

Assessment & Demonstration of Ecologically-Based Medusahead & Cheatgrass Management in Jordan Valley, Oregon

Brenda Smith¹, Anna-Marie Chamberlain², Edward Vasquez³, and Roger Sheley¹

¹USDA-ARS Eastern Oregon Ag. Research Center, ²Oregon State University Malheur Co. Extension, ³Wyoming Wildlife Consultants LLC
Cooperating Area Ranchers: Mike Baltzor, Clint Fillmore, Robert Fretwell, Mark Mackenzie, & Kirk Scown

Oregon/Idaho Malheur County, Oregon Owyhee County, Idaho

Brief Area History:

Located in the Southeast corner of Oregon in Malheur County, the community of Jordan Valley has an average altitude of 4,389 feet. The main product is beef, hay and sheep taking a lesser importance. Most of the surrounding country is federal land (BLM) and some state land. It is a small town of approximately 250 people, which includes local ranchers and families.

Game is plentiful, with antelope, mule deer, pheasant, geese, quail, duck, chukar and sage grouse offering a variety of hunting opportunities for the sportsman.

Medusahead was first noticed in the Jordan Valley area about 25–30 years ago and has expanded significantly within the last 10-20 years.

The EBIPM Framework:

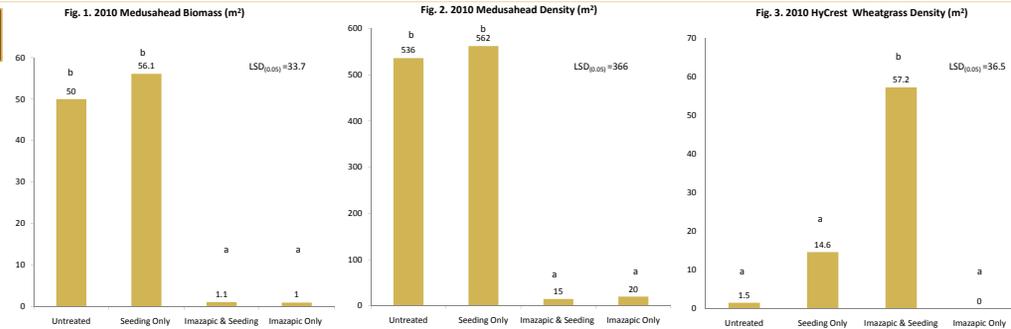
The EBIPM model is a thinking and planning process incorporating ecology directly in decision making using a unified framework. Ecological information together with direct knowledge managers have about their landscape means more successful land management decisions can be made to restore desirable vegetation over invasive species in these complex ecosystems.

In a step by step format, the EBIPM model is a comprehensive decision tool for anyone wanting to implement more effective invasive species management.

Objectives: As part of the Area-wide project for ecologically-based invasive management (EBIPM) of invasive annual grasses, the overall objective is to assess and demonstrate EBIPM of annual grasses in Jordan Valley. Using the EBIPM framework we created the specific objectives to (1) demonstrate the potential of using the single-entry (one-pass seed/herbicide application) strategy to rehabilitate annual-grass-infested rangelands across large heterogeneous landscapes; and (2) determine those abiotic and biotic factors that are most important in influencing the success and/or failure of the rehabilitation effort.

Materials and Methods: A successional management single-entry (one-pass) rehabilitation strategy to enhance the success of establishing desired species and reduce the costs associated with multi-entry strategies was implemented at 5 sites within the Jordan Valley watershed in the fall of 2008. Plot sizes vary at location from 3.5 acres to 20 acres. Treatments were (1) one-pass imazapic and seeding, (2) imazapic only, (3) seeding only, and (4) untreated control. Imazapic was applied at 3.5 oz product per acre. An appropriate combination of crested wheatgrass and Sandberg bluegrass was seeded at 20 lbs/acre. Seedling establishment was unsuccessful in 2008, these treatments were repeated in the fall of 2009. Seeding was increased to 25 lbs/acre in 2009.

Results:



Initial analysis of 2010 data averaged over the 5 sites indicates that imazapic treatments significantly ($P < 0.05$) reduced medusahead biomass and density (Fig. 1 & 2). By combining imazapic & seeding in one treatment, HyCrest wheatgrass density was significantly increased over all other treatments (Fig. 3).

Management Implications: When applying an EBIPM program, treatments are aimed at changing ecological processes that direct plant community succession. The one-pass strategy can be viewed to address the causes of succession, site availability, species availability and species performance. Site availability for desired species be enhanced by the furrow made by the no-till drill. Seed availability will be enhanced by physically seeding desired plant seeds at a high rate per acre. Species performance of medusahead will be diminished by the herbicide application while the species performance of native species will be improved because of reduced site-specific competition. This demonstration area will continue to be evaluated as these results are from just one year of data. However, we are cautiously optimistic that on a large scale with a low rate of imazapic, medusahead density is reduced and crested wheatgrass density initially is significantly higher in the imazapic treated plots.

