

HOW DOES THE GERMAN COCKROACH, *BLATTELLA GERMANICA* (DICTYOPTERA: BLATTELLIDAE) SPREAD IN THE URBAN ENVIRONMENT?

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Abstract Although there are few cockroaches in newly built or insecticide-treated buildings or houses, they enter from outside, increase in number and spread out widely as time goes by. To elucidate how German cockroaches distribute widely in such places, we previously investigated their horizontal movement using a vinyl tube as a model of a drainpipe in buildings and homes, and reported that the furthest distance of the movement was 20 m. In the present study, their vertical movement was investigated. Cockroaches (25 males and 25 females) were first released in a small dark box with food, water and shelter for a week or two for acclimation. After that, a plastic container without upper cover was connected to the acclimation box with a vertical wooden passage of 90 cm. The experimental equipments were placed in the ambience of constant temperature (26°C) and lighting cycle of day and night. The behavior of cockroaches was then observed each day for a month in two experimental conditions, in one of which food and water was left in an acclimation box and in another, they were removed from the box and placed in a newly connected container. Most of the cockroaches especially females remained in the acclimation box when food and water were left in it. On the other hand, when food and water were placed only in the connected container, many cockroaches moved to the container through the passage. Even if we changed the passage from a wooden pipe to a vinyl tube, the cockroaches showed the same behavior. Even when the passage became two meters long, the same behavior was observed. From these results it was concluded that they spread positively to search the most suitable environment for their survival, though males are more active than females.