EXOTIC Flaviviruses (Usutu and Bagaza) affecting wild birds

Fact sheet

Introductory statement

Usutu and Bagaza viruses are Flavivirus arboviruses, which have emerged in recent years as a cause of disease in wild birds outside Australia. Usutu and Bagaza viruses have not been reported in Australia.

**Usutu virus (USUV)** is a Flavivirus in the Japanese encephalitis antigenic group and is closely related to Murray Valley encephalitis virus and West Nile virus. It is an emerging disease of concern because of its pathogenicity to humans and its similarity in ecology to other zoonotic arboviruses.

USUV was first isolated in South Africa in 1959. Birds are the vertebrate host and the virus is transmitted by biting mosquitoes (*Culex, Aedes* and other bird-feeding species). Humans, horses and rodents may be incidental hosts. USUV has recently been isolated from bats in Germany (Cadar et al. 2014). The virus has been found in a wide range of wild bird species, in many cases without evidence of disease. It is highly pathogenic for some species of birds, including Passeriformes, especially the genus *Turdus* (true thrushes; 82 species found throughout the world, including some species in Australia) and birds of prey (Hubálek et al. 2014).

Clinical signs in birds include lethargy, inability to fly, incoordination and death. Mortality rates in blackbirds (*T. merula*) may reach 100%. Pathology includes encephalitis, carditis, hepatomegaly and splenomegaly.

USUV emerged as a significant cause of avian mortality in Austria in 2001, killing hundreds of wild and aviary birds and spread to other countries of Europe. The virus is also found in Africa. Human disease (neurological) associated with USUV has been reported rarely, primarily in immunosuppressed individuals.

**Bagaza virus (BAGV)** (synonymous with Israel turkey meningoencephalitis virus, and also called avian meningoencephalomyelitis virus) is a Flavivirus from the Ntaya antigenic group. BAGV was first seen in adult turkeys in Israel in 1959. Birds are the vertebrate host and the virus is spread by biting mosquitoes (*Culex* and
Aedes spp.), and possibly midges (Culicoides spp.). In 2010, disease and mass mortalities were seen in wild game birds in Spain, primarily in Galliformes [including red-legged partridge (Alectoris rufa) and common pheasant (Phasianus colchicus)], and wood pigeons (Columbia palumbus). Domestic chickens, ducks and pigeons are resistant to disease.

Clinical signs in partridges include incoordination, disorientation, ataxia and death. Mortality rates are reported to be about 40% in partridge and 10% in pheasants. Signs in turkeys include progressive paralysis with mortality rates around 50%. Pathology includes (meningo)encephalitis, carditis and severe haemosiderosis in liver and spleen. Disease in humans has not been reported (Gamino et al. 2012).

Investigation aims to determine how BAGV was introduced into Europe and to better understand the possible role of wild birds in the epidemiology of BAGV (García-Bocanegra et al. 2013).

If you suspect a case of Usutu or Bagaza virus in Australian birds, you should immediately call the free Emergency Animal Disease Watch Hotline (1800 675 888).

References and other information


Hubalek et al. 2014 (above) provides a useful summary of information on arboviruses generally.


Acknowledgements

We are extremely grateful to the many people who had input into this fact sheet. Without their ongoing support production of these fact sheets would not be possible.

Developed: June 2017

To provide feedback on this fact sheet

Wildlife Health Australia would be very grateful for any feedback on this fact sheet. Please provide detailed comments or suggestions to admin@wildlifehealthaustralia.com.au. We would also like to hear from you if you have a particular area of expertise and would like to produce a fact sheet (or sheets) for the network (or update current sheets). A small amount of funding is available to facilitate this.
Disclaimer

This fact sheet is managed by Wildlife Health Australia for information purposes only. Information contained in it is drawn from a variety of sources external to Wildlife Health Australia. Although reasonable care was taken in its preparation, Wildlife Health Australia does not guarantee or warrant the accuracy, reliability, completeness, or currency of the information or its usefulness in achieving any purpose. It should not be relied on in place of professional veterinary consultation. To the fullest extent permitted by law, Wildlife Health Australia will not be liable for any loss, damage, cost or expense incurred in or arising by reason of any person relying on information in this fact sheet. Persons should accordingly make and rely on their own assessments and enquiries to verify the accuracy of the information provided.