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Joseph Briggs (jsbriggs@ncsu.edu), **Kathryn Dabbs*** (kdabbs1@utk.edu) and **Daniel Riser-Espinoza** (drisere1@swarthmore.edu). *An Integral Projection Model Analysis for an Endangered Plant.*

We use an integral projection model (IPM) to analyze the population dynamics of blowout penstemon (*Penstemon haydenii*). In Nebraska this endangered plant naturally occurs in “blowouts”, which are sparsely vegetated depressions in active sand dunes created by wind erosion. We estimate size dependent survival, growth, and fecundity, and density dependent recruitment probability from a large data set spanning 13 blowout sites in western Nebraska. For this model, there is an asymptotic population and stage structure, which is independent of the nonzero initial population and stage structure; this is observed numerically and can be proved mathematically. We also analyze the transient dynamics that are predicted if the population deviates from the stable stage distribution. Our model predicts that in the early phase of blowout colonization population density drops to very small numbers before increasing to the asymptotic population size (“transient dip”). This suggests a very small colonization success of this plant since small populations have a high extinction risk because of demographic and environmental stochasticity and Allee effects. We use robustness analysis to evaluate different management strategies. (Received September 16, 2008)