

Monitoring Scarab Populations Exposed to Prescribed Fire in Mixed-oak Forests of Southeast Ohio

A.E. Smith and D.J. Horn

Department of Entomology, The Ohio State University, Columbus, OH 43210

Scarabaeidae was selected to determine the effects of surface fire on the distribution and abundance of insect populations. Subfamilies Geotrupinae and Scarabaeinae were expected to show impact of fire, because they exploit resources, such as leaf litter and fungi, that are consumed by fire. Twelve 60-ha. study blocks were selected in 80- 120 year old mixed-oak forest according to similar exposure, soil type, elevation, and vegetation composition. Six blocks each were located in Vinton and Lawrence County, Ohio. Each block was equipped with a transect of twelve, 11-cm dia. unbaited pitfall traps. A pre-burn baseline survey was completed in 1995, and two blocks per site were burned in April 1996; one block was burned annually 1997-1999, and the other was burned in 1999. Three species were selected to model burning effects: *Ateuchus histeroides*, *Onthophagus striatulus*, and *Geotrupes.splendidus*. A multivariate analysis of repeated measures revealed no measurable impact of fire; however, significant yearly variation did exist. Data show a high interplot variation, which suggests that species could be habitat specific. This study yields insight into the diversity and distribution of Scarabaeidae, and whether forest plots can be adequately replicated.

Ground Beetle Responses to Prescribed Burning in Southern Ohio's Hardwood Forests

Chris Stanton, Foster F. Purrington, and David J. Horn

The Ohio State University, Department of Entomology, Columbus, OH 43210

The Forest Service has administered prescribed fire to hardwood forests in southern Ohio since 1996 in order to study the ecological response of the mixed-oak community to prescribed burning. One component of the project involved studying the effects of the fires on forest floor invertebrates. The primary objective of this study was to monitor ground beetle populations for any significant changes that may indicate critical effects of fire on the forest floor community.

Four replicates of mature, mixed-oak forests were subjected to annual spring burns, occasional spring burns, and no burns (control). Ground beetles were collected via pitfall traps established within each treatment block and operated from May to October each year.

Results from five years of monitoring do not indicate any significant effects of prescribed fire on ground beetle abundance, species richness, or diversity. Because the fires did not significantly affect ground beetle populations, prescribed burning should be considered a safe management tool for restoring and maintaining oak forests without devastating the forest floor community.