



My Drift

Title: Ants

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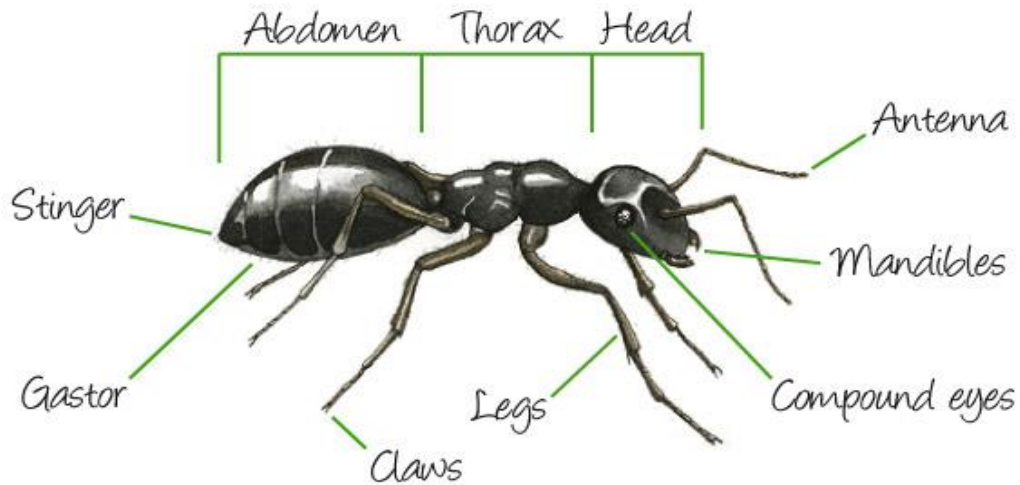
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Here is a subject that we all are familiar with – Ants. Yes, we all have a few thousand ants living with us. We don't always see them but they are there living on your property and some are in your house. I know at my place I don't have to look too hard to find a few hundred ants running around on the outside of my house and if I look a little closer, I can find a few in my house. Living in Hawaii, if you can't co-exist with a few ants, cockroaches, and rats, you better move to North Dakota or Alaska. They have ants, cockroaches, and rats in those states but not as many during the winter when it is 30 below zero. Ants are impossible to kill as you will find out later in this article. Yes, you can kill a few with your finger tip and your ant traps but there are always more ants to take their place. After all, it is estimated that there are over 10,000,000,000,000,000 ants currently alive today. For you non-math majors, that is 10,000 Trillion or 10 Quadrillion ants! Hawaii has their share of these ants.

There are more than 12,000 species of ants all over the world, over 1,000 species in the United States, and over 40 ant species in Hawaii. Since there are so many kinds of ants, we will discuss ants in general plus a little more about the primary or most common ants in Hawaii. And just for fun, we will talk about a few of the most unusual and dangerous ants.

Ant Anatomy



Colony

A family of ants is called a colony. A colony has different types of ants, each has different jobs, all are crucial to their survival. The most distinguishing trait of ant behavior is sociability. Ants do not act individually; they behave according to the needs of the colony in roles dictated by the caste (hereditary social status) into which they are born. The major social unit is the colony, which forms an ant nest.

Meet the ant family of a normal colony:



Queen

Queen ants are the founders of all colonies. Most colonies have one queen ant. Once mated, she can stay fertilized for many years laying millions of eggs. Some queens can lay thousands of eggs each day. They really are egg laying machines. Queen ants also have the record for the longest living of all insects, ranging from one to up to thirty years!



Worker

Minor worker ants, or simply 'workers', are the most common ant found in any colony. These sterile female ants are the smallest ant, but they do the most work. Some look after the queen and brood, some forage for food from around the nest, while others maintain and expand the nest. Workers can live between a few months and up to five years.



Soldier

Soldier ants are also known as major workers or big heads. These sterile female ants are larger and stronger than typical workers. They protect their colony from large predators and use their strength and large jaws or mandibles to cut and carry larger objects. In leaf cutter ant species, the soldiers cut through the thicker plants so that the minor workers can carry the clippings back to their nest.



Princess

A **princess ant** is an unfertilized virgin queen, she has wings present and so is a flying ant. Princesses take to the skies to mate on a warm, humid summers day also known as the nuptial flight. Once mated, they scurry along the ground to find a suitable nesting place to lay their eggs. They clip their own wings and use them as a protein source to feed their new family.



Drone

Drones are the only male ants in a colony. They are born from un-fertilized eggs. Drones don't do any work in their nests. They are reproductive winged ants. They take to the skies on the same day as the princesses to mate during the nuptial flight. Ants only mate while in flight. Once they have mated, they die. Drones will only survive a few months during the mating season. Their life is short lived, but like all ants, they play a crucial part in the ant life cycle.

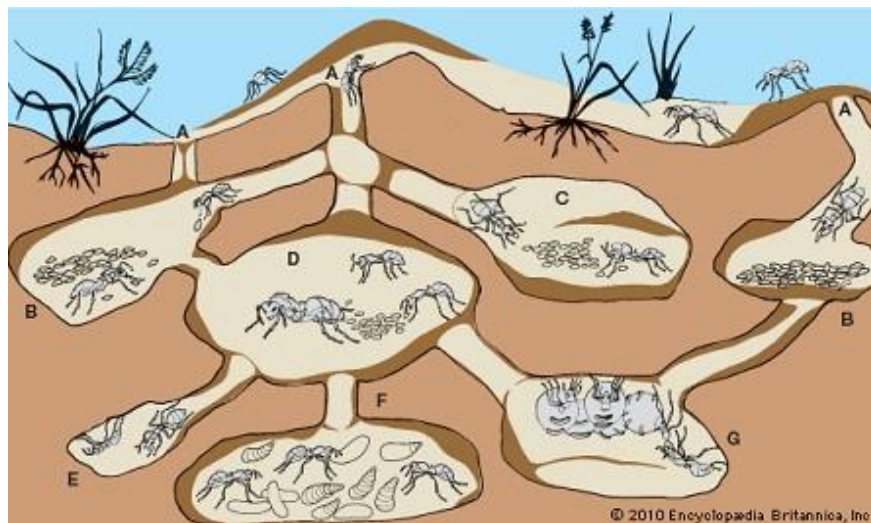
Ants Function as a Superorganism

Ants are everywhere - they thrive in forests, fields, deserts, and cities all over earth. But what is the secret behind their success? Like humans, ants are social. They live and work together in highly organized societies called colonies. In fact, most ant colonies are so united toward the common purposes of survival, growth, and reproduction that they behave like a single organism, or a "superorganism."

Just as an individual ant has different body parts that fit and work together, an ant superorganism has multiple colony members that cooperate to accomplish extraordinary feats. This social behavior gives ants a major advantage over solitary insects and other animals. Let's take a sneak peek inside the secret society of an ant superorganism.

Home sweet home

Ants build their homes in all sorts of places. Most species dig underground nests and/or build mounds of soil. Others live in leaf litter, acorns, or rotting wood on the forest floor. Some ants prefer to take cover underneath rocks, which can also provide warmth. There are even ants that nest only in trees. Ants are excellent architects - their nests are designed to provide just the right environment for larvae to grow. Some nests even have a built-in ventilation system to circulate fresh air.



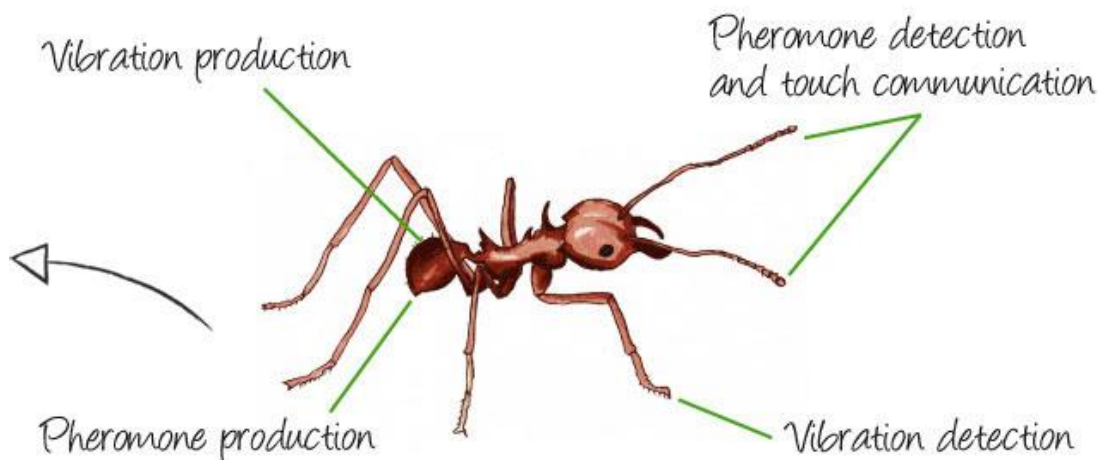
An ant colony has several entrances (A), leading to a variety of subterranean chambers. Each chamber has a specific use. Some are for food storage (B). The queen has her own room (D). In another chamber workers tend unhatched eggs (C). A deeper room serves as a nursery for larvae and cocoons (F). In the replete gallery (G) are the worker ants whose expanded abdomens contain surplus food for the colony. In another room (E), worker ants are digging a new chamber.

Working together

An ant colony is like a factory. Nestmates work together to convert resources (food) into products (more ants). This process is made more efficient through division of labor, where different individuals specialize on different jobs. The queen has the very specific role of laying eggs, which she spends most of her life doing. Worker ants perform other duties, often depending on their age. Younger ants work inside the nest, taking care of the queen and her brood. Older workers go outside to gather food and defend the nest against enemies. Despite her size and royal title, the queen doesn't boss the workers around. Instead, workers decide which tasks to perform based on personal preferences, interactions with nestmates, and cues from the environment.

Communication skills

Members of an ant colony 'talk' with one another to coordinate their activities, but they never have to raise their voices since ants have no voice. Instead, ants communicate mainly using chemicals, which they smell with their antennae. Workers release pheromones with specific messages, such as "Follow me to food!" or "Attack the intruder!".



Nestmates recognize one another by chemicals that cover their bodies. The queen is coated with a unique blend of chemicals that advertises her presence. In addition, ants can also use touch and vibration to communicate in some situations.

Ants and our Environment

Although ants are frustrating when they get into your home or when you're having a picnic, ants do help the environment and our ecosystem. Many ants are carnivorous in that they attack kill and feed on other insects and small animals, so they help keep populations under control. They also help aerate the soil by tunneling underground, and some even help to pollinate plants as well.

Thousands of heads are better than one

Each individual ant has a very tiny brain. But all the ants of a colony combined are pretty smart. Ant superorganisms can solve difficult problems by processing information as a group. For example, a colony can compare potential nest sites before collectively choosing the best one. A solitary insect would not be able to weigh as many options, and could more easily make a mistake.

Hunting and Farming

One ant by itself cannot do much harm to larger animals. But an ant colony is a major force to be reckoned with. Hunting in groups allows ants to overcome much bigger and stronger prey. By teaming up, ants can even defend their colony against mammals. You may have been unlucky to experience such an attack first hand!



Other ants are more peaceful farmers. For example, leafcutter ants collect vegetation to grow nutritious fungus gardens inside their nests. Some ants make a living as ranchers. They herd plant-sucking insects like livestock and feed on their sweet leftovers. Such agriculture is a group effort in ants and humans alike.



The ants go marching... to war

Ants are very loyal to their own colony, but they can be quite nasty toward outsiders. Competition among colonies for food and other resources often leads to aggression. Many species establish a territory around their nest that is off-limits to neighboring ants. If members of a rival colony invade, all-out war can erupt. Workers sometimes sting, spray, and/or bite to the death foes during these battles. Thus, the worst enemy of ants is other ants, not humans.

Okay, by now we know more about ants than we ever wanted to know. Right? Well, just in case you said, “Wrong – I want more interesting facts about ants”, the next couple of pages are for you.

Did you know?

The average life expectancy of an ant is 45-60 days.

An ant can lift 20 to 50 times its own body weight. If a second grader was as strong as an ant, she or he would be able to pick up a car!



Some queen ants can live for many years and have millions of babies!

When ants fight, it is usually to the death!

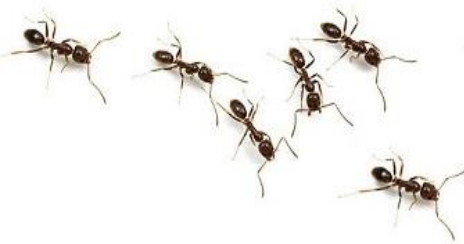
When foraging, ants leave a pheromone trail so that they know where they've been.

Ants don't have lungs. Oxygen enters through tiny holes all over the body and carbon dioxide leaves through the same holes.

Ants can have their own slaves! Sometimes a queen ant will kill the queen of another colony similar to her species and use its workers to bring in her eggs. Other times an ant colony will steal eggs from other nests and raise those ants to be workers for their colony.

When the queen of the colony dies, the colony can only survive a few months. Queens are rarely replaced and the workers are not able to reproduce.

The biomass of all the ants around the world is roughly equivalent to the biomass of all human beings around the world. There are approximately 7.5 billion people currently living on earth. And as we learned earlier, there are approximately 10 Quadrillion ants living on Earth at any given time.



Ants don't have ears. Ants "hear" by feeling vibrations in the ground through their feet.



The largest ant ever discovered measured was the Titanomyrma Giganteum. It was 2.4 inches long.



Titanomyrma Giganteum



Mycocepurus Smithii

Some species of ant have no need for males. The species Mycocepurus Smithii, are completely made up of females. Their queens are able to reproduce clones and do not need a male to reproduce.



Ants have been around since the age of dinosaurs. The ant species first evolved approximately 130 million years ago during the Cretaceous Period. Ants are pretty tough. They have survived one mass extinction event already. About 65 million years ago when the Cretaceous-Paleogene extinction event happened, the collision between the earth and a large heavenly body ended the age of the dinosaurs, but spread ant specimens across the globe. This event, in a way, only made the ants stronger.

Some worker ants are given the job of cleaning trash or unwanted items from the nest and taking them outside to designated trash piles – Ants are so clean!

The human brain consists of 10,000 million brain cells and an ant brain has 250,000 brain cells. 40,000 ant brains all together could make up for about one human brain.

Ants can form super-colonies that can stretch for miles. Ant colonies have their own chemical profiles that helps ants determine if an ant is part of the colony or a stranger.

The only places without ants are Antarctica and a few remote islands.

Most ants can sting, but they aren't dangerous, although there is the bulldog ant in Australia and the Red Harvester Ant in Southwest United States that has a sting that can hurt or even kill a person.



Harvester Ant



Bulldog Ant

Most Common Ants found in Hawaii

Almost everybody I talk to has complained at one time or another about those little black ants that invaded their home. Yes, these are the kind of ants that we have at my house.

Their real name is **Pavement ants**.



The pavement ant is dark brown to blackish, and 2.5–4 mm (1/16 inches) long. There can be thousands of pavement ants in a small area. And, although pavement ants are ground-nesting ants that are usually found in the cracks of pavement, concrete, and crawling on your house. They can also come into your home in large numbers. Fortunately, they do not bite.

Carpenter ants are very common across the U.S. including Hawaii and Alaska, but are often confused with termites. Most carpenter ants are larger than termites (0.3 to 1.0 inch long). Much like termites, carpenter ants can cause structural damage to your house.



I sure hope I don't have these ants at my house.

Pharaoh ants

This is another ant you're likely to find on your property, if you live in Hawaii. They are also common household invaders. At under 2mm (1/13 inch) in length, these small reddish ants, with their dark tipped abdomen, can enter in mass numbers. A single colony can have several hundred thousand individual workers living in it.



Tropical Fire ants

These tiny red ants with their dark tipped abdomen are known for their painful sting. For some, this sting can cause an allergic reaction. There is not usually too much to worry about with fire ants; most people can brush them off and get away from their stinging bites. But, for those who cannot get away from them, such as babies and small animals, these ants can be a threat.



Back in 2014, we had an outbreak of fire ants in the town I live in – Mililani, Hawaii. It took a couple of years to kill all of these little buggers. Here is the story as reported on HawaiiNewsNow TV news:

Little fire ants invade Mililani Mauka neighborhood

MILILANI, OAHU (HawaiiNewsNow) -

One of the world's worst invasive species has been found in a larger area of a residential neighborhood on Oahu than initially thought.

An army of insect experts made the find in a Mililani Mauka neighborhood while going after an army of newly discovered little fire ants. "This ant lives in trees, in the

lawn, in your car, in your house, in your mailbox. It could be potentially anywhere," said Robert Curtiss, Little Fire Ant Response Team Incident Commander.

Members of various agencies baited this neighborhood on Auina Street with vials of peanut butter. Then they came back an hour later and found several samples swarming with little fire ants.

"Anytime that it's in a neighborhood and it's this size, it's really going to be difficult to deal with and it is a really big problem, for people and pets," said Curtiss. They can even take a bite out of home values. "It's going to be hard for people to sell houses that have little fire ants because nobody is going to want to move into a house that has ants that might sting them at night," said Curtiss.

That does happen. Ants would come into Jordan Lee's bedroom when he was a baby and sting the little guy. "They would come up the crib into his mattress where he was sleeping and had a feast," said Joseph Lee, whose son was bit by the fire ants. Others were also bit while tidying up inside their home. "Just cleaning and I felt something bite me, but they're really tiny they are like pinpoint kind of," said Michele Ae, who says the welts from the bites lasted two weeks. "Real sore. Kind of almost like a mosquito bite. It was really itchy but more painful than itchy."

They first noticed the ants four years ago, but back then they didn't know to report it to the state. Now to keep these little terrors from spreading more, the state will bait in as many places as possible, but the tiny ant won't disappear quickly. "It can take many years before we're sure that it is gone," said Curtiss.

In this case, the infestation is worse than the state thought. Ants are in the gulch next to Auina Street and in the Koala Street neighborhood on the other side of the gully. The fear is the state may lose the war with the ants and they'll spread all over the island.

"I'm really concerned because my wife is very sensitive to insect bites, so I'm hoping they don't make it to my house," said Kopalani Street resident Darrel Yoshino. "It becomes something like termite control. It's not something that is feasible for a department to deal with," said Curtiss. If that happens people would have to call their own exterminator.

"Kill them before they get us," said several Mililani Mauka residents.



Concerned Mililani Mauka Residents



Detection Crew Looking for Fire Ant Nests



Little Fire Ant Nest



Captured Fire Ants in a Test Tube

**Follow up on the Mililani Mauka Fire Ant problem
Good news for residents in Mililani Mauka.**

Pest detection crews recently returned to the neighborhood to make sure the Little Fire Ants discovered back in 2014 are gone. They tested 21 residences on two streets, and results all came back negative.

Ant Quote

“If ants are such busy workers, how come they find time to go to all the picnics?”



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