



BBB

CRIME FILES
GROSS
MISCONDUCT
583947

Cockroach infestation

(3:19)



Conducive Conditions

Basic Needs of Everything

- Ω **Air**
- Ω **Food**
- Ω **Water**
- Ω **Shelter**
- Ω **Social Interaction**



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*lone exception

Conducive Conditions

Food - trash

Water - leaks

Warmth - furnace, dishwasher

Darkness

Sanitation Issues

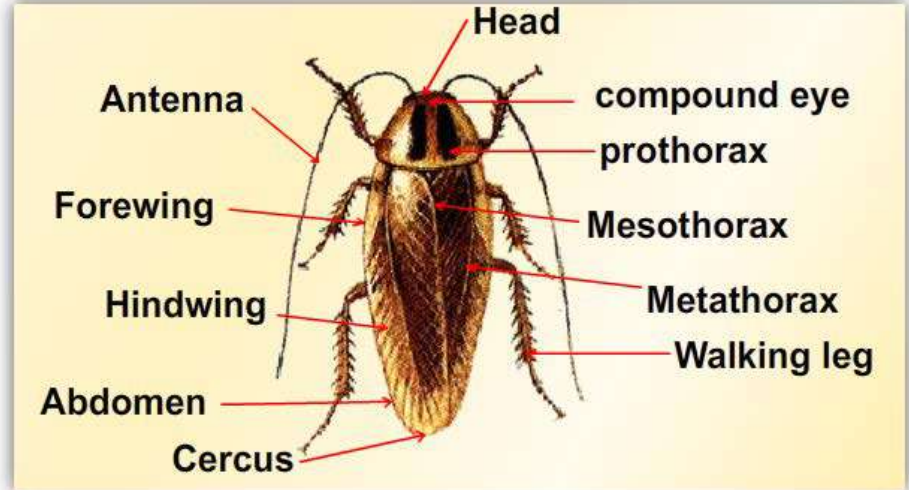
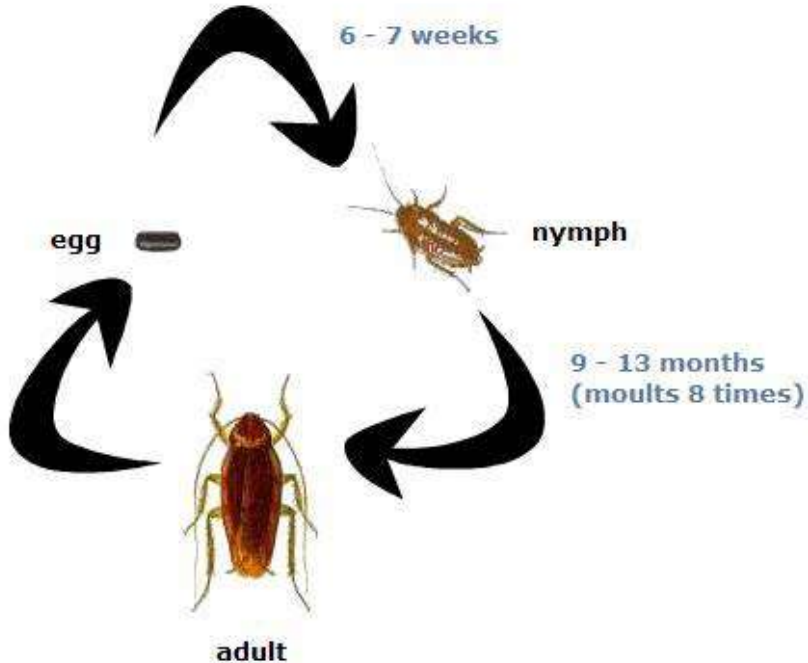
Can go a month without food!



Where are those
conducive conditions?



Cockroach biology



German Cockroach biology

Females Mate Once, 1-2 year life span

Egg capsules (oothecal) 25-45 young

Egg to Adult in less than 28 days

Communicate through process known as coprophagia

Travel 12' or less from 'fecal focal point' to feed

Gravid females rarely leave fecal focal areas

Cracks / Crevices $\frac{1}{8}$ ", do not like air flow



A cockroach egg case (ootheca)

Each egg case has a double row of eggs that hatch into young cockroach nymphs — for some species, the German cockroach, for example, you can tell how many eggs are in one egg case by the indentations outlining each egg compartment. Thirty-two nymphs can hatch from the German cockroach egg case alone.

The incubation time depends on temperature — some studies have shown that development is twice as fast at 95°F as it is at 70°F. This may be why cockroach problems are usually worse in the summer, or around sites that are unusually warm — for example, under refrigerators or near hot water heaters.

Although females of most cockroach species carry the egg case for less than two days, the German cockroach carries and protects hers for 15 days or more. Cockroach females deposit their egg cases in secluded sites, and some species glue them onto surfaces.



German



Greg

Raymondo

~2017



Insects emit a foul odor and leaves **fecal** pellets wherever they travel. Odor is the result of fluids secreted by the scent glands in its abdomen, as well as fluid it regurgitates while eating. ...

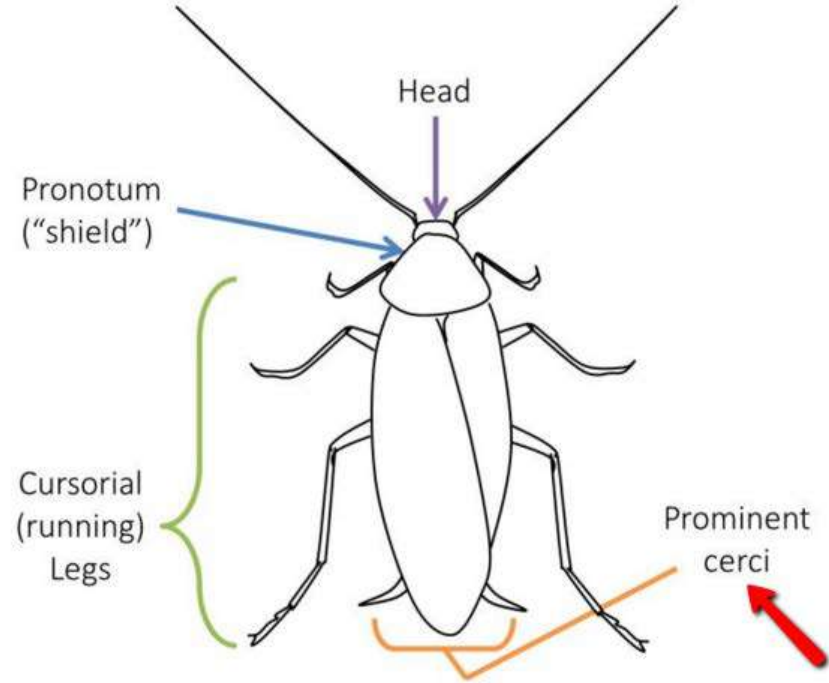
The **fecal focal point** is where they socialize and communicate as well as the central toileting area for the **cockroach** population.



cer-cus

'sərkəs/
noun

plural noun: **cerci**



1. a small appendage at the end of the abdomen of some insects and other arthropods, occurring in pairs.

Detects motion & air... very sensitive.

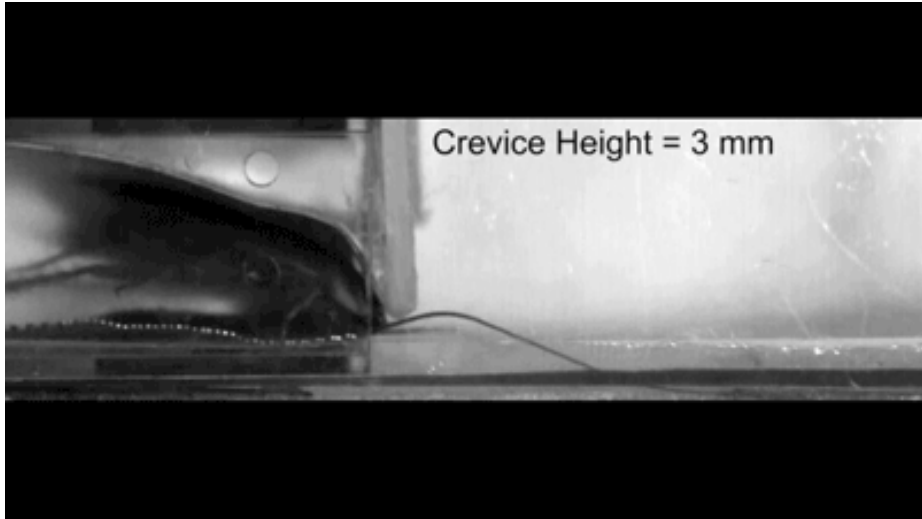
Cockroach antennae *(keep it clean!)*

Insects such as cockroaches, house flies, and carpenter ants often engage in antennae-grooming behavior.

Antennae serve not only to feel out the environment but also to sense odors, grooming keeps the antennae in top shape.



A cockroach diligently cleans his antenna. Photo by Ayako Wada-Katsumata





German Cockroach

Nymphs need water daily

Not nocturnal but prefer darkness

Explore new food sights readily

Exoskeleton responsible for allergies

Need to eat every 60 days to survive



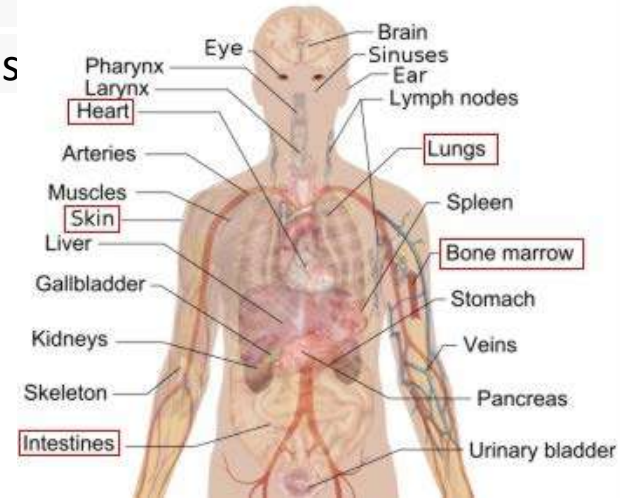
Disease Carrying...

Insects (**mosquitoes, cockroaches, fleas, bed bugs, ticks**) are able to transmit a number of diseases caused by infectious agents: **viruses, bacteria, and parasites** (yellow fever, dengue fever, Lyme disease, plague, Gastroenteritis, Dysentery, Salmonellosis, malaria, sleeping sickness).

Cockroaches can also trigger **asthma** and other allergies, as well as spread *E.coli*, *Staphylococcus aureus* and Streptococcus



Staphylococcus aureus
INFECTIONS



Cockroach Vector

(20 seconds)

This German cockroach is the vector of *E. coli* bacteria in a petri dish. Each place the cockroach touches turns dark and spreads, showing the spread of the bacteria. Roaches also carry disease pathogens such as salmonella, streptococcus, dysentery, hepatitis B, plague, cholera, and more.





Health Risks

ASTHMA

- Certain proteins in cockroach faeces, saliva, and body parts trigger allergic reactions and asthma symptoms.

SALMONELLOSIS

- Infection caused by *Salmonella* bacteria. In most cases the illness lasts four to seven days and requires no treatment.

E.COLI

- Causes serious food poisoning.

DEFECT ACTION LEVELS

"It is economically impractical to grow, harvest, process raw products that are totally free of non-hazardous, naturally occurring, unavoidable defects."

Food and Drug Administration (FDA) calls them "natural contaminants", they are allowed and present in your food.



*The FDA's action level for peanut butter is 30 or more **insect** fragments or one or more rodent hairs per 100 grams.*



COCKROACH

CONTROL



Control

Max Force gel - Magnum bait

Phantom - knock down (immediate results for customer)

Gentrol - growth regulator

Spray low, bait high



Matt D:

Deformed roach

2016



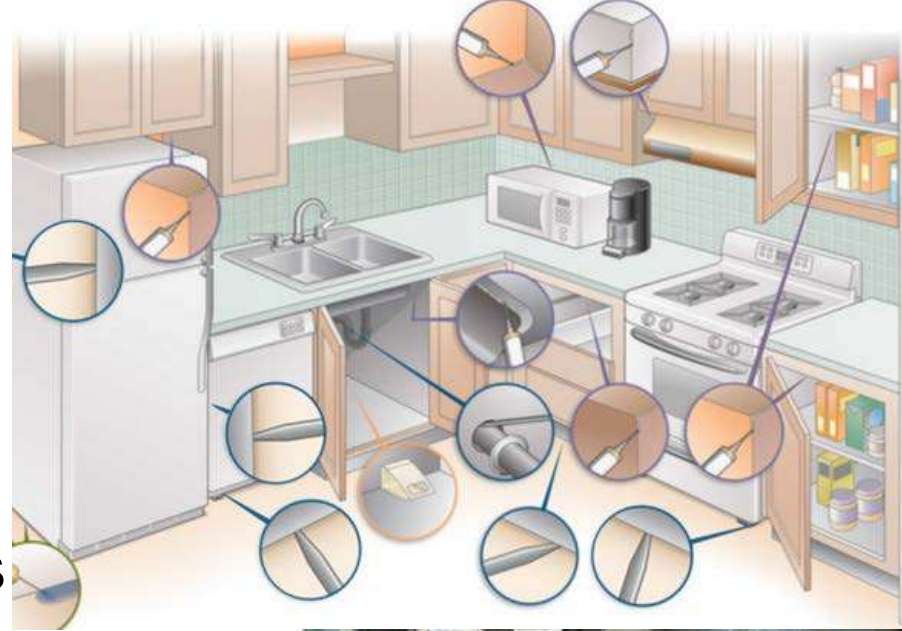
Baiting vs. Spraying

reading the monitor

where do roaches hide? why?

how do you look for cockroaches

tools needed



WAYS TO MAINTAIN COCKROACH FREE FACILITY

- **Make sure your facility is cleaned on a nightly basis**
 - **Clean and pour bleach down floor sinks**
 - **Remove standing water**
 - **Remove food debris**
 - **Clean and sanitize equipment**





Break Time?

