

Welcome!

As a commercial property manager you understand that knowledge is the key to dealing with any crisis, and insight is the ability to address a situation before it becomes a problem. Property inspections are key to seeing problems before they escalate into a crisis. Often though, problems can hide in plain sight simply because you don't know what you are looking at.

We at Pestgon have spent many years working with commercial property managers and have come to know the unique pest control issues that you face. This experience has prompted us to develop a handbook specifically to address your needs.

What are those holes in the embankment? Are they gophers? Meadow voles? Squirrels? Rats? Your million dollar tenant calls in a panic because someone found a scorpion in the shipping department; could there be hundreds more lurking under the desk in the other office? How do you react to bee swarms on your property? Why is the CEO getting gnats in his 15th floor corner office? Can we knock down those mud nests that the swallows are building on my building? These are just a few of the questions that we get everyday from property managers like yourself.

The intention of this handbook is to empower you with the years of experience that we have collected. It is a reference guide we hope will prove to be invaluable in your property inspections, responding to your tenants, and the expansion of your own personal knowledge.

Knowledge is power.

Sincerely,

Pestgon Management Team

Inspection Tips

From a pest control stand point, there are several areas to consider in a property inspection. Some understanding of site conditions can go a long way to identifying possible problem areas on your projects.

Does the property have any canyons or undeveloped properties?

These conditions can support a wide array of insect and wildlife issues, many out of your control. However, taking steps to make sure that all the door seals are in place, access holes around pipes have been sealed and all possible harborage areas are excluded will go a long way toward diverting problems before they arise.

Are trash areas maintained and kept reasonably clean?

There are three conditions that must be in place for rodent problems to develop: a place to eat, a place to drink and a place to sleep. If trash areas are maintained, especially around food handling establishments, many pest problems can be mitigated. Also, a policy of all trash must go inside the dumpster will limit harborage areas and nesting material.

How well does my building need to be sealed to be ‘Rodent Proof’?

Rats and mice have an uncanny ability to find the most obscure ways of entry. Typically research tells us that if a rodent can get his skull thru the gap, he can get into the building. That means for rats, a gap of one half inch is all that’s needed, whereas mice can squeeze thru a gap as little as one quarter inch. So, even with properly installed rodent exclusion, a regular program of exterior rodent abatement is recommended.

Are rodent droppings really that much of a concern?

First, many have concern about Hantaviruses which can and do kill people every year; however that actual possibility of exposure is very limited. With that said, rodents are disease vectors and the presence of large quantities of droppings is indicative of a sustained population. For additional information on Hantaviruses:

<http://www.cdc.gov/ncidod/diseases/hanta/hps/noframes/caseinfo.htm>

What can be done about mosquitoes?

Mosquitoes have become a real concern because of the increase of West Nile Virus. Flying insects by their nature are hard to eliminate, but attention to a few conditions can greatly reduce to exposure of your tenants to mosquito borne disease

Is the property being over watered?

It is best to discuss this with your landscape company regarding the conditions on a specific property. However, be aware of areas where standing water may accumulate because these can be areas where mosquito the populations, given the right conditions, can explode.

Are there water features like fountains or ponds being maintained?

Sometimes the maintenance of fountains can be overlooked as a breeding ground for mosquitoes. Regularly adding chlorine tablets to the water will eliminate the possibility of a problem. However, treating ponds with chlorine may be impractical, especially if the pond supports water fowl. In this case the introduction of mosquito fish may be the answer. Originally introduced into California as early as 1922, they have been one of the most effective non-insecticidal and non-chemical methods of controlling mosquitoes. Contact your local Vector Control for more information.

Is there debris like tires or plastic containers that have standing water in them?

Mosquitoes don't need much to reproduce. A little sun-warmed standing water in a plastic dish in the right conditions is all it takes. Talk to your day porter about being alert to excess trash and debris on the project. An ounce of prevention is worth a pound of cure.

Why does the CEO in the 15th floor corner office have gnats?

Fungal gnats are always found in relation to organic matter. Generally a problem like this stems from the fungus growth on plant roots such as potted plants that have been over watered or received that half full cold cup of morning coffee. Sometimes the problem stems from the stagnation of water in the condensation pans of the air conditioning units. Usually if the office has a service to maintain the plants cutting back the watering schedule will keep the fungus that the gnats feed on from developing. Additionally, just because the gnats show up in the CEO's office doesn't mean the source of the problem is in his office. Gnats migrate to the warm side of the building and will congregate on the windowsills. Our question is, *"Why always in the CEO's office?"*

What about bees?

Africanized “killer” bees are here to stay in Southern California. **IF YOU HAVE BEES ON YOUR PROPERTY, CALL US IMMEDIATELY!** Our technicians drop everything they are doing to respond to a bee call because of the immediate threat to people. These bees kill people every year and many more are hospitalized. Bees on your properties must be considered a serious situation and steps should be taken to limit the liability exposure. We recommend that day porters be supplied with yellow caution tape to cordon off the area as soon as a swarm or hive is reported. Bees as a swarm passing thru your property generally are not inclined to attack. However once a swarm becomes a hive in a protected void, they become very territorial and can be very aggressive.

What can we do to keep bees from creating a hive on the property?

A diligent examination of the structures is needed to identify possible hive sites. Our experience has shown that bees often exploit construction flaws around roof lines, electrical conduit, gas and water lines, holes in the facade around signage or electrical boxes. Any hole that allows access to a void should be sealed.

What is involved in removing an established bee hive?

Once a hive is established the bees are quick to make a comb and begin honey production. If a hive has been left to develop over a month or so, several pounds of honey may have been produced. Once the bees are removed its important to open the void and remove the honey before it runs down the wall or ceiling, creating additional problems with ants, rodents, bee moth and fungus. Our in-house contractors open up the wall, remove the honey and comb, treat the cavity with chemicals to break down the bee pheromone, fill any entry point, and reseal the wall to original specifications. To give you an idea how busy bees can get, we removed a hive from an architectural dome on a commercial building that had a hive established and untreated for many years. We calculated that over 1000 pounds of honey and comb were removed!

Why do we keep getting bees returning to the property?

Bee swarms are the product of an established hive splitting once they have reached the capacity of their present location. European bees typically divide 2 to 3 times a year. The Africanized bees however, can and do swarm approximately once a MONTH! So one swarm in January could be over 2000 swarms in December! So, as you can see, the number of bee swarms has increased dramatically. Due to the nature of this insect there are no practical pretreatment methods available.

Why are all my pittasporum bushes turning brown and dying?

The pittasporum or “mock orange” is a small low-growing bush that is found in many landscape schemes and is very susceptible to damage by the California Meadow Vole. The Meadow Vole is a small rodent, a little smaller than a mouse, that chews away the bark around the base of a variety of landscape bushes, thus killing the plant. Regular rodent abatement with an agricultural bait is the best method of control.

I’ve got little paths worn in the grass areas. What could cause this?

Here again, the likely cause is meadow vole activity. They will often excavate a small hole about an inch in diameter and chew down the grass blades at the entrance as well as along paths to other burrows. They tend to be very social creatures so if you have one you probably have many.

I just planted fifty flats of flowers along the entry to the project and they’re gone!

Strange but true. The culprit is more than likely rabbits running amok. At this point in time, the State of California does not allow us to use rodenticides against rabbits. Trapping is the only alternative. Our recommendation in this case is to discuss the problem with your landscaper to determine which plants are less likely to be eaten by hungry rabbits. There are some repellent treatments with short-term effects that can be helpful in protecting many plantings from rabbit damage.

We’ve got bats in our belfry!

Bats are actually beneficial because they moderate the flying insect populations. However, large quantities of bats can produce a lot of bat guano that can be a vector for disease. Currently there are varieties of fruit bats that fall under the Protected Species Act; so any removal of bats must be done in accordance with the law. Pestgon has developed ways to remove bats from nesting sites without harming or capturing of the bats.

What’s digging up my lawn?

Have you ever seen holes in you lawn that seem to appear over night? Most likely you’ve been visited by a skunk, opossum or raccoon. They often dig up well watered lawns in search for grubs that live around the roots of the grass. This problem is usually seasonal and can be mitigated with a reduction in irrigation in tandem with the application of a pesticide to kill the grubs. Live trapping of the animal is recommended if the problem persists.

I've got several people in an office area that complain about phantom bugs or itching. What could cause this?

They are sometimes affectionately called “no see-ums.” Here are a couple of considerations. Fungus gnats, which are a very tiny flying insect, can be the phantom pest that flashes in front of your monitor. Fungus gnats breed in moist and sour conditions. Finding the source is the key to control. Also, there is what is known as the ‘office itch syndrome’. One person claims to feel a bite or an itch and the next person agrees; soon the whole office is itching! Some may complain of paper mites or cable mites, but that is a myth. There is no known mite that attacks paper or computer cables. However, there may be other considerations requiring a more thorough investigation.

I've got tenants complaining about fleas.

Fleas need a blood host to survive. In most circumstances this means an animal host. Although fleas will bite and feed on humans, they typically need an animal host to perpetuate the life cycle. In commercial settings it is unlikely that fleas will progenerate without an animal host (dog, cat etc). In most cases fleas often hitch hike to the office from the home of a dog or cat owner. Once an area is treated reinfestation is unlikely.

I just had a flea treatment a week ago and the fleas are back.

Fleas start out in the egg cycle. In this state they are impervious to any insecticide. When a flea treatment is performed the adulticide kills the adult flea and the IGR inhibits the growth and development of fleas in the instar to biting adult stages. However 10 to 14 days after the initial treatment some of the egg hatch and can become biting adults. This is short lived because the now adults come in contact with the insecticide residual and die in 2 to 4 days.

We see snails on our buildings and windows. What damage do they cause and what can be done to control them?

Snails breed in moist conditions so they are most prevalent during the rainy season or where irrigation keeps the soil damp. They are also host specific; so the type of landscape planting plays a significant role in their presence. Snails secrete a caustic fluid that is very destructive to painted surfaces. They leave a very unsightly mess on buildings. They also leave permanent, nickel size, ring marks etched into building paint and glass surfaces. Reflective window glass is particularly vulnerable to etching damage from snails. Snails are also very damaging to certain landscape plantings. They are best controlled with agricultural bait requiring an Agriculture Applicators license.

Some of our projects have rattlesnake problems; what can be done to stop them?

Rattlesnakes are found where there is sufficient cover to hide and a food source. Commercial projects and homes on canyons and next to brushy hillsides are most apt to host rattlesnakes. Keeping the brush cleared away for approximately 50 feet is helpful. Also, removing piles of debris that may become a harborage is important. A good rodent control program around buildings is important to eliminate their food source. Pestgon recommends and employs other prevention measures including direct removal.

What can be done about pigeons and seagulls atop our parking lot lights?

Pigeons and seagulls, like other nuisance birds, are present because of a food source. Usually, it is near a restaurant or food court area where they hang out. In localized areas, eliminating the readily available food is the first step. Exclusion or deterrent methods, such as spikes or 'Hot Foot', may also be used effectively.

Can I knock down the mud nest that the Swallows make each year?

Time of year is the key to the answer. Nesting swallows come under the Migratory Bird Act. So if the swallows have completed the nest and are sitting on eggs, destruction of the nest may result in a very steep fine. However, the nests can be removed while they are building and after the young have left the nest, without penalty.

What is digging the burrows in our crib walls?

Squirrels are master excavators, and because of this attention must be given to any activity noted on crib walls and embankments. Squirrels have been known to undermine walls to the point of collapse. With the heavy seasonal rains that we get in California an embankment riddled with squirrel burrows is ripe for landslide.

A scorpion was found in the shipping department; is my building infested!?

Scorpions are usually solitary insects that roam in search of other insects to eat. Office areas do not provide a suitable habitat for scorpions. However occasionally one may wander in an open door. In areas where scorpions are common, the first control strategy is to modify the area surrounding the buildings. Sanitation is the first and most important step in scorpion control. Cardboard boxes, boards, rocks, and debris should be eliminated around and near foundation walls. Sticky traps at entry points is a good trapping method. The use of insecticides for scorpions is usually a last resort.

What about Termites?

Termites are ravenous wood scavengers and specialists at boring wood and eating out the soft cellulose between the wood ribs. Subterranean termites inhabit the damp soil in search of decaying underground wood. They built mud tubes from the ground up to the wood floor joists and substructures of buildings. Drywood termites generally seek dry wood above ground, such as wood siding, window frames and attics. Finding a pile of tiny pellets (like saw dust) that has fallen out of a small hole in a piece of wood is usually the first evidence of a dry-wood termite infestation. Many times, termite damage isn't readily apparent because they hollow out the inside of the wood members. So, a good rule of thumb is to have your property inspected once a year.

If termites are found, do we have to fumigate?

Sometimes fumigation of a structure is impractical because of the tenant impact. The treatment method is directly proportional to the extent of existing damage. If the damage is severe enough, fumigation may be your only option. However, in the great majority of circumstances other options are available that will have a lower impact on your tenants. Many termite infestations begin at the extremities of the building and can be addressed with local spot treatments.

If we have to fumigate, how long does it take?

Generally most buildings take three days to turn around. In some circumstances a two-day turn around can be requested for an additional fee.

Are subterranean and drywood termites treated the same?

No. Fumigation has little or no effect on subterranean termites. The colony lives in the soil; so treatment would include drilling through the concrete slab in the infected area and injecting systemic termiticide into the soil around the damage. Drywood termites are rarely found near the soil, and, as their name suggests, inhabit dry wood of attics, patio covers and exposed wood members.

What Am I Looking At?



How often have you been on a property and seen a hole in the embankment or a mound in the lawn or a web in a tree and wondered, 'What am I looking at?' Early identification of pest control issues can go a long way toward eliminating a future tenant issue.

This section is to describe some of the common things you may see as you perform your property inspection as they relate to pest control.



Gophers build a network of subterranean tunnels. Every few feet the gopher will create a secondary tunnel used to eject soil excavated from the main run.

The mound created by gophers is usually round or horse-shoe shaped and approximately 8 to 16 inches in diameter. When a gopher is excavating a warren or den the mounds can reach two to three feet in diameter



Tunnel entrances are never left open unless immediately active. A feeder hole is pictured to the left. Notice the entrance is plugged and much of the surrounding vegetation has been eaten. Feeder holes lack the excavation mound and usually indicate that this area has had recent activity.



California Meadow Voles create small holes linked together with well-worn paths. The holes are usually about an inch in diameter and are neatly trimmed around the entrance. The holes are always open with no evidence of excavation. The hole entrances are usually grouped close together. Often vole damage extends to bushes and small trees. Damage is indicated by bark girdling at the base of the plant extending four to six inches from the ground, or, in the case of pittasporum, plants the damage can be seen at branch intersections as well.

Sometimes apparent vole damage, like the example to the right, is actually bark damaged by the landscapers weed trimmers. The difference is trimmers tend to shred the bark and voles trim the bark clean. If you are in doubt as to the cause, give us a call and we'll have a technician dispatched to identify the cause for you.





Rats often exploit old or abandoned gopher runs. Rat holes are open two to three inches in diameter and irregular in shape with no evidence of excavation. (left)

Rats gnaw impulsively and often gnaw holes around pipes, electrical conduit, through wood, drywall, ceiling tiles and insulation. Rat damage is always accompanied by elongated droppings. (Below)



Rats are often drawn toward electrical cable due to the electromagnetic fields produced around live wires. The results can be catastrophic if the rat shorts the circuit and starts a fire. (Above)

High traffic areas are evidenced by grease marks around entry points and along runways. This type of evidence denotes a large long-standing infestation.





Here are a few examples of rat damage to vegetation and produce. The damage is usually irregular and haphazard. Often commercial projects have plants in the landscape that are fruit bearing, either seasonally or perennially. It is recommended that food sources such as fruit-bearing plants, be reconsidered or avoided when making choices about landscape. If the food sources are limited or removed, there is a direct correlation to the numbers of rodents that the property can support.





Squirrels, like rats, can reinhabit old abandoned gophers runs. However, they are excellent diggers and can quickly excavate long burrows; so they are more likely to create their own dwellings. Some varieties of squirrels gnaw the bark of trees along branches, causing damage to conifers as well as deciduous trees.

Squirrels are also likely suspects in flower destruction, often eating only part of the flower blossom as noted in the picture to the right.





Burrows are usually three to four inches in diameter with evidence of excavation in and around the entry. Squirrels are often found in groups, as they tend to be very social creatures; so many times the excavations can be very extensive. If left unaddressed, embankments and crib walls can be undermined to the point of collapse.

Vast networks of tunnels can provide harborage for other rodents like rats and mice. Or with a little effort to expand the burrow, larger animals like skunks, opossums and raccoons could make a squirrel burrow home.



Pestgon FactSheet

"If they fly they die...if they crawl they fall."

ANTS: Argentine (Iridomyrmex humilis)

Description:

The most common structure-infesting ant, in Southern California is the Argentine ant. They are small, a little more than an eighth of an inch long. They are light brown to shiny black and are often seen actively traveling in trails in large numbers.



Biology: The Argentine ant is the most persistent and troublesome ant in our environment. Pestgon, Inc., has noted that any other ants are only an occasional nuisance. Argentine ants are very aggressive and will drive out other ant species from their territory. They nest and proliferate in the damp soil of landscapes, under rocks, ground covers, walks and even in a crack of a concrete slab. They also commonly nest in sheaths of palm trees and under plastic sheeting covered with decorative landscape bark. When aphids are present on the landscape plants, they harvest the honeydew secretions and tend the aphids as caretakers and protectors. Argentine ants develop huge colonies with endless trails going to and fro in and around structures, invading everything in an occupied building in search of food. Entomologists at the UC Riverside, have told Pestgon, Inc., that the huge colonies are actually just one monstrous, super colony covering all of Southern California. That is because, unlike other ants, Argentine ants readily accept each other, from colony to colony. They are particularly fond of sweets. Their prodigious numbers can be in the thousands in a lunchroom, kitchen or food area and they can readily find food in any office environment. When they do, they bring an army of scavengers. These ants gain access through the most minute cracks and openings and will travel up trees and shrubbery, even telephone wires, to enter a building.

Economic Impact:

The fear of having thousands of ants show up in a lunchroom, kitchen or workspace is intolerable and can cause an immediate response if even one ant is seen. The presence of an ant in our home, office or work environment seems to trigger an emergency alarm in most people! Pestgon, Inc., has found that Argentine ants are at times attracted to electrical switching equipment, computers, and control devices and can die in large numbers, causing a shut down of sensitive communication equipment.



Pestgon FactSheet

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IMPORTED FIRE ANT: (*Solenopsis invicta* or *Solenopsis wagneri*)

Description:

Fire ants are small (less than a quarter of an inch long), and look very much like ordinary house or garden ants. This species can easily be confused with the common native ants. Imported Fire Ants are coppery-brown to black and live in colonies that consist of visible dirt mounds that can become as large as a washtub, with long underground tunnels.

The nest mounds have no obvious entry or exit holes on top of them.

Their dome-shaped nest mounds can be found next to, or underneath objects on the ground, such as boards, rocks, pavers, bricks etc. Pestgon, Inc. has noted that mounds will not always be evident, and are usually found in open areas such as lawns, landscape, fields and along pathways. These ants also establish colonies under sidewalks and roadways.

Biology & Habits:

Since the early 1920s these aggressive and destructive creatures have slowly migrated throughout most of the southern United States. They are now present in southern California and are developing as a serious threat to both people and property. All wingless ants are workers, sterile females. The winged forms, or reproductives, live in the mound nest and swarm twice a year, usually in the afternoon, soon after a rain. Swarming is most common in spring and fall. Fire ants can be distinguished by their aggressive behavior, particularly near the nest. They are venomous and highly mobile. Only a small percentage of persons are sensitive to the venom and experience serious redness and swelling or allergic reactions. If stung, apply ice to the affected area for 10 to 15 minutes.

Economic Impact:

Imported fire ants cause significant damage to plants in the irrigated landscape. They are especially destructive to turf grass areas and their unsightly dirt mounds cause damage to mowing equipment. Pestgon, Inc. has found that certain ants can collect in large numbers in electrical switching equipping, causing expensive shut-downs. Fire ants also nest within urban structures such as the walls of commercial buildings, offices and homes. Building invasions can threaten the occupants, especially children and the elderly. Such invasions are especially prevalent during periods of heavy precipitation.

and flooding. When such a nesting site is abandoned, the deep hollows and loosened soil can cause structural cracks to appear and will occasionally result in the complete collapse of sections of these structures.

One of the greatest economic impacts and dangers posed by the Imported Fire Ant results from short circuits and fires in electrical systems when the ants move into circuit breakers, relays, motors, and other electrical devices. Fire ants are attracted by electrical currents and have caused considerable damage to heat pumps, air conditioners, telephone junction boxes, transformers, switches, etc. Why certain ants are drawn to electrical currents is still something of a mystery.

Management Methods:

Pestgon, Inc. employs a combination of Integrated Pest Management techniques to prevent and eradicate this serious pest. Pestgon, Inc. recommends a monthly pest management service and thorough inspections in order to prevent the establishment of Imported Fire Ant colonies.



Pestgon FactSheet

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BATS (Order Chiroptera)

Description:

Bats are flying, fur bearing, mammals. Flying in an erratic manner, they are often seen foraging for insects in the twilight sky of summer. Most have a facial look much like a mouse with wings. The wings are thin, gray in color and opaque, and bats have no visible tail. Some have very big ears compared to their size. Most local bats are approximately three inches long with a wingspan of four to six inches.

Biology:

There are about 40 species of bats north of the Mexican border. Most are found in the southwest. The natural habitat of bats is dark secluded areas such as caves and hollows; so they naturally use wall voids, attics and ceiling voids of buildings. Bats are nocturnal hunters and easily eat their weight in insects every night. So, in their natural habitat they are protected as a beneficial insect predator. Some species are colonial and develop very large roosting colonies.

Economic Impact:

To begin with, the noise created by squeaking, scratching and scrambling bats, in attics, walls and building voids can become very objectionable. Pestgon, Inc. has noted that bats tend to return to the same roosting sites and, it is said, they live over twenty years. The buildup of fecal droppings (guano) and urine, with their attendant ammonia odors, can become very pungent and unbearable. These droppings can create damaging stains, impregnating the wood and interior structure, thereby causing great expense to clean up the offensive problem. Also, bats are serious disease carriers, including deadly rabies and Valley Fever. They are, therefore, a public health hazard.

Management Methods:

Pestgon, Inc. is very knowledgeable and experienced in dealing with nuisance bat problems in commercial, office and industrial buildings. Prevention and exclusion are the first line of defense. Also, creating one-way exits with no return and use of repellents, such as bright lights and drafts are employed as the situation dictates.

Pestgon FactSheet

"If they fly they die...if they crawl they fall."

BEES: (*apis mellifera*)

Description:

For the purpose of this discussion, description is limited to the common, garden-variety, Honey Bee and it's hybridized form, the Africanized Honey Bee, some times referred to as the 'killer bee.' Both are common in Southern California. Typical Honey Bees and Africanized Honey Bees look identical. It is very difficult to accurately tell them apart in the field. Both are about one half inch long, having two pair of wings, the front being larger and longer. Their bodies are constricted in the middle and the larger aft portion is banded, generally black/dark brown and yellow. They are most often seen when collecting nectar on flowers or going and coming from an entrance to a cavity that is either in a tree, ground or a building. They may also be seen moving in a large swarm or collected together in an oval-shaped ball, hanging from a tree branch, often about the size of a football or smaller.



Biology & Habits:

Honey Bees are social insects, having a hierarchy of a queen, workers and drones that form large colonies. The worker bees are the ones most commonly seen gathering nectar from various flowers. Individual bees are usually quite docile while foraging for food. They carry pollen and nectar back to the hive, which is tended by the colony to form honey. Pestgon, Inc., finds that, Honey Bees, including the Africanized Honey Bee, often start a hive in wall voids and attics of commercial buildings and other structures. Unlike Honey Bees, Africanized Honey Bees commonly build their nest or hive in ground holes, water boxes, woodpiles, air conditioner voids, electrical boxes, vents and many other voids, often in or close to the ground. If their hive area is disturbed they attack and sting the intruder in mass. They swarm often, are very aggressive and particularly vicious. They are known to chase a person as far as one quarter of a mile. Both man and beast have been killed by the brutal attack of Africanized Honey Bees.

Economic Impact:

Obviously, fear of bees for tenants and the public at large can be very costly to owners and property managers in terms of business relations. Left unchecked, Honey Bees are more than just a nuisance but a serious liability. The longer Honey Bees are active in a wall void or attic, the more honeycomb they build up. Pestgon, Inc., always recommends, that after the bees are removed, the honey and the honeycomb be removed and

cleaned up, or it will sour and liquefy and begin dripping into the building. Such a circumstance can cause untold damage to the structure, both inside and out, and complicate future pest control issues.

Management Methods:

The experts of Pestgon, Inc., are specially trained and licensed to remove Africanized Honey Bees. Pestgon provides highly qualified licensed general contractors to deal with the complexities of bee hive removal or any subsequent building repair.



Typical examples of an Africanized Honey Bee cluster





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GROUND BEETLES (*coleoptera / carabidae*)

Description:

Ground beetles are referred to as Carabids. They range from 1/16 to 1-3/8 inches long. They appear somewhat flattened and generally elongate, with threadlike antennae and hard wing covers that meet in a straight line down the center of the back. The wing covers have numerous parallel ridges running lengthwise. Ground beetles make up one of the largest groups of beetles in North America. There are more than 2200 species. With some variation in their body shape and coloring, most are shiny and black.



Biology:

Adults are active at night and tend to hide under rocks and moist debris during the day. They will run when exposed. They forage at night and feed on insects and their larvae. Likely targets include caterpillars, root maggots, snails, and other soft-bodied insects.

Economic Impact:

Ground beetles are very common "outdoor" insects that occasionally become pests by wandering into buildings by mistake. They do not damage structures or furnishings and are harmless to people and pets. They are actually beneficial because they feed on insect larvae. However, large numbers are occasionally present and they become more annoying than beneficial. Pestgon finds that their presence in commercial buildings is therefore more of an image problem requiring their control and removal.

Management Methods:

Beetles may enter into structures by crawling through small openings or under doors. They prefer the outdoors and if left inside will die in a short time. Since ground beetles are beneficial insects, harsh pest control methods are usually not necessary. However, if they are creating a nuisance by getting inside, Pestgon recommends the removal of leaves, mulch and debris around the perimeter of the buildings. This will usually be sufficient. Caulking and weather-stripping entry points will eliminate their getting in to a building. Spot treating with baits labeled for such application may be necessary to control extremely high populations from becoming a nuisance.



Pestgon FactSheet

"If they fly they die...if they crawl they fall."

Bedbugs

Bedbugs are small, brownish flat bugs that feed only on the blood of animals. They are roughly the size as a ladybug. They cannot fly, but move quickly over floors, walls, ceilings and other surfaces. They have small eyes and large antennae. The most common type of bedbug that bites human is the *Cimex Lectularius*. It is found in North America, Europe

and Central Asia. They are not known to transmit any diseases to humans.

Bedbugs infestations were common in the United States before WWII. As cleanliness improved, and with the use of DDT in the 1940's and 1950's, the bugs almost disappeared. The presence of bedbugs has recently started to rise throughout the United States, but they are still very rare.

Bedbug Bites

Bedbugs usually bite people at night while they sleep. They feed through biting through the skin with a long beak that they use to draw the blood. The bedbugs swell as they feed on the host. Some people develop an itchy welt from bedbug bites. They will feed anywhere on the body where skin is not covered up.

Where They Come From

Although it seems as though bedbugs have come out of nowhere, they are usually brought into the home on luggage, clothing, used beds and used furniture. Traveling to different areas of the world, such as places in Asia, Europe, the Caribbean or Central and South America are often a common source.

High Risk Places

Hotels, motels and apartments are the most likely places to encounter bedbugs because of their high turnover rate. Once bedbugs are introduced, they spread from room to room. The cleanliness of the building is not always a factor. If you travel and stay in a hotel, check for bedbugs in between the mattress and the box spring. Bedbugs move quickly and it does not take long before they are in your luggage.

Signs of Bedbug Activity

Bed bugs are most active at night. They hide during the day where humans tend to sleep. Their flat bodies help them fit into tiny areas. Their favorites places to hide are in

mattresses, (especially around the seams) box springs, bed frames and behind head boards. An easy way to tell if you have bedbugs is by seeing dark spotting and staining on your mattress. It is caused by their droppings. Also, you might see the eggs and eggshells, molted skins of aging nymphs and the bugs themselves. If you have a large number of bedbugs, there may be a sweetish odor, although this is not always easy. Bedbugs normally start off in the bed, but they will spread around the house and hide in small crevices.

Bedbug Prevention

In order to reduce bedbugs in the home, the following steps should be taken:

- Reduce clutter around the home
- Seal cracks and crevices
- Check all second hand beds, bedding and furniture
- Examine the bed and headboard area for signs of bedbugs when traveling
- Keep luggage off the floor
- Wash, dry or freeze an clothing bought at a garage sale or second hand stores

right

away

Bedbug Control

The only way to remove bedbugs from your home is by using insecticides. Household surface sprays containing Malathion or Pyrethrum can be somewhat effective, but they may not remove the full infestation. It is recommended that you contact a licensed pest control company for the treatment of bedbugs.

Bed Bug Life Cycle

Female bedbugs can lay from one to twelve eggs each day. The eggs are dropped on rough surfaces or in cracks and crevices. Their eggs are coated with sticky glue and hatch in anywhere from 6-17 days. Then they turn into nymphs where they have different stages each needing a blood meal. They reach adulthood between five weeks to four months depending on how much food they have had and temperature. They can live around 12-18 months and over three generations can occur in one year.

Pestgon FactSheet

"If they fly they die...if they crawl they fall."

FLEAS (*Ctenocephalides felis*)

Description:

Cat fleas are the most frequently encountered fleas in the commercial office environment. Since they are common pests on domestic cats and dogs, fleas or their larvae may be brought in to the office by an employee having personal contact with them. Being very tiny insects, adult fleas are difficult to see and identify. They are wingless insects, approxi-

mately one eighth inch in length and reddish brown to black in color. They are slim and compressed-looking from side to side, so appear to be walking 'on edge.'

Biology:

Fleas have piercing-sucking mouthparts through which they obtain blood meals from their host animal. Flea larvae develop more quickly at higher temperatures. When temperatures are cool, fully-formed fleas may remain in their cocoons for up to 12 months. Warm temperatures and carpet vibrations stimulate the emergence of new fleas. Fleas may be found on pets throughout the year, but their numbers tend to increase dramatically during spring and early summer. So, a similar scenario can happen in an office environment because of those having close contact with infested pets.

Economic Impact:

The cat flea is suspected of transmitting murine typhus to humans, but its primary importance is its annoyance to people and pets. Cat fleas readily try to feed on almost any warm-blooded animal. Bites tend to be concentrated on the lower legs but can also occur on other parts of the body. Needless to say, a flea infestation can disrupt a whole office and cause a costly shut down until the pest problem is eliminated. Pestgon is quick to solve any such problems— often even the same day.

Management Methods:

The best approach to managing fleas is prevention. New, and safer, and more effective products aimed at controlling fleas on the pet have made flea management, without pesticide sprays, feasible in many situations. Controlling common fleas in office buildings requires a variety of approaches. Before Pestgon technicians start a control program, they seek to determine areas where larval development may be occurring. Flea populations are highest in areas where dogs or cats or people carriers spend the most time. Flea larvae are not usually found in areas of heavy pedestrian traffic or locations that receive exposure to sunlight.



Pestgon FactSheet

"If they fly they die...if they crawl they fall."

FLIES (*Musa Domestica*)

Description:

Flies are insects with two pair of wings. There are many types of flies in Southern California. They vary in color from black green to shiny blue. They are all associated with filth, garbage and decaying matter. The common housefly is the most prevalent in our retail and commercial environment so, it is well known by everyone. The adult is gray to gray-black and is about one quarter of an inch long.

The clear wings have a distinctive vein pattern. The Domestic House Fly is the major fly pest of most concern on commercial properties, so it is the subject of this Pestgon FactSheet.



Biology:

All flies, including the Domestic House Fly, are associated with unsanitary conditions so they are disease carriers. When feeding, house flies regurgitate some of their stomach contents on the food, which dissolves it. Then they suck it back into their stomach. They leave fecal deposits where they have walked. While walking and feeding on garbage, fecal material and food, flies may transfer disease organisms from both inside and outside their bodies. They are associated with more than a dozen different diseases. The life cycle from egg to adult may be from eight to 12 days in warm weather. Here is a Pestgon, Inc., factoid. "A pair of breeding flies beginning in April, if all were to live, would result in 191,010,000,000,000,000 (191 quintillion 10 quadrillion) flies by August. Allowing one eighth cubic inch to a fly, this number would cover the earth 47 feet deep." The flight range of a housefly is from two to 20 miles. We are fortunate that predators, parasites and a number of other factors drastically reduce fly populations. Nevertheless, in uncontrolled conditions, there can be thousands of nuisance flies.

Economic Impact:

It goes without saying that flies are among our most despised pests in our building and food environments. The presence of flies suggests unsanitary conditions and all that is associated therewith – pathogens, diseases, contamination and odors. For that reason, fly infestations (as well as cockroaches and rats) come under the laws of the Health Department. So, Pestgon, Inc. recognizes, that the economic impact of uncontrolled fly infestations on commercial, industrial or office property can become significant.

Management Methods:

The professional arsenal of Pestgon, Inc. includes prevention, a meticulous inspection regimen, sanitation advice, follow-ups, baits and appropriate insecticides. An effective pest control program, involving flies, requires a mutual effort on the part of owners, managers and the professional pest management of Pestgon, Inc.

Pestgon FactSheet

"If they fly they die...if they crawl they fall."

FUNGUS GNATS (*Sciaridae*)

Description:

Fungus Gnats are gray to dark gray flying insects. They are very small flies (less than one eighth of an inch long) with two pair of wings. Often they are only glimpsed as they fly past your computer screen or around your head. This can become very annoying.



Biology:

The potting soil of indoor plants is usually the source of any fungus gnat infestation. Fungus gnats breed in over-watered and decaying organic matter. This is often the case with indoor potted plants. Fungus gnats are a common problem in office buildings and other areas where decorative indoor plants are present. Left uncontrolled, they can breed into the thousands. They seek light so will fly toward a computer screen or will be found in large numbers at the windows and on the sills.

Economic Impact:

Pestgon, Inc. has learned over the years, that, as with any other insect pest, office personnel will become very aggravated by the nuisance of fungus gnats in their work environment. Often they are not really seen, but only glimpsed. This can cause a great commotion about the mysterious no-see-ums. Workers may even start complaining about mysterious bites and itching due to the presence of, now you see-um, now you don't, fungus gnats.

Management Methods:

The professional arsenal of Pestgon, Inc. includes sticky-trap monitoring and inspections. Informing the plant service people about plant fungus problems and if allowed, application of appropriate insecticides will remedy the problem. An effective pest control program, involving fungus gnats, requires a mutual effort on the part of plant service people, managers and the professional pest management of Pestgon, Inc.

Pestgon FactSheet



"If they fly they die...if they crawl they fall."

POCKET GOPHERS (*Thomomys spp.*)

Description:

Pocket Gophers are burrowing rodents with fine short fur, dark to light brown in color. Adults are approximately six to twelve inches long, depending on the species. They get their name from the fur-lined external cheek pouches, or pockets, that they use for carrying food and nesting materials. Having power-

fully built forequarters and large-clawed front paws makes them well equipped for digging and tunneling underground. Pocket gophers have small eyes, small external ears, and highly sensitive facial whiskers to assist movements in the dark burrows.

Biology:

The most common species of pocket gopher found in southern California, is the Botta's pocket gopher (*Thomomys bottae*). Although they are sometimes seen feeding at the edge of an open burrow, pushing dirt out of a burrow, or moving to a new area, gophers for the most part remain underground in their burrow system. Mounds of fresh soil are the best sign of gopher presence. Typically mounds are crescent or horseshoe-shaped. Gophers may occur in densities of up to 16 to 20 per acre and, a single pocket gopher burrow system can cover an area of 200 to 2,000 square feet.

One gopher may create several mounds in a day and are most active during spring and fall when the soil is moist and easy to dig. Pestgon notes that in irrigated commercial properties such as lawns, flowerbeds, and gardens, digging conditions are usually optimal year round and mounds can appear at any time.

Economic Impact:

Pocket gophers often invade landscapes, lawns and gardens. They feed on many landscape crops, ornamental plants, vines, shrubs, and trees, either killing or seriously damaging the plantings. A single gopher moving through a flowerbed can cause considerable damage in a very short time. Gophers also gnaw and damage plastic water lines and lawn sprinkler systems. Their tunnels can divert and carry off irrigation water and lead to soil erosion. Mounds on lawns interfere with mowing equipment and ruin the aesthetics of well-kept turf grass. Slopes and embankments are vulnerable to serious winter erosion when gophers are not eliminated and allowed to burrow unchecked. So pocket gophers are an economic hazard to any landscaped property.

Management Methods:

Regular inspections and early detection is the key to managing pest gophers. If feasible, Pestgon may recommend the perimeter removal of weedy areas, adjacent to commercial landscapes and gardens, in order to create a buffer strip of unsuitable habitat. This can serve as an exclusion or prevention measure. In addition, Pestgon is very successful in using a variety of elimination measures, including underground toxic baits and fumigants.



Typical Pocket Gopher damage is easily identified by raised mounds of dirt six inches to two feet wide. Gopher runs are typically closed although recently excavated feeder holes will be open with plant material trimmed around the immediate area.



Pestgon FactSheet

"If they fly they die...if they crawl they fall."

VOLES (*microtis*)

Description:

Voles, also known as meadow mice, are small grayish-brown rodents found outdoors in landscapes. They are short-haired about five to eight inches long and appear stubby and compact, with small ears and short tails and small eyes.

Biology & Habits:

Voles are often found in grassy and ivy covered landscapes. They are active both night and day. They feed on the root tubers of a variety of landscape plants and grasses. They also feed on the bark and twigs of various shrubs, causing a great deal of damage to certain landscape plantings. Pestgon technicians have seen areas where they have produced hundreds of exit holes with runways on the surface between them. The unsightly holes are clean openings, approximately golf-ball size, showing no soil mounds. They do not venture far from their burrow system. Peak breeding takes place spring and fall.

Economic Damage:

Most plants tolerate minor vole damage. However, in certain environmental conditions, vole populations explode. Under these field conditions, there can be several thousand voles per acre. Such populations can cause devastating damage to landscape grasses, shrubs and trees. The demise of most trees and shrubs is by girdling of the bark of the trunk and lower limbs. When limbs die off separately, it is called 'flagging.' It is often confused with drought conditions and lack of plant nutrients, but a closer inspection may reveal girdling of plant bark by voles. Pestgon recognizes that the economic impact to your landscape investment may become very costly if voles are not controlled.

Management Methods:

Since voles seek dense plant cover, Pestgon, Inc. recommends skirting up trees and creating a bare area under the drip line to discourage voles from girdling trees since they rarely feed in the open spaces. Trunk guards are also helpful to protect trees from above ground girdling. The use of registered rodenticides are very effective in eliminating vole populations. These chemicals and baits must be applied by a certified pest control technician, such as Pestgon, Incorporated.

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"If they fly they die...if they crawl they fall."

HOUSE MOUSE (*Mus musculus*)

Description:

The house mouse is a small slender rodent with a slightly pointed nose and relatively large ears and small black, bulging eyes. They are generally grayish brown with a gray or buff belly and weigh about 1/2 ounce. An adult is about five and one half to seven and one half inches long, including the 3- to 4-inch tail. Mice are active mostly at night, but they can be seen occasionally during daylight hours. House mice are considered among the most troublesome and economically damaging rodents in the United States.



Biology:

Native to Central Asia, the house mouse arrived in North America on ships with settlers from Europe and other countries. The house mouse often lives in close association with humans. They are more common and more difficult to control than rats. Mice are very prolific. A female may have as many as 12 litters in a year, of about five or six young. Although house mice usually prefer to eat cereal grains, they are “nibblers” and will sample and contaminate many different foods. Mice naturally live outdoors. However, at the beginning of cooler weather in the fall, mice seek shelter and food inside homes and commercial establishments and any other structures. They can squeeze through openings slightly larger than one quarter inch wide, such as the space under a door. Mice are also excellent climbers and are able to run up any rough vertical surface and then travel horizontally along wire cables.

Economic Impact:

The economic impact of mice can be very serious, but they do not cause the same degree of health and economic problems as rats. They do, however, contaminate and destroy many stored food products with their nibbling and droppings. Pestgon has been called in where they have caused havoc to a data communications system by nibbling on the small wires. Mice also commonly destroy paper goods, woodwork, furniture, upholstery, and clothing. It is known that mice contribute to the spread of diseases such as murine typhus, rickettsial pox, tularemia, food poisoning (*Salmonella*), and bubonic plague. Recent research has also shown that they carry a virus—the mouse mammary tumor virus (MMTV—that may contribute to breast cancer in humans. (Indik et al, 2005; Stewart et al, 2000) If known, the presence of mice causes tremendous anxiety among certain people, especially in an office environment.

Management Methods:

Effective control involves sanitation, exclusion, and population reduction. Pestgon recommends preventive measures such as, sanitation and exclusion as the first line of defense. Exclusion is the most successful and permanent form of house mouse control. When a mouse infestation already exists, some form of population reduction such as trapping or baiting is almost always necessary.

Pestgon FactSheet

"If they fly they die...if they crawl they fall."

MOSQUITOS: (Order Diptera)

Description:

Mosquitoes can be distinguished easily from flies by their long legs and piercing proboscis (blood-sucking mouth part). In overall size, Southern California mosquitoes range from one quarter, to nearly one inch in length. Large veins are visible in the wings. When flying close by, their wings can be heard making a characteristic buzzing— a high-pitched whining sound. Wiggle-tails found in standing water are mosquito larvae that soon become biting adults. There are over 150 species of mosquitoes in the U.S. 9 are common in Southern California.



Biology:

Mosquitoes breed in variety of water habitat, marshes, standing water, rain pools, flood water, irrigation puddles and all sorts of containerized water left by humans. Pestgon, Inc. has noted that old tires left to collect water are a major source of mosquito habitat that breed large nuisance populations. Most mosquitoes readily bite humans and some are diseases carriers. West Nile Virus (WNV) is a well-known example and it is now prevalent in Southern California. So mosquitoes are not just a nuisance; they are, potentially dangerous to your health. West Nile virus is a virus mainly transmitted to people through the bite of an infected mosquito. Mosquitoes transmit the virus after becoming infected by feeding on the blood of birds, which carry the virus. Most people infected with the virus have no symptoms or they have flu-like symptoms. Sometimes though, the virus can cause severe illness, resulting in hospitalization and even death; so it is important to know the symptoms of illness related to infection and how to minimize your risk especially, since the WNV is present in our environment. www.westnile.ca.gov

Economic Impact:

Especially, in sensitive outdoor areas of the many commercial facilities that Pestgon services, the presence of mosquitoes due to negligence could become, not just a fearful nuisance, but a serious liability. Obviously mosquito infestations quickly become a public relations liability as well. No one wants to spray himself or herself with an insect repellent to avoid mosquito bites.

Management Methods:

Long-term elimination of mosquitoes requires an Integrated Pest Management approach beginning with a thorough inspection and elimination of the breeding sites where possible. Pestgon, Inc., has a highly trained staff of mosquito experts with the know how to handle any mosquito job, from backyard parties, outdoor rest or food areas to native, riparian, mosquito habitat. Depending on the circumstances, Pestgon, Inc. may use a combination of mosquito larvicide, low volume fogging, abatement traps and surface water management techniques.

Portable mosquito traps such as the Mosquito Magnet® can be a good defence in the war against disease carrying mosquitos



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"If they fly they die...if they crawl they fall."

OPOSSUMS (*Didelphis virginiana*)

Description:

An opossum is a mammal about the size of a house-cat, weighing four to fourteen pounds, depending on maturity and age. It has moderately long fur that is not dense but stringy and shaggy looking. The color ranges from creamy white to dark gray, generally darker on the legs and lighter on the back. The face is long and pointed with dark, rounded, paper-thin ears that are hairless.

Though you will likely never see them all, opossums have 50 teeth, more than any other North American mammal. Opossums have five toes on each foot and the hind foot works like a hand with an opposable toe.



Biology:

Opossums are nocturnal creatures, preferring to hunt and scavenge at night; so they are not often seen. Except for females with young, they are solitary animals. They are omnivores and eat a wide variety of foods including, fruits, vegetables, nuts, meats, eggs, insects, carrion, and pet food left out for house pets. So, around retail/commercial buildings opossums are scavengers, they seek out the garbage dumpster and food areas. Pestgon, Inc., has found them living in burrows, culverts, woodpiles and building openings, attics, wall voids and anywhere they can find shelter for a den and to raise their young. Being a marsupial they carry their young in a pouch like a kangaroo.

Economic Impact:

Opossums become a nuisance when they move into any retail/commercial building. Their smelly denning habits and discharges create terribly offensive odors. Opossums can damage buildings by pushing in screened vents, window screens, chewing electrical wiring and scattering building insulation. In the walls and ceilings their movements become a noise nuisance. They are also carriers of numerous diseases, including tuberculosis and salmonella, and they are heavily infested with ticks, lice and fleas, all disease transmitters. As a protection, Pestgon Inc. technicians wear, "hazardous waste", Tyvek suits and appropriate masks when cleaning out an opossum den. Such a wildlife hazard is a danger to building occupants of office retail, or commercial projects, and is therefore a public health hazard.

Management Methods:

Pestgon, Inc. is very knowledgeable and experienced in dealing with nuisance wildlife problems around commercial, office and industrial buildings. As with most such pests, prevention and exclusion are the first line of defense. Eliminating the food sources by means of sanitation procedures and rodent control and insect pest control is paramount to a good wildlife management program. Trapping, by means of humane live traps, and removal of the animals from the property, is an effective method often used by Pestgon, Inc.

Pestgon FactSheet

"If they fly they die...if they crawl they fall."

PIGEONS (*Columba livia*)

Description:

The rock dove is more commonly called a pigeon. This common bird is about 13 inches high, of stocky build, with short legs and a small head and varies in color from white to black. Most pigeons are characterized by a dark gray head with an iridescent sheen, a light gray back and wings with two dark bands. They are often seen in large flocks, on the ground on buildings or flying around.



Biology & Habits:

Pigeons in the wild occur naturally on steep cliffs. They are common throughout the US and they have adapted to a variety of habitats in the cities and urban areas, including tall buildings. Pestgon, Inc. has observed pigeons nesting in any number of protected locations, such as building ledges, rafters, garages and neon signs. They have become the most serious bird pest affecting all sorts of buildings, air conditioners, air ducts, signs, etc. They produce two to five broods a year or as many as 10 young per year. Here in southern California pigeons, breed and nest during all seasons. Food court areas attract large flocks of nuisance pigeons. They also feed on handouts and garbage dumpsters and leave large amounts of unsightly dropping everywhere. Left unchecked, pigeon odors can become a serious public relations problem.

Economic Impact:

Pestgon's experience is that pigeon droppings are more than just a nuisance and unsightly because of defacing buildings. The acid content of the droppings is very destructive to paint, concrete, plaster, marble, limestone, wood, metal and roofing. Nests often become solid with accumulated droppings. The cost to building owners runs in to the billions of dollars annually. Another very serious liability to owners and property managers is the disease factor. Pigeon droppings are a contamination hazard that transmit a variety of diseases. Pigeons are carriers of bacteria, fungi and nematodes and serve as reservoirs for numerous viral encephalitic diseases. Many of the parasitic mites associated with pigeons also bite humans. So pigeons are not just an economic concern, because they cause staggering losses to buildings, machinery and roofs, but they are a serious health risk and liability to commercial property owners. So, Pestgon, Inc., strongly encourages property managers and owners not allow pigeons to become

established on any commercial project.

Management Methods:

After a complete survey and assessment of food sources, water, nesting and roosting sites, Pestgon, Inc. employs a number of effective techniques to humanely manage and eliminate pigeons. Encouraging good sanitation practices is one primary factor to control of pigeons. Also, any number of exclusion barriers can be effective as are legally registered psycotropic repellency baits such as Avitrol. Only a licensed pest management technician can apply pest bird repellent baits. Properly resolving pigeons problems requires the expertise and experience of professionals.

Pigeons often move in large flocks leaving behind bird waste that can be a vector for disease as well as damage to the appearance of a structure due to the acidic nature of their droppings

Professionally installed bird spikes are a good deterrent to loafing and nesting birds



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“If they fly they die...if they crawl they fall.”

PILLBUGS & SOWBUGS: (Order Isopoda)

Description:

Pill bugs are commonly called “rolly-pollies”. These are not an insect but a crustacean. They are about one quarter to five eighths of an inch long. They are recognized by their characteristic jointed, armor-like surface, like an armadillo. They are metallic gray in color and, when touched, they roll up in to a tight ball. Sow bugs look very much the same and can roll up in to a loose ball when touched, thus, the common name, “rolly-pollie”. Both have seven pairs of legs and two short tail appendages.



Biology:

Pill bugs and sow bugs are confined to areas of high moisture but will travel on dry ground a hundred feet or more. They enter buildings via the threshold or ground-level sliding glass doors. They are mostly nocturnal travelers. Occasionally these pests will enter a building in large numbers. Once inside they create an unsightly nuisance and soon die for lack of moisture.

Economic Impact:

Though not considered a serious economic threat, as with any other unsightly pest, their visible presence is undesirable in and around buildings. Pill bugs and sow bugs are scavengers of decaying plant materials but can damage the roots of tender plants, thus stunting their growth. Also, no one likes stepping on, and squishing, these creatures on the walkways and entries of a building.

Management Methods:

The key to controlling pill bugs and sow bugs is to eliminate the moist areas outside the building that, make their presence and survival possible. In highly irrigated ground covers this is not always possible; so, in cooperation with the landscape maintenance personnel, placement of properly labeled baits and micro-encapsulated insecticides are the method of choice.



Pestgon FactSheet

“If they fly they die...if they crawl they fall.”

RABBIT (*Auduboni*)

Description:

The most common rabbit, encountered by Pestgon in southern California, is the Desert Cottontail rabbit. (Sometimes known as the Western Cottontail). The color of the adult desert cottontail rabbit varies from dark tan to gray, with a yellowish tinge. Many have an orangish-brown throat patch. The underside of the body is whitish. Though the tail is black above, it is rounded in an obvious tuft of fur that looks like a cotton ball. So, the cottontail rabbit comes by its unique name naturally. The length of a desert cottontail is approximately 16 inches; it has big dark eyes set in a pale eye patch. Its ears are large and can be up to four inches long. Cottontails are easily recognized as their tails flash white when they make short hops. They seldom weigh more than three pounds and females are larger than the males. Most domestic (pet) “rabbits” are hares.

Biology:

In the commercial landscape environment, cottontail rabbits inhabit the brushy or woody edges of the property. They are almost exclusively vegetarian, feeding on a wide variety of plants such as ornamental shrubs, grasses and tree bark. They generally get their water from the plants they eat. They are very prolific so their numbers can add up fast. Cottontails are most active during the early morning and evening hours.

Economic Impact:

Pestgon has observed that cottontail rabbits are extremely destructive to many ornamentals and herbaceous plants and turf grasses. Uncontrolled, their numbers can become very costly by devastating entire landscapes that contain certain herbaceous plants. They are especially destructive to manicured lawns and turf grasses. For obvious reasons, Pestgon recommends that they never be allowed to develop to the point of an infestation on a commercial project.

Management Methods:

As with any pest problem, Pestgon always considers the first line of defense to be prevention. An exclusion fence at least two feet high, at the perimeter of commercial projects, where there is the natural brush, is one effective method of rabbit prevention. Also, the use of landscape plantings less susceptible to their damage is another consideration. The use of live traps can be effective but is a labor-intensive method of control.

and eradication because traps have to be checked daily, and animals removed. It is certainly not an effective method when rabbit populations are high. Use of repellent has shown measured success on a short term basis, if repeated frequently can be a viable solution. However, devices that use ultrasonic methods have proven to be totally ineffective.

**Pestgon FactSheet**

"If they fly they die...if they crawl they fall."

RACCOONS (*Procyon lotor*)**Description:**

Raccoons are common in southern California. They are a medium sized animal weighing from 12-35 pounds, depending on maturity and age. They are 20 to 40 inches long, with a bushy tail having a number of black and white rings. The medium length heavy fur has a salt and pepper in appearance. The characteristic look of a raccoon is the black mask on a whitish face. The face is triangular with a pointed nose and prominent dog-like ears. Overall the raccoon appears grayish-black and when walking on all fours its back is raised in a curve. The front paws are hand-like, giving the raccoon the ability to handle objects like a monkey. Their beauty and domestic look often attract admirers.

Biology:

Raccoons are nocturnal creatures, preferring to hunt and scavenge at night so they are not often seen. They are omnivores and their diet is extremely diverse. They eat a wide variety of foods including, fruits, vegetables, nuts, meats, eggs, insects, carrion, and pet food left out for house pets. So, around retail/commercial buildings opossums are scavengers, they seek out the garbage dumpster and food areas. Pestgon, Inc., has found them living mostly in building voids and attics, usually high up where they can find shelter as a den to raise their young. Their natural den is often a hollow tree.

Economic Impact:

Raccoons can cause considerable damage to any retail/commercial building. Pestgon Inc. has been called where they have even torn away roofing material and shingles to create an opening for their young. In searching for underground insects and grubs, raccoons can do major damage to lawns and flower beds by digging and tearing away the plantings. They are serious predators of bird populations, even feeding on night-roosting pigeons. They are known carriers of rabies and numerous other serious health diseases. Raccoons also carry ticks, lice and fleas, which are all disease transmitters. So it goes without saying; in the office retail, or commercial environment, raccoons can be extremely costly pests if not removed.

Management Methods:

Pestgon, Inc. is very knowledgeable and experienced in dealing with nuisance wildlife problems around commercial, office and industrial buildings. As with most such pests, prevention and exclusion are the first line of defense. Eliminating the food sources by means of sanitation procedures, rodent control and insect pest control is paramount to a good wildlife management program. Since raccoons are serious predators of birds, pigeons control is a necessity. Trapping, by means of humane live traps, and removal of the animals from the property, is an effective method often used by Pestgon, Inc.



Raccoon tracks found around a pond or lake are often one of the few indicators that a raccoon is on the prowl.

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"If they fly they die...if they crawl they fall."

RATS (*Rattus rattus*)

Description:

Two species of rats are common in Southern California, the Roof Rat and the Norway Rat. From nose to rump, the body length of these rats range from seven to nine inches, excluding their tails. Both are gray-brown in color and have hairless tails, a whiskered snout and prominent ears. The head of the Roof rat appears pointed with large ears

and a slender body. The tail is longer than the entire length of the body. The head of the Norway rat appears slightly blunt with short ears and a robust body. The tail is shorter than the entire length of the body.

Biology:

Of the hundreds of retail, commercial and industrial buildings served by Pestgon, Inc., the Roof Rat is the most common rat found inside. As the name implies, Roof Rats tend to inhabit the upper areas such as attics and ceiling voids. Outside they inhabit trees like palms and dense ground covers, like ivy on embankments and crib walls. Rats are generally nocturnal and will forage for food throughout an entire building. All rats seek out the dumpsters, garbage areas and food court areas. They are particularly attracted to bakeries, doughnut shops and pastry shops. In a short time, they can reproduce at an alarming rate. Visual sightings of rats in the daytime, generally mean that a moderate-to-high population exists.

Economic Impact:

Beside the natural revulsion that people have for rats in their environment, they are very contaminating and destructive to buildings. Rats urinate often, creating stains and offensive odors. In a year's time a single rat will produce about 25,000 fecal droppings. They also commonly damage electrical wiring by chewing off the insulation. It is estimated that 25% of fires of an unknown origin, are caused by rats. If you add to this the well known disease factors, such as, plague, murine typhus fever, salmonellosis, it makes sound economic sense to have the experts of Pestgon, Inc. as your pest management professionals.

Management Methods:

Pestgon, Inc. is very knowledgeable and experienced in dealing with nuisance rat problems in commercial, office and industrial buildings. As with most pests, prevention

and exclusion are the first line of defense. Sanitation and rat-proofing are major considerations. Trapping inside and bait stations around the perimeter of the buildings, using approved rodenticides, are also part of Pestgon's overall strategy of rat prevention and elimination.



Rats activity clearly indicated by grease marks around rafters (below) and holes in walls (above)



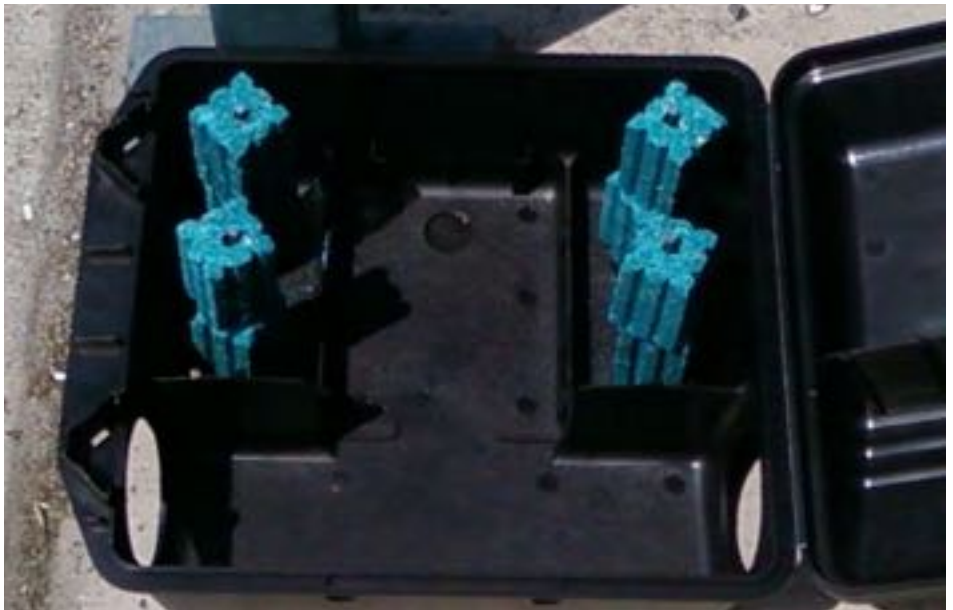
Rodent abatement is only effective if sanitation, exclusion and bait stations are regularly monitored. Once a rat infestation is under control, it is important that a fresh source of bait is available to control foraging rats.



Do the bait stations on your property look like this?



...Or like this?
Which one is addressing your needs?





Pestgon FactSheet

"If they fly they die...if they crawl they fall."

COCKROACHES: (Order Blattodea)

Description:

There are over fifty cockroach species in the U.S. (This synopsis, by Pestgon, Inc., will be limited to the two most-often-encountered species in and around commercial properties). The German cockroach is the most common inside buildings, especially kitchens and other food areas. It is generally

dark brown in color with long antennae, a flattened body an elongated oval shape. They average just over one half an inch long. The oriental cockroach is most commonly encountered outside or in building entries and garages. It does not inhabit the inside. It is shiny black in color, a wide oval shape, about one inch long and a flattened body.

Biology:

German cockroaches are associated with unsanitary conditions. They generally shy away from light and are attracted to warm damp areas. These cockroaches can develop in to very large pest populations within kitchen equipment, walls, motors, dishwashers. They create a pungent roach odor and will eat most anything, leaving the material contaminated. The Oriental cockroach can develop in large numbers in irrigation boxes, around trash bins, grease traps and in underground garages. They too, have a strong roachy odor and feed on filth. Both cockroaches are disease carriers.

Economic Impact:

It goes without saying that the cockroach and the rat are the single most despised pests in our building environments. The presence of cockroaches suggests unsanitary conditions and all that is associated with such conditions as pathogens, diseases, contamination and odors. For that reason, cockroach and rat infestations come under the laws of the Health Department. So, Pestgon, Inc. recognizes that the economic impact of uncontrolled cockroach infestations, on commercial, industrial or office property can become significant.

Management Methods:

The professional arsenal of Pestgon, Inc. includes, prevention, a meticulous inspection regimen, sanitation advice, follow-ups, baits and appropriate insecticides. An effective pest control program, involving cockroaches, requires a mutual effort on the part of owners, managers and the professional pest management of Pestgon, Inc.

Pestgon FactSheet

"If they fly they die...if they crawl they fall."

SCORPIONS (Scorpiones)

Description:

Scorpions are eight-legged venomous invertebrates and are related to spiders and ticks, which are Arachnids. They possess an extended, broad flattened body and a segmented, erectile tail, ending with a venomous stinger. They have large and powerful pincers that are used to grasp and subdue prey. Most adult species in southern California are between two and three inches long and their colors range from yellowish-brown to black.



Biology:

Scorpions do not usually attack man unless directly or accidentally provoked. They are generally nocturnal, predatory animals that feed on a variety of insects, spiders, centipedes, and other scorpions and earthworms. In the commercial landscape environment, scorpions seek cover under rocks and debris. One may occasionally wander in to a building but their normal habitat is outside. Quite often they are discovered in elevator shafts.

Economic Impact:

Scorpions are generally considered a beneficial creature and are therefore of little economic concern. The greatest concern economically, involves public and tenant relations because scorpions scare many who may observe them. On rare occasions their population may erupt into unusually large numbers, which may call for special pest control procedures.

Management Methods:

In case of an infestation, the first control strategy is to modify the area surrounding the buildings. Sanitation is the first and most important step in scorpion control. Cardboard boxes, boards, rocks, and debris should be eliminated around and near foundation walls. The use of insecticides for scorpions is usually a last resort.



Pestgon FactSheet

"If they fly they die...if they crawl they fall."

SILVERFISH (*Lepisma saccharina*)

Description:

Silverfish, like firebrats, are small, slim, carrot-shaped insects without wings that normally live outdoors. They are soft-bodied about one half inch to one inch long and are silver-gray to pearly-bronze in color. Apparently they get their name from their

shininess like a fish. Extending from the rear of the tapered abdomen are three antennae-like filaments. Seeking food or moisture, occasionally silverfish are found trapped in the sink or basin in an office.

Biology:

Silverfish are not often seen because they are nocturnal and can run very swiftly. Silverfish and firebrats are active at night and hide during the day. When objects are moved where they are hiding, they dart out and seek new hiding places. The silverfish lives and develops in cool places with sufficient humidity, often storage areas, bathrooms and kitchens. Firebrats prefer warmer, dry environments, often near heaters. New buildings where the walls are still damp from plaster and green lumber may have increased numbers of silverfish. They can live for up to one year without food.

Economic Impact:

When trapped indoors silverfish will feed on almost anything. They seem to have a preference for starch, paper, gum, glue, cotton, linen and other common fabrics as well as food stuffs. That makes the furniture, wall coverings and many office supplies vulnerable to silverfish damage. They are often found among books because they feed on the paper and the glue in the binding.

Their very presence suggests that something is being eaten and destroyed. So besides being a general nuisance they are also destructive little pests.

Management Methods:

Removing old papers, corrugated boxes, books, and fabrics from storage areas will help remove food and hiding places. Although it is a good preventative measure, from years of experience, Pestgon has determined that sanitation alone will not eliminate an infestation. A large infestation usually means the facility has been infested for some time. An insecticidal dust, residual aerosol insecticide or silverfish bait stations will usually eliminate these pests.

Pestgon FactSheet

"If they fly they die...if they crawl they fall."

SKUNKS (*Mephitis mephitis*)

Description:

The striped skunk is the common skunk species found in our urban and suburban developments of Southern California. The striped skunk is a house-cat sized animal, weighing about six to ten pounds. It has long black fur with two variable broad white stripes down the back. The head is triangular and the tail is large and bushy. Their strong skunky musk odor often precedes their visual presence.



Biology:

Skunks are nocturnal creatures, preferring to hunt and scavenge at night. They are generally beneficial creatures but their odor makes them obnoxious. Around retail/commercial buildings skunks are scavengers, so they seek out the garbage and dumpster areas for food. They also feed on insects, rodents, bird eggs and pet food left out for house pets. Pestgon, Inc., has found them in burrows, culverts, woodpiles and building openings where they have created a den for shelter and to raise their young.

Economic Impact:

Skunks become a problem when their activities conflict with human interests. Many people consider skunks odorous pests and so obnoxious that they should be avoided at any cost. Their presence is never tolerated or accepted by occupants of a building. No one wants a confrontation with a skunk. Pestgon, Inc., has been called where skunks in search of grubs and insects have done severe damage to flower beds, landscape plantings and sod, resulting in significant economic loss. According to surveys done by the Department of Agriculture, 65% of all skunks are rabies infected. In addition, they are carriers and transmitters of a half a dozen other serious diseases. So the presence of skunks on a retail/commercial property is economically damaging.

Management Methods:

Pestgon, Inc. is very knowledgeable and experienced in dealing with nuisance wildlife problems, around commercial, office and industrial buildings. As with most such pests, prevention and exclusion are the first line of defense. Eliminating the food sources by means of sanitation procedures and rodent control is paramount to a good wildlife management program. Trapping, by means of humane live traps, and removal of the animals from the property, is an effective method often used by Pestgon, Inc.



Pestgon FactSheet

"If they fly they die...if they crawl they fall."

SNAILS (*Helix aspersa*)

Description:

Introduced from France during the 1850s for use as food, the Brown Garden Snail is the most common snail causing problems in southern California landscapes. As a pest, snails and slugs are among the most bothersome pests in the commercial landscape. Both are of the mollusk phylum. The brown

garden snail is about one inch in diameter at maturity and has a distinct color pattern. The shell of the garden snail is light brown with dark brown bands following the spiral of the shell. Colorations can vary from pale yellow to almost black. Snails and slugs move by gliding along on a muscular "foot." This muscle constantly secretes mucus, which later dries to form the silvery "slime trail" that indicates the presence of either pest.

Biology:

Snails are most active during the night and early morning when it is damp. They are also active on cloudy or foggy days. In southern California, particularly along the coast, young snails are active throughout the year. Irrigated, commercial landscapes allow them to be active the year around. Garden snails are very prolific. They lay as many as 80 eggs, six times a year—that's 480 snails per female in one year!

Economic Impact:

Snails and slugs feed on a variety of landscape plants as well as on decaying plant matter. They chew irregular holes in smooth leaves and flowers and do severe damage, particularly to herbaceous and succulent plants.

During hot, dry periods or when it is cold, snails seal themselves off with a parchment-like membrane and attach themselves to building walls and windows. This is the time when snails may be the most destructive and costly to building owners and property managers. The slimy secretions that snails use to seal themselves off are very acidic and can cause permanent damage. Pestgon has been called in where snail secretions have etched paint, concrete surfaces, tile, marble and even glass windows. The circular etchings can often be seen on expensive, mirrored glass windows of office buildings, especially those windows near the ground.

Management Methods:

Pestgon believes that the first consideration in the control of garden snails in the commercial landscape is irrigation practices. The goal should be to eliminate the damp harborage areas. Choice of plant species also plays a role in preventing snails as a serious pest. There are also pesticidal baits that can be used according to ornamental label instructions. Pestgon is often asked to include snails as a regular part of pest control services.



Pestgon FactSheet

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SPIDERS: (*arachnids*)

Description:

Urban spiders come in various colors and sizes. All have eight legs instead of six like an insect. For the sake of this discussion Pestgon, Inc. will explain the poisonous black widow spider. Black widow spiders are all too common and are approximately one half inch wide and have large abdomens; they are mostly dark brown to shiny black. The large ones are the

females. Males are significantly smaller with small abdomens. Females are often seen hanging on the web upside down, exposing the red hourglass shape on their belly.

Biology:

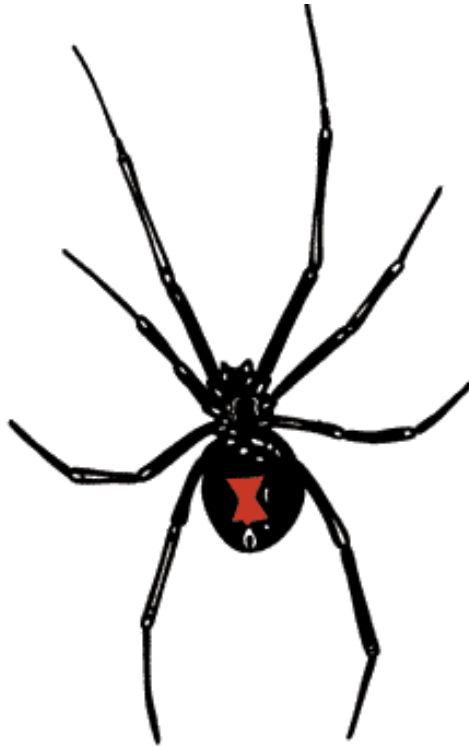
Most spiders are harmless and even beneficial but their webs on buildings can become an unsightly nuisance by collecting dust and debris. Black widow spiders are poisonous and the venom from the bite of a black widow can cause severe pain and swelling. Such a bite usually requires medical attention. The black widow spider builds a loose and irregular web in dark areas like warehouses and closets. The web is always near a light source like the space under the door or the crack around a warehouse roll-up door or garage door. Sometime they prefer warm areas. On one occasion, in a large warehouse left empty for awhile, a Pestgon technician killed more than 100 black widow spiders around the roll-up doors. This species is quite prolific; from the commonly seen, pea-size white egg sac, they can produce hundreds of young in a short time.

Economic Impact:

Arachnophobia means fear of spiders. Spiders and snakes are the two most feared creatures in our environment. So the sight of spiders on a commercial project can be costly in terms of public relations and tenant retention. When a building becomes unsightly due to spider webs, it lowers the appeal and overall appearance of the building. Some spiders even leave droppings on the sidewalks and ledges that appear as tiny bird droppings. These also stain dark paint, requiring additional maintenance.

Management Methods:

First of all, a thorough inspection and identification of the spider species by a Pestgon professional is essential. Keeping in mind that spiders are predators and that they feed on insects, Pestgon's management strategies first address their food source— the elimination of insects on, in and around the buildings. Then, the strategic placement of non-toxic, monitoring traps is followed by use of non-staining residual dusts and insecticides in areas most likely to harbor spiders. Removal of old unsightly spider webs, along with sanitation and harborage, removal is necessary to long-term results.



Pestgon FactSheet

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GROUND SQUIRREL (*Spermophilus beecheyi*)

Description:

Ground squirrels are large burrowing rodents with a snub nose and small ears. It's body measures nine to 11 inches long and its bushy tail adds another five to nine inches in length. The fur is brownish gray, speckled with off-white along the back; the sides of

the head and shoulders are light gray to whitish. They are commonly seen above ground from the coast to the desert.

Biology:

Ground squirrels live in a burrow system where they sleep, rest, rear young, store food, and avoid danger. Burrow openings are about four inches in diameter, but can vary considerably. The burrows may be five to 30 feet or more in length and may go two to four feet below the soil surface. There is usually more than one opening in a burrow system. Ground squirrels live in colonies that may include several dozen animals in a complex of burrows. This squirrel is found throughout southern California in except the desert regions.

Economic Impact:

California ground squirrels are one of the most troublesome and destructive pests to commercial property managers. They cause millions of dollars of damage to commercial landscapes and embankments. Ground squirrels damage young shrubs, vines and trees by gnawing bark, girdling trunks and eating twigs and leaves. Burrowing around roots sometimes topples trees. Also, they will gnaw on plastic sprinkler heads and irrigation pipes, causing costly repairs.

Besides being very destructive with their teeth, burrowing can present a serious liability hazard to landscape machinery and pedestrians. Burrowing beneath buildings and other structures can weaken a foundation and necessitate costly repairs. Embankments are left vulnerable to collapse from winter rains when ground squirrels are allowed to burrow in them. Also, ground squirrels can harbor diseases harmful to humans, particularly when squirrel populations are dense. Of major concern is bubonic plague. It is transmitted to humans by fleas carried on the squirrels.



Management Methods:

Baiting, trapping, fumigation and habitat modification are all options. However, Pestgon's selection of squirrel control procedures is influenced by a number of important factors. Some of these are: the life cycle and behavior of the ground squirrel, the population density, the particular season, the prevalent food source as well as public and private perceptions. Pestgon's experienced technicians are very successful at managing all sorts of wildlife for commercial property managers.



Pestgon FactSheet

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CLIFF SWALLOW (*Petrochelidon pyrrhonota*) Cliff Swallows

Description:

The cliff swallow is a bird about five to six inches in length and, when not on the nest, is constantly on the fly for insects. They are also recognized by their long pointed wings as they dart about the sky

with great speed and maneuverability. Up close they are pale, with an orange-brown rump, white forehead, dark rust-colored throat, and steel blue crown back and wings. Normally, swallows are not seen on the ground except when collecting mud for their gourd-shaped nests.

Biology:

Cliff Swallows are made famous by the romantic song, "*When the Swallows Return to Capistrano*". This happens in the spring. Cliff Swallows feed on insects and spend a large part of time in the air catching flies, gnats, beetles, and mosquitoes. These swallows build mud nests attached to eaves and overhangs of buildings and other structures, a habit that sometimes puts them into conflict with building owners and commercial property managers. This is particularly true when the Cliff Swallow decides to build a colony of mud nests, sometimes dozens of mud nests. The nests are cemented with mud to the underside of an overhang of buildings, bridges, or other vertical surfaces. Once they start, their habit is to form a dense cluster or colony of gourd-shaped mud nests.

Economic Impact:

A colony of Cliff Swallows nesting on a commercial building can become a big nuisance adding to the cost of maintenance and sanitation, due to their messy droppings. Pestgon, Inc. has seen where mud nests and droppings have stained the stucco and other surfaces of beautiful commercial buildings, defacing the professional appearance of a building. Cliff Swallows are colonial so the number of nesting birds will increase significantly from year to year. Their copious droppings present a potential health hazard. Swallow nests contain mites, insects and swallow bugs (bed bugs) that can enter buildings. The decaying mud nests eventually fall to the ground and can cause harm, particularly if the nests are above a door or walkway. So while there may be something romantic about the swallows returning to Capistrano, when they have attached themselves to your commercial building, they are not just a nuisance but an economic liability.

Management Methods:

Managing problems with swallows should be started as soon as they appear and are identified. Pestgon, Inc. finds that they are best managed by nest removal and exclusion techniques. Their mud can be washed off or removed prior to nesting; so it is imperative to act quickly upon their arrival. Netting can provide an effective physical barrier between the birds and the nest site. Under the Migratory Bird Treaty Act of 1918, Cliff Swallows are protected by state and federal regulations as migratory insectivorous birds. During nesting a permit authorizing nest removal can only be issued by the, U.S. Fish and Wildlife Service, and only if it can be justified by strong, compelling, reasons such as health or hazard. If eggs or young are in the nest when a permit is requested, the application will probably be denied.

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TERMITES: (*Isoptera*) Termite

Description:

Wood-eating termites are normally not seen since they inhabit wood internally, both above ground (drywood termites), and underground (subterranean termites). In the United States, they have been reported as having infested houses as early as 1849. They are most often encountered when cutting or breaking open infested wood. The most common

termites encountered by Pestgon Inc. in southern California, appear pearly white in color, with a darker head and some with obvious dark mandibles (chewing parts). They are about three eighths of an inch long, with a large head and ring separations around their fat abdomen. Termites form wings and swarm in large numbers in the spring and fall; that is when they are most often seen, both indoors and outdoors.

Biology:

Termites are ravenous wood scavengers and specialists at boring wood and eating out the soft cellulose between the wood ribs. That is why they are aptly called, 'wood worms'. Subterranean termites inhabit the damp soil in search of decaying underground wood. They also build mud tubes from the ground up to the wood floor joices and sub-structures of buildings.

Drywood termites generally seek dry wood above ground, such as wood siding, window frames and attics. Finding a pile of tiny pellets (like saw dust) that has fallen out of small hole in a piece of wood is, usually, the first evidence of a drywood termite infestation. Because all termites reproduce in large numbers, given time, they are capable of digesting a whole house or commercial building!

Economic Damage:

It follows that termites are well known and feared, as one of the most damaging pests to the commercial property owner and homeowner. In the U.S. alone, the economic losses to property are in the billions of dollars annually.

Management Methods:

First of all, regular inspections and identification of the termite species by a Pestgon professional, is essential. Based on the termite inspection, Pestgon, Inc. may recomm-



mend treating just the infested area of a building or if the infestation is extensive the situation may call for fumigating the entire building. Subterranean termites are often found under a concrete slab and enter through expansion joints or cracks in the foundation. This type of infestation calls for drilling and treating the subsoil. Additional treatment methods for subterranean termites include the use of underground bait stations. Wood that is specially baited with an approved termiticide is eaten and carried by the worker termites to their underground nest, killing the whole colony before they have a chance to attack the building. Pestgon, Inc. finds that this is an effective prevention strategy for subterranean termites.



