

生存圏研究所学際萌芽研究センター第 66 回定例オープンセミナー資料

2007/12/19

題 目 : The Usefulness of Pest Termites: Models for Understanding Termite Biology
(害虫としてのシロアリ生物学の理解を目指して)

発表者 : Michael Lenz, CSIRO Entomology, Canberra, Australia

要 旨 :

The talk focuses on work with wood-feeding Australian termites.

(1) As an introduction to termites their caste system and hidden lifestyle are briefly described. In Australia some of the pest species of termite build mounds in which the nest is located, allowing relatively easy collection of large numbers of termites for laboratory studies. Field studies which aim to measure the response of the entire colony are easier to conduct against mound-builders, most notably for evaluating the effectiveness of bait systems.

(2) Laboratory versus field performance of termites: The vigour between termites from different colonies can vary greatly. It is therefore essential that lab. experiments are conducted with termites from replicate colonies. Further, groups of termites, separated from the nest, have only to gather food for themselves, and will attack materials at a lower rate than workers in the field which are part of a colony. In this case workers have to gather extra food for the many dependent colony members (larvae, soldiers etc.). Hence attack on materials (wood) is higher in the field than in the laboratory.

(3) How much food is best? – Different perspectives by termites and entomologists: Lab. groups of termites are supplied with enough wood to leave a surplus at the end of the experiment. However, termites adjust their feeding rate to the amount of food on offer. The larger the block of wood, the higher the consumption rate per termite. This could be a possible regulatory mechanism for the rate of breeding *etc.* Standard laboratory procedures around the world seem to offer termites wood much less than the required wood volume for best performance.

(4) Does Australia really have the most ferocious termites? Claims by Australian pest control managers are discussed. It would seem that as far as timber products are concerned, *Coptotermes formosanus* (Japan, China, USA) is the most aggressive species, with other species in the genus closely following. But for non-woody materials, based on comparative studies with plastic materials in 7 countries, Australian *Coptotermes acinaciformis* has to rank as a distinct number one.

(5) Characteristics of invasive species of termite: Termite species introduced accidentally to

other regions of the world through growing global trade and transport links are posing serious problems to many countries, including Japan. Features, notably the ease with which reproductives are produced, that distinguish invasive from non-invasive species are discussed.