

Idaho Section Annual Symposium “Alternative Management Strategies in Big Sagebrush Steppe: Perspectives, Opportunities and Supporting Evidence”, Nov 10-12th 2010, Idaho Falls, ID.

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Predicting the metapopulation dynamics of non-native plant species on the INL

Identifying the factors driving the invasion of nonindigenous species populations could be important for prevention of invasion and prioritization of populations for management. Continuous sampling along transects with a GPS was found to be the most efficient way to identify occurrence of infrequent nonindigenous herbaceous plant species. Probability of occurrence (PO) maps were constructed for each species detected in the INL in 2009 and 2010 using presence and absence data from continuous transects originating on roads and extending 2 km into the site. PO maps were constructed for *Sisymbrium altissimum*, *Carduus nutans* and *Agropyron cristatum* within the Development Area of the INL. Resampling for these species occurred on 15 of the transects in 2010 and the data were used with 2009 sample data to estimate probabilities of colonization and extinction with PO, distance to nearest patch, distance to road and fire history as covariates. The probabilities of colonization and extinction were then used to simulate invasion scenarios and suggest management strategies that may limit further invasion of these species.