

Hygiene Protocols for the Prevention  
and Control of Diseases  
(Particularly Beak and Feather Disease)  
in Australian Birds

*Mycobacteriosis*



**Australian Government**

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**Department of the Environment and Heritage**

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### Note

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# Mycobacteriosis

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Mycobacteriosis is a chronic disease caused by *M. avium* (MA), *M. genevense* (MGE) and *M. tuberculosis*. *Mycobacterium avium-intracellulare-scrofulaceum* (MAIS) complex serotypes 1, 2 and 3 are pathogenic for birds. Very little is known about MGE. Mycobacteriosis sometimes occurs in older free range or backyard poultry flocks and aviary flocks of passerine birds (particularly Gouldian finches).

Some characteristics of these bacteria make the disease difficult to treat and explains why disease control authorities opt to kill affected flocks and dispose of contaminated dirt. These characteristics are:

- Mycobacteria grow slowly and lesions and clinical signs develop slowly.
- The bacteria live in the cells of infected birds and are consequently difficult to kill and thus infected birds must be treated for many months.
- The bacteria have a resistant cell wall that makes them resistant to many disinfectants and the environment.
- An infected premise is difficult, if not impossible, to clean and disinfect.

## ***Epidemiology***

A ubiquitous organism and all birds are susceptible to infection. Man, most species of livestock, and other mammals may also be infected. Transmission is by ingestion of contaminated carcasses, soil, feed or water. The organism is shed in the faeces and urine. The disease can occur in free-living wild birds which have a close association with domestic stock (eg. starlings, sparrows, pigeons) and in scavengers such as silver gulls. Mycobacteriosis is rarely a significant flock problem. Psittacine birds are the only avian order susceptible to *M. tuberculosis* - usually older amazons and *Brotogeris* sp. It is more commonly found in intensively housed bird populations.

## ***Signs***

Chronic severe weight loss and muscle atrophy are often the only clinical signs. Some birds may have diarrhoea, lameness, and an unthrifty appearance (poor feathering). Some birds die without signs. Mycobacteriosis is rare in parrots and may be localised to nodular or diffuse keratinous skin lesions at mucocutaneous junction of the eyes and beak (VanDer Heyden, 1996; Jaensch, 2000)

## ***Lesions***

Gross pathological findings are often confined to the intestinal tract and liver, but are frequently seen in bone marrow or pneumatised bones. The intestinal tract is often uniformly thickened, firm and pale. There are often pale nodules throughout the liver and sometimes the pancreas, spleen, lung, and bone marrow may be involved.

## ***Diagnosis***

Demonstration of typical acid-fast bacilli in Ziehl Neelson stained faecal smears and smears from lesions. Histopathology of lesions usually reveals a diffuse or nodular granulomatous enteritis and hepatitis. Large numbers of macrophages containing acid-fast bacilli are usually the predominant cell type. Culture of lesions should always be done to rule out other acid-fast bacilli.

### ***Zoonotic Implications***

MTB, MGE, and MA are potential human pathogens. Birds usually become infected with MTB from one of its owners and readily infects healthy humans. MA and MGE infections in psittacine birds appear to pose little risk to healthy humans, but are a significant risk to immunosuppressed humans.

### ***Treatment***

Notifiable disease. Treatment is extremely unreliable, so birds are usually euthanised. Mycobacteria are resistant to the typical physical and chemical methods of destruction - they can survive months to years in the environment.

### ***Control***

Do not use dirt flooring or other material that cannot be disinfected. Remove wooden, dirt, or gravel floors.

### ***Reading***

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