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EASTERN SUBTERRANEAN TERMITE (*Reticulitermes flavipes*)

Termites are wood-feeding insects and are the most economically important structural pests in the United States. The most-frequently encountered termite species in New England is the Eastern subterranean termite, *Reticulitermes flavipes*.

Fig 1: Winged reproductive termites emerging from a tree stump.

Termites are eusocial insects, which means they live communally in large colonies where individuals are divided up into specialized 'castes,' similar to ants. Subterranean termites live deep underground. Termites tunnel up to the soil surface to feed on wood that is in direct contact or in close proximity to the soil surface. Termites eat wood as they excavate it. They possess specialized protists (microscopic single-celled organisms) in their gut that allow them to break down and digest wood cellulose. Unlike carpenter ants, which only excavate previously water-damaged wood, termites can destroy undamaged wood.

Most subterranean termite colonies are located outdoors in wooded areas and have no interaction with man-made structures. Termites in the environment are a beneficial component of wood decay in forests and their ability to digest wood contributes to the nutrient recycling process.

Identification:
The majority of a termite colony's population are members of the "worker" and "soldier" castes. Workers are blind, soft-bodied, and pale wingless insects that are often described as 'white ants.' Soldiers have large mandibles and help defend the colony from intruders. Both of these castes are completely intolerant of the drying effects of open air and spend their entire life underground or inside the excavations of their wood food sources, such as fallen trees. They can also build shelter or mud tubes, which are pencil-sized sandlike tubes which termites construct in order to

protect themselves from exposure and predation while traversing non-wood materials such as stone, walls, etc.

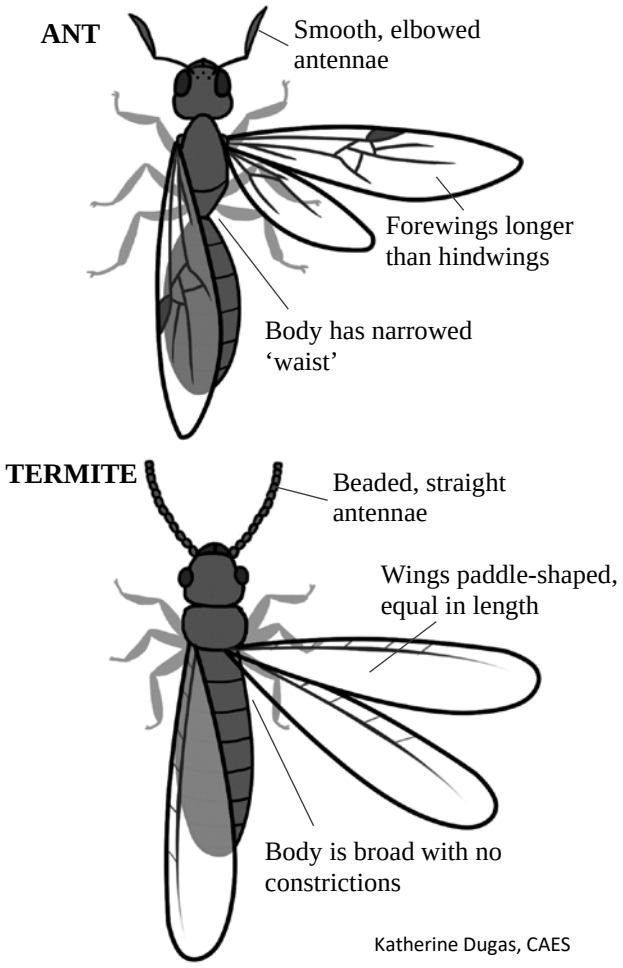

Fig. 2: Comparison of Ant vs Termite Alates

The winged reproductive or "alate" caste is frequently the first indicator of termite presence in a structure. These winged termites are dark brown or black and are often mistaken for flying ants. They appear in high numbers or 'swarms' in the spring, usually March – June, but occasionally on warm winter days as early as January (Fig. 1). They do not swarm in the summer or fall.
The swarming behavior is part of the termite colony's reproductive cycle. The alates disperse into the air to mate and establish new colonies.

When encountering a swarm of winged insects inside a building, it is important to first determine whether they are termites or ants. They can be separated by three characteristics (Fig. 2):

1. Termites: antennae straight, 'beaded'
   Ants: antennae smooth, 'elbowed'.
2. Termites: bodies broad with no constrictions
   Ants: Bodies with distinct narrowed 'waist' between thorax and abdomen.
3. Termites: wings paddle-shaped and both pairs equal in length
   Ants: forewings longer than the hindwings.

Prevention and Treatment:
Preventing termite infestation of structures will stop costly future mitigation. When protecting a home from termites, it is important to understand termite biology and behavior.

Food sources. Termites' primary food is cellulose from wood and wood products (Fig. 3). Always keep any wood materials clear of a structure's foundation. Firewood, brush, lumber, and other wood debris or materials should never be stored against foundations or crawl spaces, because this will both provide an attractive food source for termites as well as create a travel point between the soil and the structure. Wood materials should always be elevated on stone or concrete foundations at least half a foot (6 inches) above the soil. Mulch should be used sparingly along a foundation and should not come in direct contact with siding or any wooden parts of a building.

Moisture. Termites need high levels of moisture to thrive. Reducing soil moisture around foundation and crawl spaces will make these places inhospitable for termites. Make sure downspouts properly divert water away from foundations. Avoid allowing lawn

sprinklers to directly spray building foundation. Any plants or ground cover should be at least 3 feet away from a foundation to help increase air flow.

Access points. Termites may find small or easily overlooked access points into a building. Do not install polystyrene insulation (foam board) below grade, because termites will easily tunnel through soft materials. Wooden porches or decks should be shielded from the main structure using metal flashing. Do not allow climbing plants to grow directly on a structure, because these could provide shelter, moisture, and route to access a building.

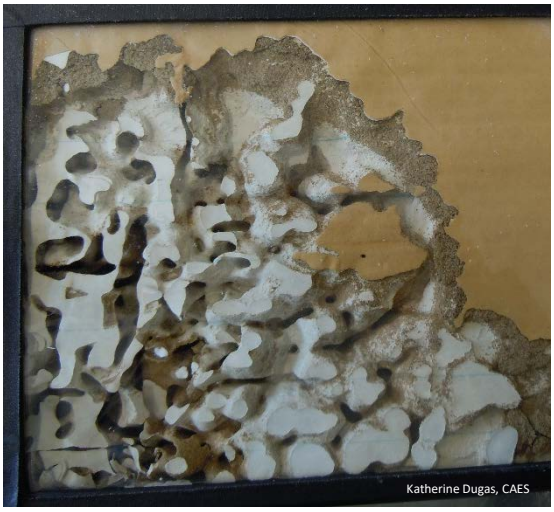

Fig. 3: Termite feeding damage to stack of lined loose-leaf paper

Regular inspection of a building for termite presence or damage is important. Wood damaged by termites will become weak as it is honeycombed with feeding galleries that follow the grain. It will appear intact externally but will sound hollow if tapped. Termites avoid breaking through the surface of wood by listening for sound pitch changes. They do not want to break through, or they will desiccate and die. There is no sawdust or powder associated with termite feeding. The excavated galleries are lined with a mixture of soil, feces, and saliva, which is also used to build their shelter tubes. By comparison, carpenter ant galleries are clean of this 'mud' lining and only extend to where water damage has occurred. To keep their nest and tunnels clean, carpenter ants create 'ant dumps'. These are distinct piles of speckled sawdust mixed with debris. The presence of pencil-sized termite shelter tubes on foundations or other exposed surfaces may suggest current or previous termite activity.

If termites are identified, the assistance of a Pest Management Professional (PMP) is strongly suggested. Attempting to self-treat for termites is not suggested, because it is time-consuming, expensive, and ineffective. Additionally, homeowner-applied treatments will not satisfy the requirements of a home inspection, should a home be later offered for sale.

Although professional intervention will be needed to properly eradicate termites, understand the structural damage termites cause progresses slowly. Immediate or hasty action is not required. A termite colony excavates an average of one square foot of wood per year. It may be tempting to hire the first available professional to handle the problem quickly, but this may result in an overly costly or inefficient treatment. Multiple PMPs should be interviewed to find one that best suits the situation's needs. Multiple interviews of PMPs provides two advantages for the homeowner:

1. Education: A consistent narrative will start to emerge about a particular situation, which exposes misleading claims.
2. Price Balance: Each property dictates particular treatment strategies with a price average. Extremely high or low quotes should then be discarded.

Before treatment, a clear course of action should be collaboratively decided by the PMP and homeowner. This may include direct soil injections of termiticides, baits, or barrier treatments around foundations.