

Invertebrate Sampling Considerations in Intensively-managed Pine Stands of Mississippi

R. B. Iglay, *Department of Wildlife and Fisheries, Mississippi State University, Mississippi State, MS 39762*

L. W. Burger Jr., *Department of Wildlife and Fisheries, Mississippi State University, Mississippi State, MS 39762*

D. A. Miller, *Southern Timberlands Research and Development, Weyerhaeuser Company, P.O. Box 2288, Columbus, MS 39704*

B. D. Leopold, *Department of Wildlife and Fisheries, Mississippi State University, Mississippi State, MS 39762*

Abstract: Understanding bias associated with invertebrate sampling methods is essential for relevant comparisons among studies. As invertebrate research becomes more prevalent, it is imperative that sampling technique efficiency across habitats is understood to facilitate selection of an appropriate sampling framework. Therefore, we compared results from suction sampling and pitfall trapping in intensively managed, mid-rotation pine (*Pinus* spp.) stands owned and managed by Weyerhaeuser Company near Scooba, Mississippi. We used a randomized complete block design of six replicate stands with four randomly-assigned treatment plots, separated by >50 m, per stand (burn only, herbicide only, burn*herbicide, control). We used suction sampling and pitfall trapping to collect invertebrates monthly from April–September 2004 and 2005 and May–October 2004 and 2005, respectively. We identified invertebrates in suction samples to order and sorted pitfall trap samples for carabid species, a key invertebrate assemblage used in forestry-related studies. We also measured habitat structure within each treatment plot. We performed sample size analysis on suction samples from April 2004 to assess efficiency differences between treatments. We did not analyze sample size for pitfall traps. We used a randomized complete block repeated measures mixed-model ANOVA to test for differences among months, within years, and sampling method. We found significant ($P < 0.05$) interactions across months for both methods, but species-level responses were more interpretable than ordinal level. We found differences in sampling approaches, including inherent bias by habitat and observer, target invertebrates, and time and effort requirements. We suggest managers and researchers consider all available field methods prior to conducting invertebrate research and stress importance of choosing appropriate methods for habitat types and research objectives.

Proc. Annu. Conf. Southeast. Assoc. Fish and Wildl. Agencies 61:117