

**EFFECT OF FIRE, HERBICIDE, AND MOWING ON INVASIVE SMOOTH BROME (*BROMUS INERMIS*) AND RE-ESTABLISHMENT OF A SAND PRAIRIE**

JESSICA A. BOLWAHN\*, **BIOLOGY DEPARTMENT, UNIVERSITY OF WISCONSIN – LA CROSSE, 1725 STATE STREET, LA CROSSE, WI 54601**

MEREDITH A. THOMSEN, **BIOLOGY DEPARTMENT, UNIVERSITY OF WISCONSIN – LA CROSSE, 1725 STATE STREET, LA CROSSE, WI 54601**

*Abstract:* Smooth brome (*Bromus inermis*) is a grass native to Eurasia that is frequently encountered in sites targeted for prairie restoration and generally difficult to remove. A lack of published information comparing the success of control methods leaves land managers to rely on word of mouth and anecdotal evidence for decision-making. We are studying the efficacy of fire, herbicide (2% glyphosate), mowing, and a fire + herbicide combination for controlling smooth brome and re-establishing a sand prairie community in southwestern Wisconsin. Seven treatments (two frequencies each of fire, herbicide and mowing, and a single combination), a seed only control and full control were replicated 8 times in a randomized block design (2m x 2m plots). Treatments were applied in May and June and plots were seeded with a 21-species seed mix appropriate to the site in early July. We utilized both qualitative (Daubenmire cover) and quantitative (point frame) sampling methods. There was no significant difference between treatments applied once or in two consecutive years. By the end of the third growing season following treatment, brome cover remained significantly lower in only the herbicide and combination plots, recovering in all other treatment types. Presence of seeded species was significantly greater than the seeded control only in the combination plots. Herbicide, either alone or in combination with fire, appears to be the most successful method. The combination treatment may be the most beneficial for initial prairie development, perhaps as the result of both increased light availability and decreased litter depth.