Subterranean termites are social insects that live in societies whose members are mostly immature individuals. Their colonies, which can contain thousands to millions of termites, are formidable, even though each individual termite is soft-bodied and delicate. In nature, subterranean termites are closely associated with the soil habitat where they tunnel to locate water and food (e.g., wood, fallen logs, and other cellulose-containing materials). Termites excavate galleries throughout their food as they consume it. Subterranean termites construct aboveground earthen runways (shelter tubes) that protect them from the drying effects of air as well as from natural enemies, such as ants. Termites are very susceptible to desiccation, and thus they are dependent on moisture sources.

Distribution and Economic Impact

In the United States, subterranean termites are found in every state except Alaska (Fig. 1). They are most abundant in warmer climates, where structural infestations are common. Subterranean termites are the most economically important wood-destroying pests in the United States. They are, however, important components of natural forest ecosystems, where they break down cellulose. Unfortunately, when land is cleared for human habitation the termites present may eventually pose a threat to the wood used in construction because their natural food resources have been removed. Nationwide, treatment and prevention of subterranean termite infestations costs approximately $2 billion per year. In Georgia alone, residents spend over $200–300 million per year for the remedial control of existing infestations and the repair of damage that subterranean termites cause to homes and other structures.

Subterranean Termite Biology

Figure 1. Subterranean termites are found in all states except Alaska and are most abundant in the south and southeastern United States.
Social Insects

Termites, like other social insects, are characterized by:

- cooperation in the rearing of young,
- sharing of resources (i.e., food, water and shelter),
- an overlapping of generations (i.e., eggs are laid year-round), and
- a division of labor, characterized by the presence of one or more castes, or life forms.

Eastern subterranean termites have a well ordered social system with amazing engineering capabilities and acute survival instinct; they obtain moisture from the soil and moist decaying timber, and communicate using pheromone signals. Termites are insects that live in loosely associated societies called colonies. A colony is a collection of individuals that cooperate in the rearing of young and that share resources (e.g., food and shelter). Termite colonies are comprised of a few adults (the king and queen) while the majority of the population are immature forms that are represented by approximately equal numbers of males and females.

What Subterranean Termites Need to Survive: Food, Water, and Warmth

Food of subterranean termites consists of anything made of or containing cellulose. Termites feed primarily on dead wood and wood by-products, and only under unusual circumstances will they feed on other living or dead plant tissue. However, in their search for food, termites can tunnel into and damage a variety of noncellulose materials (e.g., rigid foam-board insulation, sheetrock, etc.).

Moisture is the most important factor limiting subterranean termite activity and distribution in the environment. Termites are thin-skinned insects that quickly dry out when exposed to the desiccating effects of wind or dry air and they require a constant supply of moisture. In suburban areas where irrigation occurs regularly, and soil moisture is not limited, colonies are thought to be more active.

Temperature has a strong influence on daily and seasonal fluctuations in termite activity. Subterranean termites will not forage for food when topsoil temperatures are either too hot or too cold. They adjust their activity to seek suitable temperatures and will migrate deeper in the soil when surface temperatures are unsuitable. Foraging termites can also detect temperature gradients in the soil, and under extremely hot conditions seek out thermal “shadows” cast by vegetation, and presumably structures. When temperatures near the soil surface are too hot and the soil becomes dry, termite foraging may be significantly reduced.