

Health Hazards of

# GUANO



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Guano are the excrements of bats. Guano is great for manure, as it has some amazing fertilizing capabilities due to its high nitrogen, potassium and phosphate content. These nutrients are ideal for the growth of plants, but guano doesn't limit it's abilities to plants, in fact, a lot of microbiological life can grow on it, some of it, harmful to human beings and other animals. Although the dangers of bat droppings are often exaggerated, they do still present a serious health hazard to our population, and in fact, communities that live close to this type of risk should always be aware of the current guano situation, in order to avoid further complications in their overall health and safety. Guano does also have a risk for external parasites invading homes in these populations, and biting and harming people, innocent people! Nevertheless, information is always a great step that needs to be taken toward security, and getting a little bit more of it regarding guano, its health hazards, their cause and so on, is always great. So, without further ado, let's get into it:



## THE FUNGAL DISEASE OF HISTOPLASMOSIS

Fungi aren't usually good news, and when it comes to guano, the same rule applies. Histoplasmosis is a disease caused by a fungus (*Histoplasma capsulatum*). It is transmitted by airborne fungus spores that come from the contaminated soil (contaminated by the bat feces). So infection only occurs when these fungus spores are inhaled, and usually the infection is very mild, and causes basically no symptoms or an influenza-like illness symptoms. However, this disease can reach up to a level where it causes high fever, pneumonia, blood abnormalities and even death. In order for the soil to be infected hard enough that it can represent real health hazards for the human population, it has to be consistently fertilized with guano for at least three years, and although the fungus that causes this disease is usually in the soil, it has also been found in isolated feces.

Dust containing *Histoplasma capsulatum* can be lifted from the ground easily by a wide variety of reasons (such as activities that happen at construction sites) and easily carried into distant cities by the wind. These airborne dust particles will most likely cause infections not only in the area where it is lifted, but also in the areas where they are being taken to. These dust particles were the cause for the biggest outbreaks of Histoplasmosis ever recorded, in which as many as 120,000 people got infected, and the death count got to around 15. Although the number of deaths is not really alarming considering the number of infections, it should be considered that the infection managed to get to kill over a dozen people, and these are deaths that should have been avoided at all costs.

The National Health Institute (NHI) has reported that the fungus has a potential to cause blindness in people, through the development of ocular histoplasmosis syndrome. The NHI has speculated that at least 4 percent of individuals that come into contact with airborne type of fungus are possibly at risk of developing the said syndrome. Now let's remember those 120,000 people infected during one outbreak (out of three major outbreaks), and considering that 4 percent of 120,000 is 4,800 people, that is a lot of people at risk of being blind, due to a "simple" fungus that came from guano.

Since bats have the possibility of being infected with *Histoplasma capsulatum*, and as such, they can excrete the fungus along with their feces, possibly causing infections directly from their droppings. However, the occurrence of humans being infected by the fungus prevented from bat droppings is a rare one, and should not be a big motive for concern, especially since large amounts of bats do not usually inhabit in areas where human populations are highly numbered. Nevertheless, the risk is there.



Anyone exposed to the fungus can get infected, and how badly a person gets infected and how badly the disease hits someone depends on a wide variety of factors such as the amount of spores inhaled, the person's susceptibility to the disease, age, immune system and current health condition. The numbers of spores that need to be inhaled in order for the infection to occur is unknown. Nevertheless, when a person knows that the fungus is present and can be airborne, just avoiding it as much as possible is the best possible strategy.

## ACCUMULATIONS OF DROPPINGS AND CRYPTOCOCCOSIS NEOFORMANS

Cryptococcosis neoformans is another fungal disease that can be originated from guano. This one, instead of being mostly present in contaminated soil, and being a rare disease to be transmitted from direct droppings, is usually found in accumulations of droppings (and we all know how frequent they are). There is however the possibility of the fungus being present in soil, but it is however from decaying guano. The fungus usually enters its host in the form of dehydrated yeast or spores through a respiratory route. Even when old and dry, guano can be a source of infection for this fungus, and it has been found in around 84 percent of the accumulations of guano.

Similarly to histoplasmosis, most of the infections derived from Cryptococcosis neoformans are mild, and usually do not have a lot of symptoms, or no symptoms at all. However, people with a weak immune system will usually have some problems with the infection, as it starts off with lung infections, and it spreads off to other areas of the body, including the central nervous system. When this happens, and if left untreated, it is a more often than not fatal condition. The fungus can also have cutaneous manifestations (in the skin) in the form of ulcers or acne-like eruptions in the skin. However, the cutaneous manifestations are quite rare.



Although Cryptococcosis neoformans is a deadlier disease than histoplasmosis, it is one that doesn't spread as easily, and outbreaks of Cryptococcosis have never been documented at all. This, however, doesn't mean that they cannot be in the future, or that they have never happened, so the risk is still there, but it isn't a reason to lose precious hours of sleep on. No one wakes up, sweating in the middle of the night, worrying about a Cryptococcosis outbreak.

There are other diseases that affect human beings, but to a lesser degree, one that is so low, it is usually not even worth documenting these diseases. Death occurs very rarely with them, and usually in people with weak immune systems that have had past conditions affecting them as well. As far as health hazards go, bats are a problem due to rabies, since some of them do have the condition, and when close to a bat (even if injured), it should never be handled with bare hands, always with tongs or another object, since most bats do bite when handled.

## **THE POSSIBILITY OF A PARASITIC HOME INVASION**

Bat droppings can harbor parasites, and these parasites, when dropped, will eventually end up looking for something to eat in order to survive (such are the laws of life), and what better place than someone's home, full of food, pretty much everywhere? Although these parasites might be aggressive when looking for their food, and although they can bite humans, it is very unlikely that they end up transmitting a disease to anyone. Inside buildings, the parasites that can cause some problems are: the bat bug, bed bug, biting lice, soft ticks and flies. Most of these parasites have a low life expectancy period, but some of them might last from a few days up to several weeks.

Guano, feathers, and even the corpses of dead birds or bats can attract flies, beetles, and other bugs that can cause problems and that certainly represent hygienic hazards. These pests can get into buildings through open windows, wall cracks, floor cracks, or any other type of opening. Usually, however, after the bats are discouraged from residential areas, and along with them their droppings and remains disappear, the pests



should go away as well. If that is not the case, it can be solved with a simple solution: pesticide or insecticide, properly labeled or identified as a solution for this type of problem (these products are based on chemicals and there are different kinds for different purposes).

After these pests have been removed along with the bats, the problems should be over when it comes to parasites. If the problem persists, it is clearly not due to guano or the presence of flying pests, or is it? It is possible that these pests have made a home, out of your home, and have proceeded to keep on breeding in there. This usually happens due to a large presence of available food for them. The problem is easy to solve: just find, and remove their source.

## **CONTROLLING THE HAZARDS**

By now, it is pretty clear that there are health risks associated with guano, health risks as serious as it gets, that can actually result in death. Some of them are just an inconvenience, but some of them, do really have serious consequences. In order to reduce the health risks associated with the handling of guano, there are several methods being adopted and developed. Most of the time, when an accumulation of bat droppings is discovered, the first step to be taken is to access the situation. Sometimes, and when possible, the next step after the accumulation is discovered

and assessed, is to let it just stay there. If there are not humans living in the area, and there is no risk of it infecting human populations, then it is just better to let it stay there, and to not even risk infections on any workers while trying to take care of the problem.

If it is impossible to just let the accumulation of guano stay in a determined stop, action will need to be taken. There is a wide variety of methods to safely remedy and remove bats from your home or structure.

If an area is known to present a health risk due to guano, it should be properly signaled and the sign should have a number so that people can contact competent authorities regarding the health hazard. In some cases, it is required that fences or locks are built around a certain area in order to protect individuals that might not be cautious around the area and that might ignore the sign.

## REMOVING AND CLEANING GUANO

Guano, is after all, bat droppings. And, even though it does have health hazards, it can easily be cleaned depending upon the quantity and location. If a small concentration of guano is found, it can be cleaned with no more than regular soap and water (note: small concentration). If you, however, find a large concentration of droppings, you should contact competent environmental authorities to take care of business, since the health hazards are bigger.

The workers who will certainly take care of business will have to take the proper safety measures in order to get things done safely, and in order to avoid getting infections or diseases from organisms in the droppings. During the cleanup, only authorized personnel should be authorized, and the area of cleanup should be closed to the public. Also, the cleanup should be done by healthy workers only (remember that weak immune systems take higher risks of having serious problems when it comes to guano).



The workers will need to wear safety gear such as a respiratory filter, disposable gloves, hat, shoe coverings and coveralls (Personal Protective Equipment). Plus, the droppings will have to be moistened with a light mist of water and neutralizer, in order to keep spores wet and to

successfully stop them from becoming airborne. The collected droppings will have to be placed inside plastic bags, whose outside will be rinsed off before they are placed inside a container.

When the workers are finished, they will remove their gear while still wearing the respiratory filter, and place that in a plastic bag. Afterward, they need to take a nice shower, and start working on ways to stop other guano accumulations from happening in the same area. As you can see, this is a lengthy process that consumes time, resources, and has a risk of infecting someone. As always, people would rather be safe than sorry, and when it comes to guano, the same should apply.

## CONCLUSION

Although health hazards can be great, and outbreaks of guano related diseases have infected hundreds of thousands of people, the real risks of death for healthy individuals are not really there. People who die due to guano related diseases usually have a few other health problems working with the infectious diseases that they can get from guano. Furthermore, serious risks only appear with large accumulations of droppings, and small accumulations of droppings can be treated with only soap and water. Most of the time, large amounts of droppings accumulated will most likely only be found in somewhat remote areas, where nothing has yet been done regarding hazard control.

Nevertheless, the risks are serious and it is always good to have information on the subject. Even though most of the infections end up being mild and having no real symptoms, death does occur, and small numbers should never be ignored, since life is priceless, and every life that can be saved by taking preventing measures and doing the right thing when facing accumulations of guano can end up making the world a safer place.

# **ALLIANCE** PEST SERVICES



For More Information On  
**Bat Removal & Guano Clean Up**

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