

## HEALTH HAZARDS ASSOCIATED WITH BIRD AND BAT DROPPINGS

Health risks from birds and bats are often exaggerated. Nevertheless, large populations of roosting birds may present the risk of disease to people nearby. The most serious health risks arise from disease organisms that can grow in the nutrient-rich accumulations of bird droppings, feathers and debris under a roost — particularly if roosts have been active for years. External parasites also may become a problem when infested birds or bats leave roosts or nests. The parasites then can invade buildings and bite people.

### Histoplasmosis

Histoplasmosis is caused by a fungus (*Histoplasma capsulatum*) found primarily in the areas drained by the Mississippi and Ohio rivers. Both humans and animals can be affected. The disease is transmitted to humans by airborne fungus spores from soil contaminated by pigeon and starling droppings (as well as from the droppings of other birds and bats). The soil under a roost usually has to have been enriched by droppings for two years or more for the disease organism to reach significant levels. Although almost always associated with soil, the fungus has been found in droppings (particularly from bats) alone, such as in an attic.

Infection occurs when spores, carried by the air are inhaled — especially after a roost has been disturbed. Most infections are mild and produce either no symptoms or a minor influenza-like illness. On occasion, the disease can cause high fever, blood abnormalities, pneumonia and even death. In some areas, including portions of Illinois, up to 80 percent of the population show evidence of previous infection. Outbreaks of histoplasmosis have occurred in Central Illinois.

The National Institutes of Health (NIH) has reported a potentially blinding eye condition — presumed ocular histoplasmosis syndrome (OHS) — that probably results from the fungus. NIH estimates that 4 percent of those exposed to the disease are at risk of developing OHS.

### Cryptococcosis

Pigeon droppings appear to be the most important source of the disease fungus *Cryptococcus neoformans* in the environment. The fungus is typically found in accumulations of droppings around roosting and nesting sites, for example, attics, cupolas, ledges and water towers. It has been found in as many as 84 percent of samples taken from old roosts. Even when old and dry, bird droppings can be a significant source of infection.

Like histoplasmosis, most cryptococcosis infections are mild and may be without symptoms. Persons with weakened immune systems, however, are more susceptible to infection. The disease is acquired by inhaling the yeast-like cells of the organism. Two forms of cryptococcosis occur in humans. The generalized form begins with a lung infection and spreads to other areas of the body, particularly the central nervous system, and is usually fatal unless treated. The cutaneous (skin) form is characterized by acne-like skin eruptions or ulcers with nodules just under the skin. The cutaneous form is very rare, however, without generalized (systemic) disease. Outbreaks (multiple cases at a location) of cryptococcosis infections have not been documented.

### **Other diseases**

Other diseases carried or transmitted by birds affect man to a lesser degree. Psittacosis is normally mild in man; however, serious illness can occur rarely. Pigeons and sparrows also have been implicated (along with many other species of birds) as reservoirs for encephalitis viruses such as West Nile encephalitis virus, which are carried by mosquitoes.

### **Bats and disease**

Bats are associated with a few diseases that affect people, such as rabies and histoplasmosis. Rabies is a dangerous, fatal disease, but only about 5 percent of bats submitted for testing are infected with the rabies virus. In recent years, there has been increased concern about the risk of rabies transmission following contact with bats. If an injured or ill bat is found in or around a structure, it should be removed. Because most bats will try to bite when handled, they should be picked up with tongs or a shovel. (contact your local animal control officer or the Illinois Department of Natural Resources at 217- 785-8774 for information on safe bat capture.) If a bat has bitten or scratched a person or pet or is found in your home, capture the bat without touching it with your hands and without crushing its head. If the bat is dead, refrigerate it (DO NOT freeze) and then contact your local health department **immediately** for instructions.

Bats with rabies have been identified in most areas of the state. In recent years, bats have been the most common animal identified with rabies in the state.

The incidence of histoplasmosis being transmitted from bat droppings to humans is not thought to be high. Nevertheless, fresh bat droppings (unlike fresh bird dropping) can contain the histoplasmosis fungus. Bat droppings do not need to come into contact with soil to be a source of the disease.

### **Ticks, mites and other parasites**

Bird or bat roosts can harbor parasites that may invade buildings. Although these parasites can bite and irritate, they are unlikely to transmit diseases to humans. The northern fowl mite and chicken mite are usually the main culprits. Other parasites that may cause problems inside buildings include the pigeon nest bug and the bat bug (both related to the bed bug), soft ticks, biting lice and the pigeon fly. Although most parasites associated with bird or bat roosts die quickly after the birds or bats leave, some may live for several weeks.

Droppings, feathers, food and dead birds under a roosting area can breed flies, carpet beetles and other insects that may become major problems in the immediate area. These pests may fly through open windows or crawl through cracks to enter buildings. If birds or bats are discouraged from roosting around buildings, most of the parasites associated with them will soon die. If the pests are a problem after birds or bats have been excluded, the roost area may be treated with a residual insecticide appropriately labeled by the U.S. Environmental Protection Agency for control of fleas, ticks, mites and similar pests.

### **Removal and cleanup of bird and bat droppings**

If there is a small accumulation of droppings from a few birds or bats, it can be cleaned up with soap and water. If large quantities of bird or bat droppings are present, contact an environmental engineering consultant for advice.

Workers should follow certain precautions to minimize risk from disease organisms in the droppings:

- During the cleanup, seal heating and cooling air ducts or shut the system down. Only authorized cleanup personnel should be present.
- The cleanup should be done by healthy individuals.
- Wear a respirator that can filter particles as small as 0.3 microns.
- Wear disposable protective gloves, hat, coveralls and shoe coverings.
- Moisten the droppings with a light mist of water to keep spores from becoming airborne and keep them wet.
- Put droppings into sealed plastic garbage bags. The outside of the garbage bags should be rinsed off before they are placed in a disposal container.
- When finished and while still wearing the respirator, remove protective clothing and place it in a plastic bag.
- Wash or shower.
- Check with local government agencies to verify that disposal of the waste is permissible through standard trash pickup.
- Modify the structure to prevent birds or bats from reestablishing the roost.