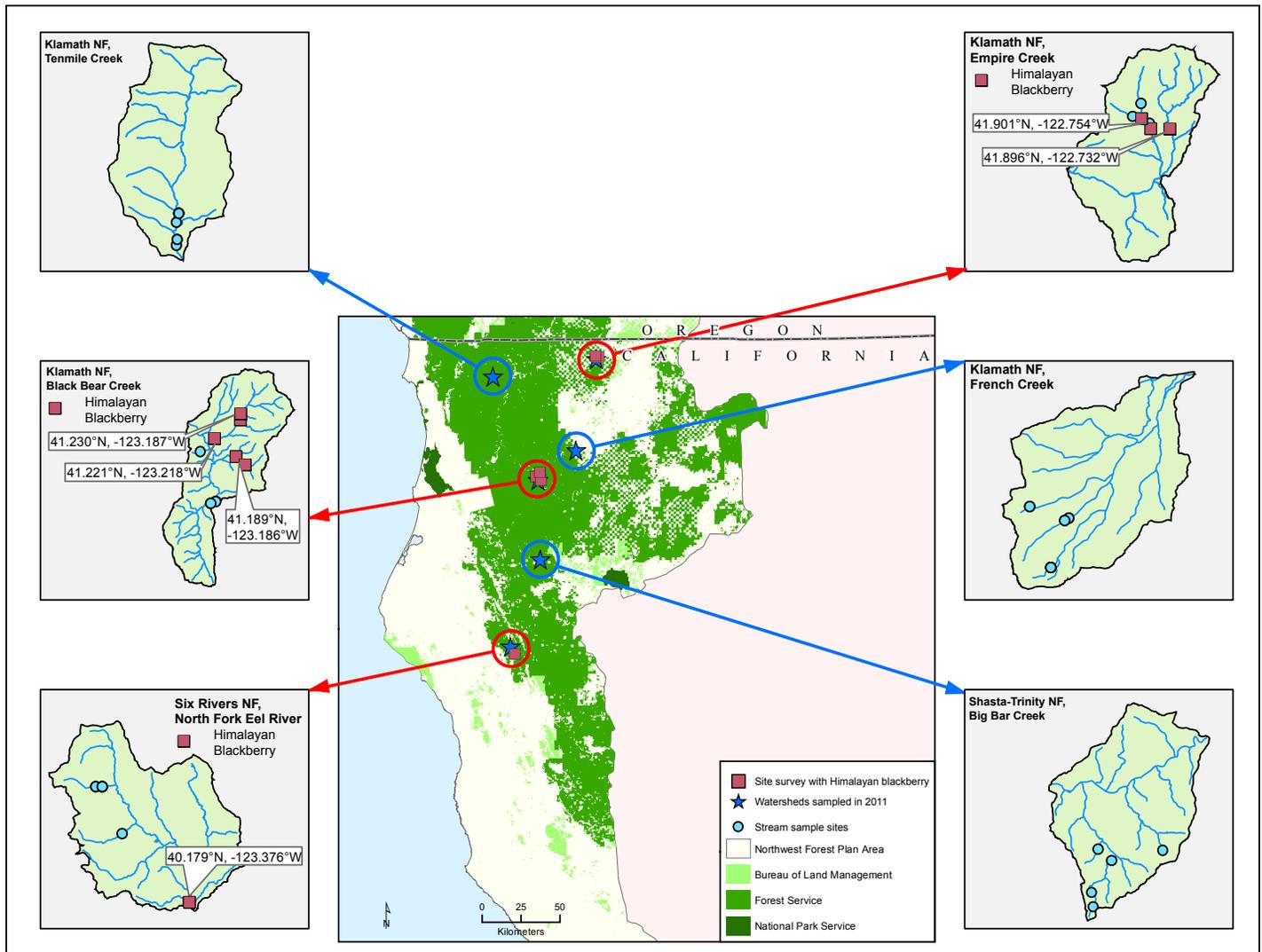


Figure 2c. Map of California watersheds surveyed by AREMP crews during the 2011 field season. Blue lines represent watersheds where invasive species were not found; red lines depict watersheds where invasive species were detected. The latitude and longitude of sites are also shown for where a detection occurred. Green represents lands managed by the Forest Service (NF).

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