



## INFORMATION BULLETIN - No. 08

### BIRDS

Many birds find the interiors and surrounds of our buildings to be as habitable and agreeable an environment as we do. Some of these birds may be pleasant to have around us and some may be annoying but they all present a potential health hazard. Large numbers of birds roosting or nesting around or in buildings should be prevented.

Apart from the visible mess that birds create from their droppings or nesting material, they are also carriers of diseases that can affect humans. Close contact either directly with birds, or with their droppings, feathers or nests can expose people to disease causing agents. There are more than 60 transmittable diseases associated with pigeons, starlings and sparrows.

#### Psittacosis

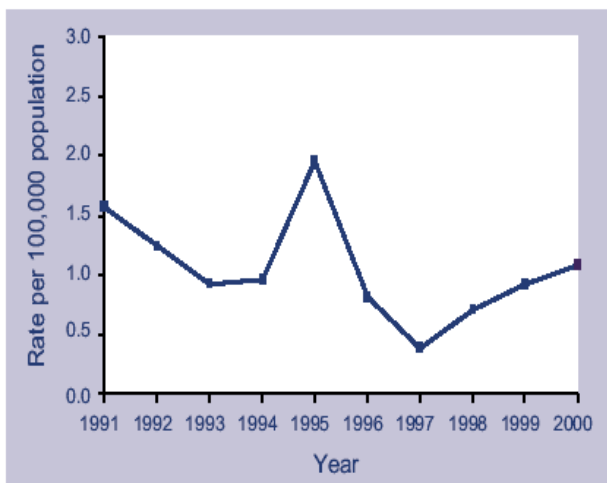
Psittacosis (or Ornithosis) is an infectious disease that can be passed from birds to humans. It has been known for many years but was first identified in 1879. Also known as “parrot fever”, getting its name from the Greek work *Psittakos* meaning parrot, it was first associated with large parrots. A global pandemic occurred in 1929 –30 affecting humans and other birds. This was associated with the export of large numbers of Amazon parrots from Argentina.

Psittacosis is caused by the organism *Chlamidia psittaci*, a type of primitive bacteria that exhibits some virus-like characteristics. Humans can become infected by breathing in this organism when the urine, respiratory secretions or dried faeces of infected birds is aerosolised (dispersed in the air as fine droplets or particles).

Other means of infection include a bite from and infected bird and handling the plumage and tissues of an infected bird.

Outbreaks in non-parrot birds have been observed, including in pigeons, ducks, geese, pheasants, turkeys and occasionally hawks. It is also found in wading birds and shore birds as well as sea birds such as gulls, terns and fulmars.

In the urban environment it is generally large populations of pigeons that are of concern, although native parrot species have more often been the proven source of human outbreaks in Australia. For example in June 2002 an investigation into an apparent outbreak of pneumonia in the Blue Mountains (west of Sydney) identified at least 16 cases of psittacosis.



**Figure 1:** Trends in notification rates of ornithosis, Australia, 1991 to 2000, by year of onset. *Annual Report of the National Notifiable Diseases Surveillance System, 2000.*

Symptoms in humans may be mild or severe and usually manifest as acute fever and headaches but a form of pneumonia may develop. If untreated, the mortality rate is 20% - 23% but with proper diagnosis and treatment, mortality is less than 1%.

## Ticks and Mites

Birds carry a number of parasites that can also affect humans in a variety of ways. Ticks and mites are common in birds and if nests or roosts are present in buildings, these can find their way to the human occupants as well.

### *Bird Mites*

“Bird mites” is the common name for the mite *Ornithonyssus bursa* (frequently incorrectly called bird lice). The mites feed on blood and are natural parasites of common birds including pigeons, starlings, sparrows, Indian mynahs, poultry and some wild birds.

Contact with humans occurs when birds gain entry to buildings to nest in early spring and summer. The large amount of nesting material provides an ideal environment for the mites to thrive and the young chicks and adult birds are a source of food. Once the young birds leave the nest, the remaining mites disperse through the building in search of new hosts.

Most mites will die within 10 days without a meal of bird blood. They will bite humans but cannot survive on them and do not infest human skin. The mites can cause severe irritation, rashes and intense itching from the saliva they inject while biting.

### *Ticks*

Ticks feed off birds as well as humans and other animals. Ticks can be spread from place to place by birds and inhabit nesting areas.

Recently in both America and Russia, ticks taken from migrating birds were found to be carrying the bacteria that cause Lyme Disease, human granular encephalitis (HGE) and human monocytic encephalitis (HME).

### *Lyme Disease*

This disease is caused by the bacteria *Borrelia burgdorferi* and is spread by some species of ticks. It most often causes a mild illness sometimes accompanied by a peculiar skin rash. In some cases however the disease can spread to the joints, heart and brain and cause serious problems.

Fortunately Lyme Disease is rare in Australia and there is some doubt as to whether any of the local tick species can carry it.

## Histoplasmosis

Histoplasmosis is an infectious disease caused by inhaling the microscopic spores of the fungus *Histoplasma capsulatum*. Histoplasmosis is an airborne infection. The spores that cause this disease are found in soil that has been contaminated with bird or bat droppings.

The disease exists in three forms. Acute or primary histoplasmosis causes flu-like symptoms. Most people who are infected recover without medical intervention. Chronic histoplasmosis affects the lungs and can be fatal. Disseminated histoplasmosis affects many organ systems in the body and is often fatal, especially to people who are immuno-compromised.

When the spores of *H. capsulatum* are inhaled, they lodge in the lungs where they divide and cause lesions. This is known as acute or primary histoplasmosis. It is not contagious. The symptoms are usually mild and resemble those of a cold or flu; fever, dry cough, enlarged lymph glands, tiredness, and a general feeling of ill health. A small number of people develop bronchopneumonia.

In about 5% of people who are infected, usually those with chronic lung disease, diabetes melitis, or weakened immune systems, the disease progresses to chronic histoplasmosis. This can take months or years. Symptoms of chronic histoplasmosis resemble those of tuberculosis and it can be fatal. The disseminated form is fatal unless treated.

## Extrinsic Allergic Alveolitis

The term extrinsic allergic alveolitis refers to a group of lung diseases resulting from exposure to dusts of animal and vegetable origin. It involves an inflammation of the small air sacs (alveoli) in the inner part of the lung.

Bird droppings and feathers are some of the many causative agents and produce a disease known as “bird fanciers’ lung”.

Repeated and prolonged exposure is necessary for the development of these diseases. Essentially an allergic condition develops as the person becomes sensitised. Extrinsic allergic alveolitis, once a person is sensitised, can show three different types of responses: acute (intense) response, sub-acute (recurrent) response, and chronic (long-term) response.

The acute attack is triggered by heavy exposure to dust. It starts with fever, muscular aches and a general, unwell feeling or malaise. These symptoms are accompanied by tightness in the chest, a dry cough and shortness of breath.

The sub-acute response occurs most frequently to people exposed to relatively low levels of dust. It is marked by cough, shortness of breath, sweating, sore throat, headache, and nausea.

The chronic response develops after persistent acute attacks and recurrent sub-acute responses. It is marked by increasing shortness of breath, occasional fever, loss of weight, and general lack of energy. The victim suffers permanent lung damage and, in the worst cases, death may occur.

## Cryptococcosis

Caused by a type of yeast found in the intestinal tract of pigeons, this disease usually begins as a pulmonary (lung) infection. It can sometimes spread to the nervous system. It may be prevalent in established bird roosts where dry droppings can be disturbed and inhaled.

## Asthma

Asthma is a complex disease and the causes are not entirely clear. However, exposure to numerous agents are known to trigger asthma attacks in affected individuals. Avian proteins (bird tissues, etc) are one cause and exposure should be avoided for at-risk people.

## Legionnaires Disease

Legionnaires Disease is a form of pneumonia caused by *Legionella* bacteria. It can be serious and is fatal in up to 20% of cases, particularly if it is not diagnosed early. It is frequently associated with cooling water systems in buildings, particularly water cooling towers.

Although birds do not carry Legionnaires Disease, they have played a part in several outbreaks. Birds drinking in cooling towers deposit droppings and other organic material into the water that may act as nutrients for microbial growth and neutralise biocides.

One outbreak in Tasmania was traced to a pigeon that had found its way into a cooling tower, then attempted to fly out through the rotating fan. Its remains had contaminated the water and *Legionella* had subsequently flourished there. Proper bird-proofing of cooling towers and other water reservoirs is essential in avoiding this type of situation.

## Damage to Buildings

Apart from the risk of disease, birds can also cause physical damage to the building structure and materials. Droppings are corrosive to building material. Acidic secretions produced by fungi that feed on the droppings cause most of the damage.

Nesting material and droppings in gutters can create drainage problems, with the resultant overflow causing damage or providing moisture for mould growth.