Trichomonosis in Garden Birds

Agent

Trichomonas gallinae is a single-celled protozoan parasite that can cause a disease known as trichomonosis in garden birds.

Species affected

Trichomonosis is known to affect pigeons and doves in the UK, including woodpigeons (*Columba palumbus)*, feral pigeons (*Columbia livia*) and collared doves (*Streptopelia decaocto*) that routinely visit garden feeders, and the endangered turtle dove (*Streptopelia turtur*), which sometimes feed on food spills from bird tables in rural areas. It can also affect birds of prey that feed on other birds that are infected with the parasite. The common name for the disease in pigeons and doves is “canker” and in birds of prey the disease is also known as “frounce”.

Trichomonosis was first seen in British finch species in summer 2005 with subsequent epidemic spread throughout Great Britain and across Europe. Whilst greenfinch (*Chloris chloris*) and chaffinch (*Fringilla coelebs*) are the species that have been most frequently affected by this emerging infectious disease, many other garden bird species which are gregarious and feed on seed, including the house sparrow (*Passer domesticus*), siskin (*Spinus spinus*), goldfinch (*Carduelis carduelis*) and bullfinch (*Pyrrhula pyrrhula*), are susceptible to the condition. Other garden bird species that typically feed on invertebrates, such as blackbird (*Turdus merula*) and dunnock (*Prunella modularis*) are also susceptible: investigations indicate they are not commonly affected but that this tends to be observed in gardens where outbreaks of disease involving large numbers of finches occur.

Pathology

Trichomonas gallinae typically causes disease at the back of the throat and in the gullet, which often hinders the ability of affected birds to swallow.

Signs of disease

In addition to showing signs of general illness, for example lethargy and fluffed-up plumage, affected birds may drool saliva, regurgitate food, have difficulty in swallowing or show laboured breathing. Finches are frequently seen to have matted wet plumage around the face and beak. In pigeons and doves, swelling of the neck may be visible from a distance. The disease may progress over several days or even weeks, consequently affected birds are often very thin or emaciated.

Disease transmission

The *Trichomonas gallinae* parasite is vulnerable to desiccation and cannot survive for long periods outside the host. Transmission of infection between birds is most likely to be by birds feeding one another with regurgitated food during the breeding season or through food or drinking water contaminated by an infected bird.

Disease patterns

An epidemic of finch trichomonosis occurred throughout much of Great Britain in 2006 and 2007, and the disease has continued to cause large-scale mortality of finches in subsequent years. Whilst there was a marked seasonal peak during the late summer to autumn months in the first few years following emergence, incidents now occur throughout the year.

The geographical distribution where most finch trichomonosis outbreaks occurred shifted from western to eastern areas of Britain in 2007-08, but the disease is now established throughout the British Isles.

Finch trichomonosis has now been found in continental Europe, where it was first seen in Fennoscandia in 2008. Migrating chaffinches carrying the parasite from Britain are thought to be the most likely way that the disease spread to the continent.

Consequent to the finch trichomonosis epidemic which began in 2006, the UK breeding greenfinch population declined from circa 4.3 million to circa 1 million birds equating to an overall decline of 77% according to the most recent Breeding Bird Survey (2021). This represents the largest scale mortality of British birds due to infectious disease on record. The magnitude of this population decline resulted in the re-classification of the species from Green to Red-listed on the Birds of Conservation Concern.

In addition, the UK breeding chaffinch population has declined since 2012, changing from the second to the fifth most common wild bird species: surveillance information combined with population modelling indicate that this decline, which occurred primarily due to reduced adult survival, is also the result of finch trichomonosis. For chaffinches, these declines in survival were more marked in peri-domestic habitats, where supplementary feeding in gardens is a common practise, than in rural habitats, which suggests that food provision may increase parasite spread and emphasises the importance of best practice for garden bird feeding and vigilance for disease occurrence.

It is most probable that the parasitic infection in finches originated from pigeons and doves in Great Britain. Subsequent to trichomonosis becoming established in finches, it is likely that the majority of transmission is from finch to finch; however, spread of the parasite between finches and pigeons or doves is also likely to occur. It is probable that birds of prey become infected through the consumption of diseased songbirds, as is known to occur following predation of infected pigeons and doves, but the extent to which this happens and the potential significance to British birds of prey requires further investigation.

Risk to human and domestic animal health

Trichomonas gallinae is a parasite of birds and there is no known health threat to people or to mammals, such as dogs and cats. The parasite has the potential to affect captive poultry and pet birds.

Garden birds may carry other diseases that can affect people and pets (for example *Campylobacter, Chlamydia psittaci, Escherichia albertii* and *Salmonella* 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. Always rinse thoroughly and air-dry feeders before re-use.
- Dampen surfaces with water before cleaning them to reduce the chance of breathing in dry dust or aerosolised secretions.
- 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.

Diagnosis

Diagnosis of trichomonosis in wild birds relies on post-mortem examination and follow-up laboratory testing.

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 medicines are available for the treatment of trichomonosis in captive birds, effective and targeted dosing of free-living birds is not possible. Finch trichomonosis occurs year round, however, June to September have been observed to be the peak months for this condition, so it is particularly important to try to reduce the spread of this infectious disease during this critical time of year.

Birds infected with finch trichomonosis have difficulty swallowing and often regurgitate seed or water. This potentially infectious material can then quickly be consumed by healthy birds, exposing them to infection. As feeding stations encourage birds to congregate, sometimes in large densities, they can thereby increase the potential for disease spread between individuals when outbreaks occur. This means that general cleaning and good hygiene alone (see *Prevention* below) will not be enough to prevent birds infecting each other at feeders or bird baths during an outbreak, and further precautions are necessary.

As such, if you see birds of any species that you suspect may be affected in your garden, we recommend:

- Leaving bird baths empty until no further sightings of sick or dead wild birds occur.
- Temporarily stop feeding for a minimum of 2 to 4 weeks in order to encourage birds to disperse, thereby minimising the chances of new birds becoming infected at the feeding station.
- Only re-introduce feeding when you are no longer seeing birds with signs of ill health:
    - Gradually reintroduce food to your bird tables and/or hanging feeders, whilst closely monitoring for further signs of ill health.
    - It may also be advisable to avoid encouraging finches to congregate in large numbers and share food and water sources in the period following an outbreak when food is gradually being reintroduced. This may be achieved by offering a variety of food types, but limiting the volume of foods that attract large numbers of finches (e.g. mixed seed, sunflower seed, nyjer seed).

If the issue continues to recur, it is advisable to stop feeding for a longer period (e.g. 3-6 months).

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 hygiene on bird feeders (see guidance on cleaning and disinfection above).
- Provision of clean and fresh drinking water on a daily basis.
- Buy fresh food from reputable sources and in quantities which will be used within a relatively short period (e.g. 3 months) or before the best-before date if stated.
- If your garden size and design allow, have several sites where feeders can be positioned and rotate feeder location between these regularly (e.g. weekly) to reduce build-up of food waste or bird droppings in any one area.

- Bird feeders should only be filled with enough food to last 24-48 hours. Food which is left out for a prolonged period can become stale, allowing mould and pathogens (e.g. bacteria) to build up. Feeders should not be topped up with fresh feed but, instead, any food not eaten within 24-48 hours should be safely disposed of where it cannot be eaten by wildlife and replaced with fresh food.
- Do not allow accumulation of seed to occur, for example on the ground below feeders, and particularly on surfaces that are damp and/or contaminated with bird droppings.
- In gardens where pigeons, doves, greenfinches or chaffinches are known to visit, offering seed on table or ground feeders is not advised due to the increased potential for transmission of trichomonosis as these species are prone to this disease, which is transmitted via the saliva of infected birds, and may be present on dropped or regurgitated food.
- Offer different food types (e.g. seed and nuts, fruit, mealworms) at separate sites to reduce the likelihood of birds with different diets (e.g. seed-feeding, insectivorous) feeding together in close contact.
- At sites which attract large numbers of finches, in particular greenfinches and chaffinches, which are known to be highly susceptible to trichomonosis, it may be advisable to moderate the volume of seed provision and/or the number of seed feeders in use, since congregation at high density for sustained periods might increase the risk of parasite transmission.

Further information

Best feeding practice 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.

Scientific publications

Hanmer, H., Cunningham, A.A., John, S.K., Macgregor, S.K., Robinson, R.A., Seilern-Moy, K., Siriwardena, G.M. and Lawson, B., 2022. Habitat use influenced severe disease-mediated population declines in two of the most common garden bird species in Great Britain. *Scientific Reports* **12**:15055 doi.org/10.1038/s41598-022-18880-8

Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D. and Win, I., 2021. Data from: The fifth review of Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk of birds for Great Britain, Dryad, Dataset;**114**:723-47 doi.org/10.5061/dryad.cc2fqz672

Lawson, B., Robinson, R.A., Toms, M.P., Risely, K.M Macdonald, S. and Cunningham, A.A., 2018. Health hazards to wild birds and risk factors associated with anthropogenic food provisioning. *Philosophical Transactions of the Royal Society B* **373**: 20170091. doi.org/10.1098/rstb.2017.0091

Alrefaei, A.F., Low, R., Hall, N., Jardim, R., Dávila, A., Gerhold, R., John, S., Steinbiss, S., Cunningham, A.A., Lawson, B., Bell, D. and Tyler, K., 2019. Multilocus analysis resolves the European finch epidemic strain of *Trichomonas gallinae* and suggests introgression from divergent Trichomonads. *Genome Biology Evolution* **11**(8):2391-2402. doi:10.1093/gbe/evz164

Zu Ermgassen, E.K., Durrant, C., John, S., Gardiner, R., Alrefaei, A.F., Cunningham, A.A. and Lawson, B., 2016. Detection of the European epidemic strain of *Trichomonas gallinae* in finches, but not other non-columbiformes, in the absence of macroscopic disease. *Parasitology* **143**(10), pp.1294-1300. doi.org/10.1017/S0031182016000780

Lawson, B., Robinson R.A., Colvile K.M., Peck K.M., Chantrey J., Pennycott T.W., Simpson, V.R., Toms, M.P. and Cunningham, A.A., 2012. The emergence and spread of finch trichomonosis in the British Isles. *Philosophical Transactions of the Royal Society B* **367**, pp.2852-2863. doi:10.1098/rstb.2012.0130

Lawson, B., Cunningham, A.A., Chantrey, J., Hughes, L.A., John, S.K., Bunbury, N., Bell, D.J. and Tyler, K.M., 2011. A clonal strain of *Trichomonas gallinae* is the aetiologic agent of an emerging avian epidemic disease. *Infection Genetics and Evolution* **11**, pp.1638-1645. doi:10.1016/j.meegid.2011.06.007

Lawson, B., Robinson, R.A., Neimanis, A., Handeland, K., Isomursu, M., Agren, E.O., Hamnes, I.S., Tyler, K.M., Chantrey, J., Hughes, L.A., Pennycott, T.W., Simpson, V.R., John, S.K., Peck, K.M., Toms, M.P., Bennett, M., Kirkwood, J.K. and

Cunningham, A.A., 2011. Evidence of spread of the emerging infectious disease finch trichomonosis, by migrating birds. *Ecohealth* **8**(2), pp.143-153. doi: 10.1007/s10393-011-0696-8

Robinson, R., Lawson, B., Toms, M., Peck, K., Kirkwood, J., Chantrey, J., Clatworthy, I., Evans, A., Hughes, L., Hutchinson, O., John, S., Pennycott, T., Perkins, M., Rowley, P., Simpson, V., Tyler, K. and Cunningham, A.A., 2010. Emerging Infectious Disease leads to Rapid Population Declines of Common British Birds. *PLoS ONE* **5**(8), pp.e12215. doi:10.1371/journal.pone.0012215

Acknowledgements

Current funding for the GWH comes in part from Defra, the Welsh Government and the Animal and Plant Agency (APHA) Diseases of Wildlife Scheme (DoWS) http://apha.defra.gov.uk/vet-gateway/surveillance/seg/wildlife.htm; and from the Esmée Fairbairn Foundation, the Universities Federation for Animal Welfare, and the Garfield Weston Foundation.

Disclaimer

Date of factsheet update

September 2022