



# Eliminating Invasive Introduced Species While Preserving Native Species in Coastal Meadow Habitat, a Critically Imperiled Ecosystem

Legacy # 08-400

## Background:

Reed Ranch is a 100-acre site of degraded coastal meadow habitat that is located 1.3 miles from Camp Rilea, a military installation situated on the Clatsop Plains in northwest Oregon. Restoration of coastal meadow habitat is considered crucial to the recovery of the Oregon silverspot butterfly (*Speyeria zerene hippolyta*), a federally threatened species on the Clatsop Plains. As a part of dune stabilization efforts in the 1930s, Scotch broom (*Cytisus scoparius* L.), a non-native invasive woody shrub species, was widely planted throughout the Clatsop Plains. Within the last 30 years, this invasive shrub has spread across the landscape, dominating much of the historical coastal meadow habitat in the region. We examined the effects of mowing 100 acres of a mature Scotch broom shrubland with a tractor-mounted mower on extant invasive and native species in coastal meadow habitat.

## Objective:

Funded by the Department of Defense Legacy (DoD) Program, this study investigated the effectiveness of large-scale mechanical removal of Scotch broom and the impacts on native vegetation in a critically imperiled ecosystem: coastal meadow habitat. Three land management priorities were included as part of this study: (1) eradication of the invasive European shrub, Scotch broom; (2) protection of native species in a critically imperiled ecosystem on adjacent non-DoD Lands; (3) improvement of training lands by reducing encroachment of invasive woody species in grasslands.

## Summary of Approach:

Ninety 1-m<sup>2</sup> plots were installed to record the frequency of all species detected in plots. Pre-treatment data were collected in spring prior to mowing treatments. Mowing was conducted twice during the summer (June and September). Post-treatment data were collected in the spring one year following mowing treatments. Frequency comparisons were conducted on Scotch broom data and life-form groups.

## Benefit:

The results of this research will help provide guidance for other installations, such as Joint Base Lewis-McChord and Massachusetts Military Reservation, that manage Scotch broom by assessing the effects of tractor-mounted mowing on invasive shrubland in areas where the intent is to enhance early successional meadow habitat.



Pre-Treatment, before mowing (2008)



Post-Treatment, one year following mowing (2009)

## Accomplishments:

Percentage of area occupied by Scotch broom dramatically decreased following mowing treatments (*see photos*) while the frequency of Scotch broom increased slightly due to recruitment of seedlings from the release of the long-lived seed bank. Two species in the native perennial forb group significantly increased following treatments. The following non-native life-form groups increased significantly following mowing treatments: annual forbs, annual grasses, and perennial shrubs. Invasive perennial pasture grasses were present in all 90 plots before and after mowing treatments. Results suggest that mowing treatments or a combination of different treatments would need to be implemented over many years to significantly reduce Scotch broom populations and enhance native coastal meadow habitat. Further monitoring is needed to substantiate preliminary results from this one-year study.

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