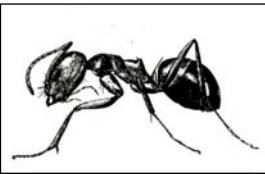
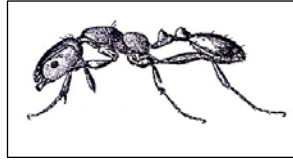
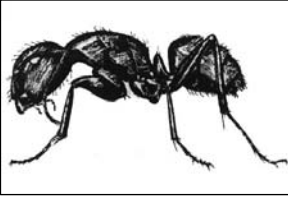


INSIDE THIS ISSUE: ANTS
Information on ant ID, nesting, and IPM strategies



Carpenter ants (top left) are large, have multiple sized workers and are black or brown; **pharaoh ants** (top right) are bi-colored with clubbed antennae; **pyramid ants** (left) have a tooth-like projection on the thorax. Correct ID is essential to any ant control program.

ANTS

Integrated Pest Management (IPM) offers simple, straight forward methods to remedy ant problems in the school environment, so before treating for ant pests, it's important to know a few things.

Ants are social insects and live in colonies organized into a hierarchy made up almost entirely of females. The queen lays eggs, while the role of worker ants includes foraging for the colony's food, defense and tending the larvae. Workers of most ant species may forage during the day but are most active at night. They forage in a random pattern away from the nest in search of food, and when a source is found they return to the nest in a straight line, laying down a scent trail for other foragers to follow back to the food.

New colonies form when workers develop wings, called *allates*, and along with a few males produced specifically for this reason, the allates swarm and reproduce – typically in the summer months. The fertilized female searches for a new colony site, loses her wings and settles in for a long life of egg-laying as queen. New ant colonies can also form when existing colonies break, or "bud", to form *satellite nests*. These secondary, satellite nests occur when the primary nest becomes too large for available resources to support it, is threatened, disturbed, or simply splits for reasons not yet understood.

There are three general locations where ants typically nest, all of which are represented by the three ant species covered here: **Carpenter ants** (wood); **pharaoh ants** (opportunistic locations ranging from outdoors to indoors); **pyramid ants** (soil).

The **carpenter ant** is our largest North American ant at ¼ - ¾"

long (4.5-13mm). They are black or dark brown with faint grey and black bands across the abdomen. They do not possess a sting, but they can use their powerful mandibles to pinch. There are multiple sizes of worker as they are specialized in function. Carpenter ants are **structural wood pests** which chew through wood to create nest galleries and search for food. These ants prefer moist or decaying wood, but will chew through sound wood if no other is available. Carpenter ant damage is not normally as serious as that caused by termites.

Outdoor nest sites include landscape wood pieces, dead/dying trees or branches, stumps, and any hollow wood or even telephone poles (Bennett). They are most active outdoors April through October, during which time you may see an occasional foraging worker indoors since these ants have a roaming range of up to 100 yards.

Mature outdoor nests may give rise to **satellite nests indoors**. If you see carpenter ant activity indoors during the winter months, it may indicate a nest somewhere in your structure. Inside, satellite nests are located within structures where water leakage occurs such as porch pillars, leaky crawl spaces, around bathtubs, sinks, roof leaks, poorly sealed windows or door frames, or even within support timbers (U of A).

Pharaoh ants are opportunistic nesters. Any location from a bandage box to an iron will suffice for a nest! Pharaoh ants are 1/6-1/2" (1.5-2 mm) long, yellow to red in color, and do not possess a sting (<http://schoolipm.ifas.ufl.edu>). These ants are closely associated with human dwellings, particularly in the northern US, and require a specific temperature zone for reproduction (80-86° F). Pharaoh ant nests are located in areas of warmth where moisture is present such as around hot water heaters, in linen closets, behind baseboard heaters, or even hollow shower curtain rods! Workers can be spotted foraging along the edges of walls or furniture in kitchens (cabinets and pantries), in any room along carpet edges, in restrooms, and janitor closets (Hedges).

Their nesting habits make pharaoh ants an excellent vector for disease, and they rank in the top four vectors for food-borne pathogens such as *Salmonella*, *Bordetella*, *Staphylococcus* and *Pseudomonas* among others (Lyon). In hospitals, they are occasionally found scavenging in the bandages of patients! Because of this, **there should be a zero tolerance policy for pharaoh ants in school kitchens and food preparation areas**. Pharaoh ants are also referred to as "tramp ants" due to their transient nesting characteristic. Given any opportunity they form satellite colonies and can disperse throughout a building very rapidly. Do not use bug sprays; it will exacerbate the

problem.

Pyramid ants are soil nesters and are represented by several species in Arizona. There is only one size worker for this group, approximately 1/8" (3.5 mm). The various species can have a reddish to dark brown head and *thorax*, or "mid-section", but all have a black abdomen (hind end segment) and a pyramid-like structure on top of the thorax. Unlike the pharaoh ants, **pyramid ants do not nest indoors**, so foraging workers looking for sweets indoors, around a patio, etc., indicates a nest somewhere around the structure outside (Hedges).

Pyramid ants can nest in full sunlight in gravel, cracks in pavement, and in soil where no grass is present - often in close proximity to the nests of harvester or other ants. Soil from excavated galleries is deposited above ground, forming a 2-4" wide mound around the nest hole; unlike carpenter ants, these ants' nests are very conspicuous. Pyramid ants have a sweet tooth, and foraging workers can be seen on garden vegetation, ornamental plants and trees, gathering honeydew from aphids and other insects in the order Homoptera (Bennett). They do not sting.

ANT Management

At any given time, **workers foraging away from the nest comprise only a small portion of the colony** (just 10% for pharaoh ants!) so **spraying even a few hundred foraging individuals will not eradicate the nest and may even cause the queen to increase egg production**. Reaching for the nearest can of bug spray **will** make the problem worse.

Baiting in conjunction with improved general hygiene is the simplest and most sustainable method of ant management. Baits are slow-acting to allow time for workers to **translocate the poison to the queen** and larvae back at the nest. With severe infestations, such as those that occur with Pharaoh ants, it can take several weeks to eradicate all the satellite nests, so be patient. Try the IPM Ant Management Steps detailed below:

1. **Identify**. With any IPM strategy the first step is to correctly identify the ant in question. Ask your local IPM School District Specialist for help with identification. The IPM Specialist may need to take several specimens to an entomologist working with your district for identification confirmation.
2. **Monitor** ant activity. Set out insect traps—glue boards or other sticky traps— where workers are known to forage or where night time ant activity is suspected. Learning roughly where the nest is located and will make for time and cost-effective baiting. *It is very important not to disturb ant trails, especially with insect sprays; the colony will only move elsewhere and the whole process will have to begin again.*
3. **Eliminate** the ant's food source. This will make the baited food more attractive and more effective. Also note that eradicating the nest is only half the battle; if there's a food source, other ants will eventually detect it and move in.

In schools, classroom hygiene standards may need to be improved, beginning with limiting classroom food and drinks, and keeping stored foods in tightly sealed containers.

4. **Bait**. Place bait where monitoring indicated activity or where scent trails were observed. There are a great variety of ant baits and bait station types available from local pest product companies; Ant Café stations are commonly used for gel and liquid ant baits. Homemade concoctions consist of jelly (mint is effective) mixed with boric acid powder (available over the counter). **Ants will not take up the bait unless the poison concentration is low enough to be undetected (1% boric acid, which is equivalent to 2 cups jelly and 1 teaspoon powder)**. **All ant bait stations should be kept out of reach** as boric acid is toxic if ingested.

5. **Prevent** re-infestations. Ants will move indoors for moisture and warmth as well as food. In addition to eliminating food sources, any openings to the outside or into wall voids, crawl spaces, etc., will need to be covered & sealed with a silicon sealant. Door sweeps help not only with ants but a variety of other insect pests as well, and are a long term cost effective alternative to continual baiting.

Information taken from:

Bennett, Gary W., John M. Owens, and Robert M. Corrigan. Truman's Scientific Guide to Pest Management Operations Purdue University, 2003.

Hedges, Stoy A. A Field Guide for the Management of Structure-infesting Ants G.I.E. Inc, 1998.

Lyon, William F. Ohio State University Extension Fact Sheet <http://ohioline.osu.edu/hyg-Fact/2000/2136.html>

University of Arizona Cooperative Extension website: <http://cals.arizona.edu/urbanipm/insects/ants/ants.html>

University of Florida Cooperative Extension website: <http://schoolipm.ifas.ufl.edu/tp6.htm>

Using IPM Pest-sighting Log Books:

Pilot schools participating in the IPM in Schools program have an "IPM Pest-sighting Log Book" available in three rooms: main office, teacher's lounge, and kitchen.

This logbook is the centerpiece of IPM communications and should be used by everyone - teachers, kitchen staff, grounds & maintenance crews, and administrators - to report insect and other pest sightings on school grounds. Everything is fair game, from the roach scurrying behind the fridge to the spiders or rodent droppings under sinks.

You can be sure that your IPM Specialist will deal with the pest problem if it is recorded in the log. We need the whole school community to make this program work, so use the logs - we want to hear from you!

For Further Info. Contact: Jennifer or Dawn, University of Arizona (520) 568-2273. dhgouge@ag.arizona.edu



Bugs @ home

Few bugs are bad! More than 95% of all insects are beneficial to humans.



Cooperative Extension
Urban Integrated Pest Management

