1092-92-284 **Sarah M. Emery*** (sarah.emery@louisville.edu), Biology Dept., 139 Life Sciences Bldg., University of Louisville, Louisville, KY 40292, and **S. Luke Flory**, **Keith Clay**, **Joseph R. Robb** and **Brian Winters**. *Demographic responses of the invasive annual grass Microstegium vimineum to prescribed fires and herbicide.*

Management of invasive plant species often includes prescribed fire and herbicides, and evaluation of these techniques should include whole-population responses of targeted plants. In this study, we evaluated how the timing and frequency of prescribed fire and herbicide application affected population growth of the invasive annual grass Microstegium vimineum using periodic matrix population models. We found that spring fires were effective at reducing population growth rates during the year of treatment but there was no effect of burning on M. vimineum populations the following year. Similarly, fall prescribed fires were effective at reducing seed production, as well as numbers of seedlings and adults following fires, but had no long-term effect on population growth rates. Post-emergent herbicide alone was the only treatment that reduced M. vimineum population growth beyond one year. Seedbank survival had the highest life-stage elasticity across all treatments, indicating that novel management methods specifically designed to exhaust seedbanks for three or more years may be needed to prevent M. vimineum population resurgence after cessation of treatments. (Received August 12, 2013)