

Western Regional IPM Grants Research/Extension Accomplishments Report

INSTRUCTIONS: PLEASE PROVIDE ONLY THE ESSENTIAL COMPONENTS OF ACCOMPLISHMENT WHICH ARE:

1. A CLEAR IDENTIFICATION OF THE PROBLEM/ISSUE ADDRESSED BY THE RESEARCH/EXTENSION.
2. A CONCISE EXPLANATION OF HOW THE RESEARCH/EXTENSION ACHIEVEMENT CONTRIBUTED TO THE SOLUTION OF THE PROBLEM/ISSUE BEING RESEARCHED.
3. THE IDENTIFICATION OF OTHER BENEFITS RESULTING FROM THE RESEARCH/EXTENSION, EVEN IF UNPLANNED.
4. PLEASE ATTACH A SUMMARY OF THE PAST YEARS PROGRESS, ONE PAGE MINIMUM.

CONTACT: Mark Paschke

PROJECT NUMBER: COL0-2005-04533

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PROJECT TITLE: Integrated Control of Spotted Knapweed: Utilizing Spotted Knapweed-Resistant Native Plants to Facilitate Revegetation

PRINCIPAL INVESTIGATOR: Mark W. Paschke

INSTITUTIONAL ADDRESS: 1472 Campus Delivery, Fort Collins, CO 80523-1472

CO-PIs or TEAM MEMBERS: J.M Vivanco, R.M. Callaway, and L.G. Perry

THE PROBLEM, ISSUE, OR REASON FOR CONDUCTING THE RESEARCH/EXTENSION:

Invasive plants are recognized as having severe ecological and economic impacts. Affordable long-term management methods are lacking for many of the most destructive exotic invasive plants, including spotted knapweed. Research on weed invasions has primarily focused on aboveground processes. However, we now know that plant roots are unparalleled factories of diverse chemicals, and the secretion of toxins by the roots of knapweed is a possible mechanism for their success in replacing our native species. Understanding these belowground chemical interactions can suggest completely new approaches to managing and restoring invaded landscapes.

THE SINGLE MOST IMPORTANT ACCOMPLISHMENT OR BENEFIT RESULTING FROM THIS RESEARCH/EXTENSION:

This research has identified native plant species that are superior competitors with invasive knapweed species. This information provides managers with a powerful tool to use when restoring sites infested with invasive knapweed species.

ADDITIONAL BENEFITS, SUCH AS:

SOCIAL BENEFITS -

Large areas of the western United States are infested by exotic and highly invasive knapweeds. These invaders reduce and destroy forage for livestock and wildlife, displace native plant species, and decrease land use opportunities. Our research seeks to lessen

these impacts.

ECONOMIC BENEFITS -

Costs associated with weed management and lower production yields are passed on to consumers. These expenses can be seen in the form of higher food prices, reduced product quality, or higher taxes and fees to enjoy natural areas. Tools that assist land managers in restoring value to weed-infested lands will reduce these costs.

ENVIRONMENTAL BENEFITS -

The most serious cost associated with invasive plants may be the long-term threat to biodiversity and ecosystem stability caused by the displacement of native species. By identifying native plant species that are superior competitors with invasive knapweeds, we have allowed for more rapid restoration of native ecosystems.

OTHER -

PLEASE SUBMIT A HIGH RESOLUTION DIGITAL IMAGE REPRESENTATIVE OF YOUR RESEARCH/EXTENSION PROJECT THAT WE CAN USE TO HIGHLIGHT YOUR PROJECT!

When you have completed this form, return to both:

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and

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THIS FORM WAS COMPLETED BY:

Mark W. Paschke, Assistant Professor

(Name and Title)