Avian Pox in Garden Birds

Agent

Avian pox is caused by a virus (avian poxvirus). There are many different types, or strains, of avian poxvirus which have the ability to infect different bird species. Some strains may only cause disease in a small number of bird species, others are less specific and will cause disease in a wide variety of birds. Limited information is available on the strains of avian poxvirus affecting British wild birds and the species that are susceptible.

Species affected

The disease affects a wide variety of bird species around the world. Sporadic cases of avian pox have been recorded in some British garden birds for many years, affecting species such as the dunnock (*Prunella modularis*), house sparrow (*Passer domesticus*), starling (*Sturnus vulgaris*) and wood pigeon (*Columba palumbus*).

Since 2006, skin lesions in birds of the tit family caused by avian pox infection have been reported in Britain for the first time. Whilst a range of tit species appear susceptible to the disease, great tits (*Parus major*) are most frequently affected. It is common for multiple great tits to be affected in one garden, and their lesions may be severe (see below). This condition is considered an important emerging infectious disease of tit species in Britain.

Pathology

Birds with avian pox develop warty or tumour-like growths, on the head (particularly next to the eye or beak), legs, wings, or other body parts. The growths are usually grey, pink, red or yellow in colour.

Signs of disease

In many species, particularly those not in the tit family (*e.g.* wood pigeon and dunnock), the growths can be relatively mild and may regress with time. Affected birds develop skin lesions but usually appear to feed and move around normally. In some cases (in all species but especially in great tits) the growths can become very large and may impede the ability of birds to see, feed or move around. In these cases the birds become more susceptible to predation and other infections. Whilst the disease in great tits is not invariably fatal, and recovery can occur, the condition reduces individual survival, particularly in juvenile birds.

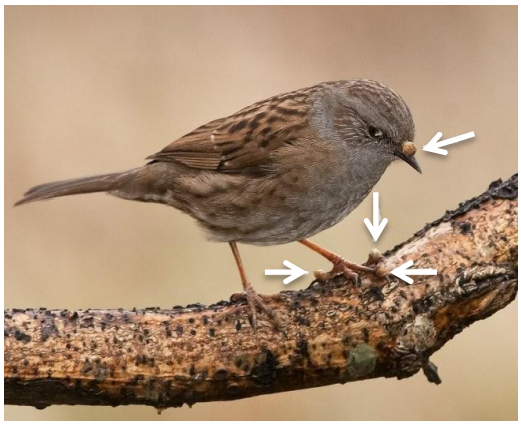

Figure 1. Credit: Graham Forsyth

Figure 2. Credit: Moss Taylor

Figures 1 and 2. Photos showing wild dunnocks with avian pox: note the skin nodules (arrows) around the beak and on the digits.

Figure 3. Credit: David Wragg

Figure 4. Credit: Andrew Mawby

Figures 3 and 4. Photos showing wild great tits with avian pox: note the multiple, large tumour-like skin lesions on the head.

Disease transmission

Avian poxvirus is thought to be spread between birds in three main ways: by biting insects (*e.g.* mosquitoes, flies), by direct bird-to-bird contact, and by indirect contact via contaminated surfaces such as perches or bird tables. The virus is relatively resistant and can persist in the environment (*e.g.* on perches, bird tables *etc.*) for long periods of time.

Disease patterns

Cases of avian pox in species not in the tit family have been reported across Great Britain. The novel and severe form of avian pox in great tits was first seen in southeast England, since when it has spread northward and westward and has a current distribution across England and Wales extending as far north as a line from the Mersey to the Humber. Since the great tit is a common species throughout Great Britain, continued spread of the disease is likely to occur further north in the coming years.

This form of avian pox in great tits was first reported in Scandinavia in the 1960s and has more recently been observed in central Europe in the past decade. Studies have shown that the virus affecting British great tits is genetically identical to that in mainland Europe. In contrast, there are a number of different strains of avian poxvirus that affect other bird species in Great Britain that are not in the tit family. The most likely explanation for the emergence of the new form of avian pox in tit species in Britain is that the virus has been transported from Scandinavia or central Europe to Britain. Bird migration does not seem a likely route; instead movement of an infected vector, such as a mosquito, may have occurred, perhaps assisted by windborne spread.

Whilst cases can occur year-round, there is a pronounced seasonal peak in the late summer and early autumn months of each year.

Along with scientists at the University of Oxford, we have monitored an outbreak of the new form of avian pox in tit species at a study site in Wytham Woods since 2009. Our analyses indicate that, whilst avian pox has very serious consequences for the individual birds affected in terms of their chances of survival, it is unlikely that a large-scale population decline of great tits will occur due to this novel and severe form of the disease. To date, national population monitoring conducted by the British Trust for Ornithology shows no evidence of a decline of great tits in Britain. The potential conservation importance of this new form of the disease, however, is in tit species which are already in decline, such as the marsh tit (*Poecile palustris*) and willow tit (*Poecile montanus*).

Risk to human and domestic animal health

Avian poxviruses are only known to infect birds, so there is no known risk to human or other mammal health from these viruses.

Garden birds in the UK, however, may carry other diseases that can affect humans and pets, such as *Salmonella*, *Campylobacter* and *E. coli* bacteria. We recommend following sensible hygiene precautions as a routine measure when feeding garden birds and handling bird feeders and tables. Following these rules will help avoid the risk of any infection transmitting to people and help safeguard the birds in your garden against disease.

- Clean and disinfect feeders/ feeding sites regularly. Suitable disinfectants that can be used include a weak solution of domestic bleach (5% sodium hypochlorite) and other specially-designed commercial products (see *Further information*). Always rinse the feeders thoroughly and air-dry them before re-use.
- Brushes and cleaning equipment for bird feeders, tables and baths should not be used for other purposes and should not be brought into the house, but be kept and used outside and away from food preparation areas.
- Wear rubber gloves when cleaning feeders and thoroughly wash hands and forearms afterwards with soap and water, especially before eating or drinking. Avoid handling sick or dead birds directly. For instance, use disposable gloves or pick the bird up through an inverted plastic bag.

The strains of avian poxvirus that infect garden birds are probably specific to those wild species affected. However, the disease could potentially be transmitted to poultry, cage or aviary birds. Aviculturalists or poultry owners who have affected wild birds in their gardens can reduce the risk of infection spreading to their captive birds. They should, for example, employ measures to reduce their birds' exposure to biting insects where feasible; prevent contact between captive and wild birds as far as possible; ensure wild bird feeders and water baths are inaccessible to captive birds; and wash and disinfect their hands thoroughly after handling wild bird feeders or equipment.

Diagnosis

Although large pox growths can be very characteristic, smaller or medium-sized growths can easily be confused with a number of other conditions, such as ticks. The disease can only be confirmed by specialist veterinary investigation, such as post-mortem examination and subsequent laboratory tests.

If you wish to report finding dead garden birds, or signs of disease in garden birds, please visit **www.gardenwildlifehealth.org**. Alternatively, if you have further queries or have no internet access, please call the **Garden Wildlife Health** vets on **0207 449 6685.**

Control

Whilst supportive treatment can be attempted in captive birds, effective treatment of free-living birds under field conditions is not possible.

Where an avian pox outbreak exists, general measures for control of disease in wild bird populations should be adopted:

- Ensure optimal hygiene at garden bird feeding stations, including disinfection (as described above).
- Empty and dry bird baths on a daily basis.
- Feeding stations encourage birds to congregate, sometimes in large densities, thereby increasing the potential for disease spread between individuals when outbreaks occur. **If many birds in your garden are affected, we recommend that you consider significantly reducing the amount you feed, or stop feeding for**

a period (2-4 weeks). Gradually reintroduce feeding, whilst continuing to monitor for further signs of ill health (See *Further information*).

Prevention

Following best practice for feeding garden birds is recommended to help control and prevent transmission of disease at feeding stations all year round (see *Further information*):

- Routine good table hygiene.
- Provision of clean and fresh drinking water on a daily basis.
- Provision of fresh food from accredited sources.
- Rotate positions of feeders in the garden to avoid build-up of contamination in any one area and pay particular attention to clearing food remains that fall onto the ground.

Further information

Best feeding practices should be followed at all times to help ensure that the birds visiting your garden remain healthy. More information can be found on the Garden Wildlife Health website www.gardenwildlifehealth.org. The GBH*i* booklet "Feeding Garden Birds – Best Practice Guidelines" is also available from the GWH team by (email: gwh@zsl.org, telephone: 0207 449 6685).

Scientific publications

Lawson, B., Lachish S., Colvile, K.M., Durrant, C., Peck, K.M., Toms, M.P., Sheldon, B.C., Cunningham, A.A. (2012) Emergence of a novel avian pox disease in British tit species. *PLoS ONE* **7(11)**: e40176. doi:10.1371/journal.pone.0040176.

Lachish, S., Lawson, B., Cunningham, A.A., Sheldon, B.C. (2012) Epidemiology of the emergent disease Paridae pox in an intensively studied wild bird population. *PLoS ONE* **7(11)**: e38316. doi:10.1371/journal.pone.0038316.

Lachish, S., Bonsall, M.B., Lawson, B., Cunningham, A.A., Sheldon, B.C. (2012) Individual and population-level impacts of an emerging poxvirus disease in a wild population of great tits. *PLoS ONE* **7(11)**: e48545. doi:10.1371/journal.pone.0048545.