

# Watershed-based Invasive Plant Surveys in Juneau

## – a first step to understanding threats to fish and wildlife resources

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**PROJECT GOAL:** survey and map invasive plants in the Montana Creek Watershed to identify potential threats to fish and wildlife habitats and ecological processes.

### Background

More than 60 species of non-native plants have been found at 3,000+ locations on the Juneau road system. Many of these species are considered invasive and occur within or adjacent to undeveloped landscapes where they threaten native plant communities important to fish and wildlife\*. In 2011, the Juneau Fish and Wildlife Field Office partnered with the Alaska Association of Conservation Districts to conduct invasive plant surveys in three Juneau watersheds selected for their relatively intact conditions and productive salmon populations.

Preliminary findings are currently available for Montana Creek, a 10,000 acre watershed supporting four species of salmon as well as numerous aquatic and riparian-dependent bird and mammal species (Figure 1).

### Survey Area

The survey was largely confined to foot and off-road vehicle (ORV) trails, roads, and other disturbed areas within 100 m of the main channel, features that aid in both the dispersal and establishment of invasive plants.

### Findings

- Seventeen invasive plant species in 553 infestations covering 23.5 acres were documented (Figure 2).
- Five species ranked 60 (invasiveness) or greater comprised 5% and 1% of the total number and area of infestations, respectively (reed canarygrass, ornamental jewelweed, Bohemian knotweed, oxeye daisy, and orange hawkweed) (Figure 3).
- The most common species encountered during the survey, creeping buttercup (rank = 54), is widely distributed throughout the watershed representing 51% of infestations and 60% of the area covered by invasive plants.
- Most infestations occurred at sites disturbed by human activities and infrastructure (e.g. roads, trails, land development) and natural processes (e.g. wind-thrown trees, bank erosion, fluvial sediment deposition).
- While roads and trails are likely the principal routes of invasion, water appears to disperse some species (e.g. creeping buttercup) from transportation corridors to relatively pristine and semi-remote areas.
- ORV trails harbored few invasive species; regular vehicle traffic and forest canopy shading may act to prevent establishment

### The Next Steps

- Initiate control of the top 5 most invasive species found during the survey
- Expand the survey in 2012 to include large floodplain wetland areas within the watershed
- Determine if creeping buttercup infestations represent a serious threat to riparian ecosystems.

\* Displacement of native plant communities by invasive species could impact a variety of important riparian functions:

- Stream bank stabilization
- Habitat (cover)
- Food
- Shade
- Organic matter inputs to stream food webs
- Nutrient cycling
- Large wood recruitment to stream channels

### The Invasion Process: Introduction, Spread, and Establishment



Invasive plants readily establish on disturbed soils next to roads and trails and then spread along these corridors to other parts of the watershed.



The disposal of yard waste and soil into road-side ditches and stream channels introduces invasive plants to the watershed.



The stream transports seeds and other plant parts from trail and road crossings to remote, undeveloped parts of the watershed.



A well established infestation of creeping buttercup covers a stream bank potentially disrupting important riparian functions and affecting recruitment of native plant species.

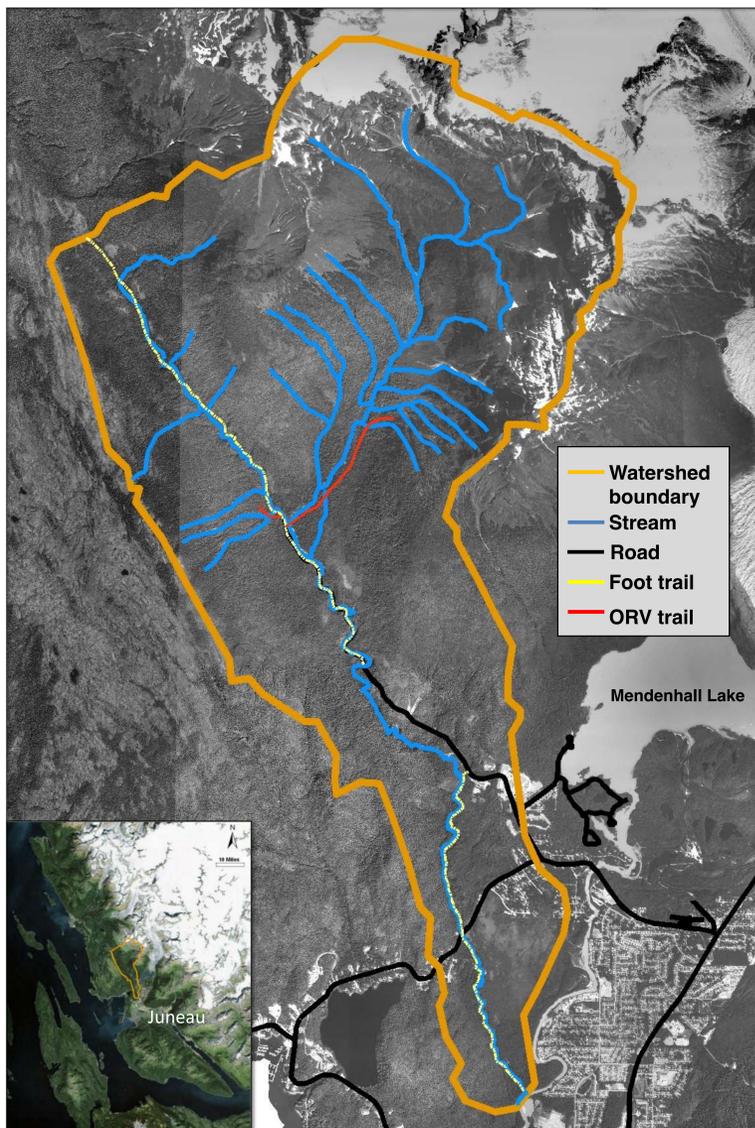


Fig. 1. Watershed streams and transportation corridors

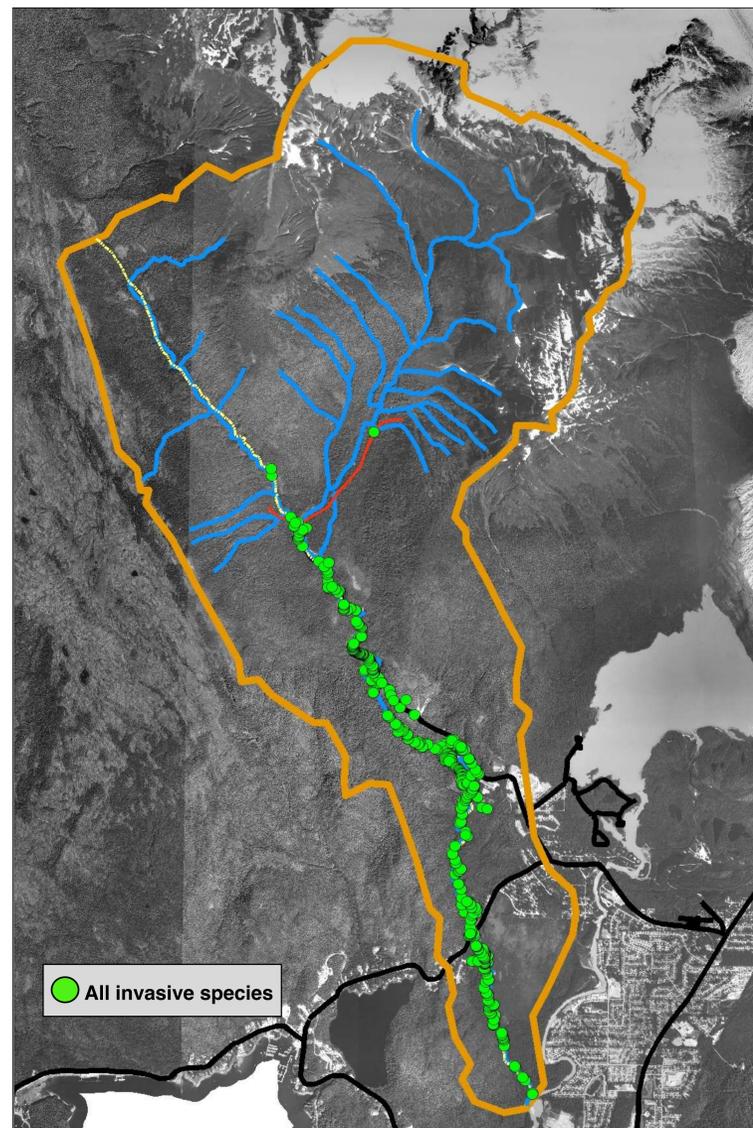


Fig. 2. All invasive plant species infestations

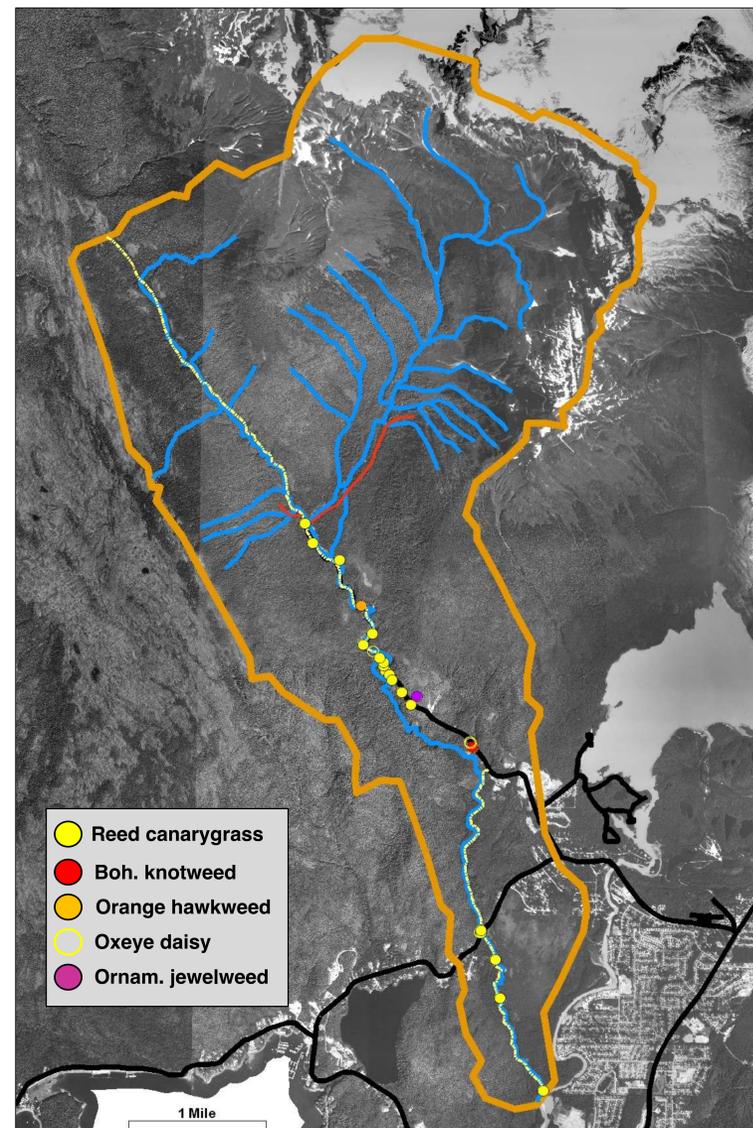


Fig. 3. Invasive species ranked 60 or higher