INTERCOLONY INTERACTIONS in the TERMITE *RETICULITERMES FLAVIPES* (KOLLAR) (ISOPTERA: RHINOTERMITIDAE)

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The cryptic nature of native subterranean termites, *Reticulitermes* spp., has posed a serious problem for researchers desiring to study their biology and ecology. The nature of a colony and the parameters that define a subterranean colony have been the topic of recent debate. Some researchers have concluded that subterranean colonies are closed populations of individuals, with little or no intercolony interactions. Others have proposed an open colony view that allows for intercolony interactions, including gene flow, resource sharing, and spatial fusion. Continued research is imperative in order to answer these questions, leading to the development of effective control methods. Some of the more innovative techniques for gathering data on subterranean termites and studying their ecological and biological associations have come in the form of molecular tools.

In this study, we use microsatellite molecular markers and laboratory assays to elucidate intercolony interactions in Eastern subterranean termites, *Reticulitermes flavipes* (Kollar). Laboratory colonies of subterranean termites were established from several field colonies. Thirty individuals were sampled from each colony and used to establish the frequency of alleles at five different microsatellite loci for each colony. Laboratory colonies were then marked using either Nile Blue or Sudan Red dyes. Termites were taken from both a red-dyed colony and a blue-dyed colony and were introduced together, forming a new laboratory colony with individuals from two different colonies. This step was repeated with fourteen different pairs of colonies. Agonism was monitored and mortality counts were made. Finally, any progeny from the paired colonies will be collected and analyzed for the same microsatellite markers, in a search for molecular evidence of intercolony gene flow.

Our data supports the open colony theory of subterranean termite colony dynamics. Although some of the introduced colonies were overtly agonistic, many shared resources and space without demonstrating any agonistic behavior. Microsatellite analysis will offer a better glimpse into the depth of colony fusion and determine if intercolony gene flow is possible between secondary reproductives. If microsatellite evidence supports this hypothesis, theories surrounding termite colony structure, reproductive dynamics, and gene flow must be revisited.

Proceedings of the 4th International Conference on Urban Pests.
Susan C. Jones, Jing Zhai, and Wm H. Robinson editors. (2002)