Care of Termites

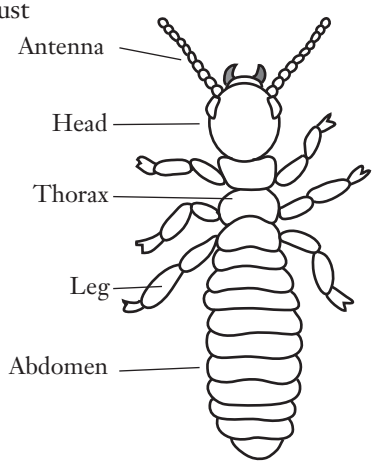
Live Material Care Guide

Background

Reticulitermes flavipes is just one of several species of subterranean termites native to North America. Termites are an important part of the decomposer food chain as they help decompose cellulose into nutrients that enter the soil.

Subterranean termites have a complex caste system characteristic of a eusocial species. The king and queen are monogamous and, along with the alates, are the only members of the colony that can reproduce. The *alates* are the only termites in the colony that have wings. They have four equal-sized wings that fall off when the alates swarm. The swarm is created when numerous alates join together for the purpose of finding a mate to form a new colony.

The wingless, sterile *soldiers* are smaller than the queen and have large orange pincers that are used to defend the colony. The pincers are large enough that the soldiers cannot feed themselves. Worker termites must feed the soldiers.



The wingless, sterile, sightless *workers* are small and cream to white in color. The workers forage and feed the colony, create the tunnels, and care for the young. They have a soft exoskeleton except for their mandibles, which are hard.

Except for swarming alates, termites exhibit negative phototaxis. This is an important behavior since they desiccate easily. In the wild, the colony constructs subterranean tubes or shelter tubes above the soil surface made from saliva, soil, and feces.

The workers consume trees, plant litter, paper, and cardboard because these items are composed of cellulose. Termites are not able to digest the cellulose. Instead, they rely on a complex community of symbiotic microorganisms within their digestive tract. Without these symbiotes the termite would starve. The most common microorganisms found in the termite gut are anaerobic, flagellated protozoa and nitrogen-fixing bacteria. Each microbe fills a specific niche in the complex gut community.

Termites use pheromones, vibrations, and physical contact to communicate with each other. Termites move around and bump into each other and the sides of the colony to transmit alarm to the other members of the colony and to bring soldiers to that area. Pheromones are also used to transmit alarm but termites produce many different types of pheromones. Both volatile and contact. *Volatile pheromones*, such as the nestmate pheromone, disperse quickly. *Contact pheromones* are transmitted by touch and by excreting these longer-lasting pheromones on the ground. Contact-pheromone mimics are used as bait by exterminators. Foragers locate the bait and transmit the location of the bait and a poison back to the colony. Several types of ball-point pen inks also mimic the trail pheromone. This makes for a great inquiry lab.

Housing and Feeding

As with any live material shipment, immediately open the culture jar and ensure the termites arrived alive. In the event there is a problem please contact Flinn Scientific right away.

Termite cultures may survive for a couple of weeks if kept cool, damp, and dark. Simply keep the termites inside the same culture jar in which they were shipped. Keep the lid closed and store in a cool, dark place. The pinholes in the lid allow for air exchange.

The culture jar contains soil, wood as food, and damp cardboard and a cotton wick to help maintain the proper moisture content. Dampen the cardboard as needed to keep a humid environment for the termites.

The termites are not able to reproduce and are not appropriate for long-term culturing. If one should escape, it will not be able to create a new colony or damage school property. Only sterile, non-reproductive termites are permitted to be shipped within the United States.

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Potential Issues

If the culture becomes oversaturated with water, place it into a secondary container and leave the lid off for a few hours.

Termites desiccate quickly. Only remove them from the culture container for a few minutes at time.

Safety Precautions

Always treat live organisms with respect and proper care. Wash hands thoroughly before leaving the lab. Follow all laboratory safety guidelines.

Disposal

Never release live animals into the local environment. They may harbor pathogens that could decimate the local population. Deceased animals may be disposed of according to Flinn Suggested Biological Waste Disposal Method Type IV. Please consult your current *Flinn Scientific Catalog/Reference Manual* for general guidelines and specific procedures, and review all federal, state and local regulations that may apply, before proceeding.

Materials for *Care of Termites* are available from Flinn Scientific, Inc.

Catalog No.	Description
LM1247	Termites, pkg. of 30

Consult your *Flinn Scientific Catalog/Reference Manual* for current prices.