

DEVELOPING A MODEL THAT PREDICTS THE DISTRIBUTION OF
MEDUSAHEAD USING REMOTE SENSING TECHNIQUES. Timothy M. Bateman*;
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Medusahead (*Taeniatherum caput-medusae* [L.] Nevski) is an invasive annual grass that alters whole ecosystems, reducing rangeland productivity in the western United States. The ability of this weed to rapidly spread and outcompete native vegetation is a call of concern for landowners and land managers. To aid in control efforts, managers would benefit through a better understanding of its underlining invasive processes as well as from an enhanced ability to detect invasion sites across broad landscapes. Remote sensing has been recognized as a valuable tool in monitoring and assessing large extents of rangelands. Thus, the successful delineation of medusahead using aerial imagery would prove to be advantageous for managers in directing control efforts. Beginning in the fall of 2015 steps have been made into developing methods to identify and predict medusahead distribution in a 57,000-ha study area in the Channeled Scablands of Eastern Washington using remote sensing techniques. Using a multi-scale approach, coarser predictor variables were used to model high resolution fractional cover (fCover) derived from a classification. Research has been successful ($R^2=0.82$) in developing a model that predicts continuous fCover of medusahead from Landsat (30m resolution) imagery. Using the high temporal resolution of Landsat imagery, efforts are being made into achieving historical trend data of medusahead invasion in the area. This research is innovative and offers advancements for better understanding the characteristics of medusahead invasion in the region. Results from this research can aid in the development of novel management approaches leading to more adaptable and sustainable production in rangelands challenged by medusahead invasion.