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Monitoring and Mapping Invasive Species Spread Using Remotely Sensed Imagery
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After the School Fire burned ~50,000 acres across grasslands and forests in eastern Washington in 2005, forest managers were concerned that burned areas would be vulnerable to invasion by non-native plant species. Known weed populations on adjacent grasslands include Sulfur cinquefoil (*Potentilla recta*), Yellow star-thistle, spotted and diffuse knapweeds (*Centaurea* spp.). In the fall of 2005 and early summer of 2006, we installed monitoring sites across the entire fire, stratified by the range of vegetation types, burn severity, pre- and post-fire fuels treatments, and post-fire seeding and mulching treatments to determine which factors had the greatest effect (if any) on weed presence and spread. Our goals are to detect, monitor and map weed spread within the fire perimeter for three years after the fire.

In addition to approximately 200 monitoring plots, we used a GPS to map known weed and native vegetation patches (4 to 100 m²) on the ground as baseline spatial measurements of patch size and location. High-resolution Quickbird satellite imagery was collected immediately after the fire in 2005 and again in 2006 to test the ability to identify individual plant species and vegetation patches in remotely sensed imagery. We anticipate this imagery will allow for more extensive vegetation mapping and monitoring in the years following the fire. Field data and observations from the first year of monitoring suggest that weeds are still present in the areas where they were found prior to the fire, which are mostly disturbed areas such as campgrounds or heavily grazed areas.