

COMPARING THE DIVERSITY, GEOGRAPHIC DISTRIBUTION, AND
INTRASPECIFIC VARIATION OF SUBTERRANEAN TERMITES
(*RETICULITERMES*: ISOPTERA: RHINOTERMITIDAE) OCCURRING IN
WOODLANDS AND URBAN ENVIRONMENTS OF MISSOURI USING
MORPHOLOGY AND 16S mtDNA

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ABSTRACT

Subterranean termite species in the genus *Reticulitermes* are ecologically and economically important in the United States. At least six species of the genus *Reticulitermes* are native from North American forests where they feed on cellulose materials. In urban environments they feed upon dead wood, and therefore infest and destroy man-made wooden structures. Missouri is considered to have a moderate risk for termite infestations when compared with the states of the southeast part of the country. Despite their ecological and economic importance, Missouri's subterranean termite faunal composition and geographic distribution is not well known.

Diversity, geographic distribution, and genetic variability of *Reticulitermes* species within Missouri were studied from approximately 600 samples of termite colonies collected during 2004 and 2005 in nine conservation areas, nine cities located near these conservation areas, and from home infestations occurring at many different locations within the state. *Reticulitermes flavipes* (Kollar), *Reticulitermes virginicus* (Banks), *Reticulitermes tibialis* Banks and *Reticulitermes hageni* Banks were found occurring in Missouri. *Reticulitermes flavipes* and *R. hageni* were the most abundant species. *Reticulitermes flavipes* was found to be more abundant in urban environments and home

infestations than in woodlands. *Reticulitermes hageni* also occurs throughout the state but was found to be more abundant in woodlands than in urban environments.

This study updated the inventory of *Reticulitermes* species occurring within the state, provided new records of occurrence of the species in geographical locations not known before, and provided a comprehensive morphometric study of soldiers of *Reticulitermes* species occurring in both urban and woodlands of Missouri. Ecological studies as well as integrated management may benefit from the information provided in this study.