

Foot and Mouth Disease Virus (FMD or FMDV) - Information

Australian native species, feral and zoo animals

General information

Foot and Mouth Disease (FMD) is currently not known to occur in Australia. However new outbreaks of FMD have recently been reported in livestock in Indonesia including Bali.

Movement of infected animals is an important means of spread for FMD. Other sources of spread include aerosols (over short distances), contaminated products, equipment and people (1). Long-distance wind-borne movement is also possible under certain conditions (2). FMD virus can remain infective in the environment for several weeks if conditions are favourable (1).

Domestic species known to be susceptible include cattle, pigs, sheep, goats, camelids (camels, llamas and alpacas), water buffalo and deer (1).

Wild species from overseas that are known to be susceptible include African buffalo, antelopes, bison, gazelles, moose, impala, giraffe, wildebeest, eland, warthog and elephant (3). Tapirs may possibly be susceptible (4,5), unlike related species such as horses and rhinoceros which are not susceptible. Worldwide, wild and feral populations of animals generally pose a low risk of transmitting infection to domestic livestock or originating new FMD outbreaks (6). The exception is African buffalo, which play a significant role in FMD spread and epidemiology in Africa due to their carrier status and high density in the wild (3,7,8).

Australian native species

Australian wildlife species that have shown minimal disease or spread of infection following overseas experimental inoculation with FMDV include kangaroos, Bennett's wallaby, wombats, possums, bandicoots, potoroo, water rat, brown marsupial mouse and echidna (9). While experimental infection does not always provide a good indication of the likelihood of infection under field conditions, native species are thought to pose minimal risk to livestock during a potential outbreak and it is very unlikely that they would become infected and transmit the disease (6).

However, in the event of an outbreak of FMD it may be valuable to conduct some surveillance in native species. This would be targeted to areas where FMDV has been detected, where native and domestic animals are in high concentrations and contact was likely to have occurred (10).

Australian feral animals

The role played by feral susceptible species in FMD transmission is largely determined by their population densities and level of interaction with domestic susceptible species (1).

Although some feral animal species have a wide geographical distribution in Australia, most exist at lower population densities than farmed domestic livestock (6). Eradication of FMD from livestock in other countries has also resulted in its disappearance from wildlife, e.g. Bulgaria in 2011, where wild boar and deer were infected (7).

The Northern Australia Quarantine Strategy (NAQS) program (www.agriculture.gov.au/biosecurity-trade/policy/australia/naqs) includes awareness-raising activities and surveillance for emergency animal diseases such as foot-and-mouth disease in feral animal populations in northern areas to help detect any disease outbreaks as early as possible.

Feral animals are unlikely to play a significant role in maintaining and spreading foot-and-mouth disease in Australia. The only exception is the water buffalo, due to potential carrier status. Water buffalo have a relatively limited distribution in the Top End of the Northern Territory.

Disease control strategies in feral animal populations would be determined based on the specific circumstances of an outbreak, guided by the AUSVETPLAN Wild Animal Response Strategy operational manual (<https://animalhealthaustralia.com.au/ausvetplan/>).

Zoo animals

Reports of zoos experiencing outbreaks of FMD are scarce and often anecdotal (11).

Species known to be susceptible to FMDV (see above) that are held in zoos may be at risk if FMDV enters Australia. Transmission pathways identified for FMDV above would be a potential source of spread to zoo animals.

In the event of an FMD outbreak the approach to zoo animals would be determined by the responsible authorities at the time and be based on AUSVETPLAN. Some zoo animals may be considered 'rare and valuable animals' which may be considered by the responsible authority in their management in the event of an FMD outbreak. See the AUSVETPLAN Guidance document on [*Risk-based assessment of disease control options for rare and valuable animals*](#) for further information.¹

Response if FMD occurred in Australia

The AUSVETPLAN *Disease Strategy: Foot and Mouth Disease* states that stamping out (destruction of infected and suspect infected animals and products, on-site disposal and decontamination) is the default initial policy for response to detection of FMD in Australia.

¹ Article 8.8.2 of the [WOAH \(formerly OIE\) Terrestrial Animal Health Code](http://www.woah.org/en/what-we-do/standards/codes-and-manuals/terrestrial-code-online-access/?id=169&L=1&htmlfile=sommaire.htm) (www.woah.org/en/what-we-do/standards/codes-and-manuals/terrestrial-code-online-access/?id=169&L=1&htmlfile=sommaire.htm) provides for the application of official emergency vaccination to FMD susceptible animals in zoological collections in the face of a FMD threat identified by the appropriate authorities, under conditions outlined in the Code. The AUSVETPLAN *Disease Strategy: Foot and Mouth Disease* (1) includes a decision tree for considering such targeted vaccination.

Vaccination is one of the available options to support this. Australia will maintain a flexible policy that allows decision-makers to determine the role of vaccination appropriate for each specific outbreak scenario.

The potential for feral and wild animals to compromise containment and eradication efforts needs to be assessed and appropriately managed. Entry, spread and maintenance of FMD in feral animal populations will be subject to ongoing risk assessment to ensure that feral animals are fully considered in the design of an eradication program.

Reporting

- Foot and mouth disease is a nationally notifiable diseases which means **if you suspect an animal is showing signs of the diseases, you must report it**. You can do this by contacting your local veterinarian or simply call the national **Emergency Animal Disease Watch Hotline on 1800 675 888**.
- **If you see any other unusual signs of disease or mass deaths in wildlife you can report it to:**
 - Your local State/Territory WHA Coordinator
<https://wildlifehealthaustralia.com.au/AboutUs/ContactDetails.aspx>
 - The 24-hour Emergency Animal Disease Watch Hotline on free call 1800 675 888
 - The Department of Primary Industries or Agriculture in the State/Territory in which the event has occurred.

Further Information

- [Wildlife Health Australia Fact Sheets](#)
- Animal Health Australia - [Foot and Mouth Disease resources](#)
- Animal Health Australia - [AUSVETPLAN](#)
- Animal Health Australia - [Risk-based assessment of disease control options for rare and valuable animals](#)
- [Emergency Animal Diseases Field Guide for Veterinarians](#)
- [Australian Government Department of Agriculture, Water and the Environment](#)
- Find out more about reporting notifiable diseases via the National pest & disease outbreaks website - outbreak.gov.au

References

1. Animal Health Australia. Disease Strategy: Foot and Mouth Disease (Version 3.4). Australian Veterinary Emergency Plan (AUSVETPLAN), Edition 3. Canberra, ACT: Agriculture Ministers' Forum; 2014.
2. Department of Agriculture, Fisheries and Forestry. Potential for wind-borne spread of FMD in Australia - Report Summary [Internet]. Canberra: Department of Agriculture,, Fisheries and Forestry; 2022. Available from: <https://www.agriculture.gov.au/biosecurity-trade/pests-diseases-weeds/animal/fmd/wind-borne>
3. Thomson GR, Vosloo W, Bastos ADS. Foot and mouth disease in wildlife. *Virus Res.* 2003;91:145–61.

4. Hernandez-Divers S, Quse V, May J, de Thoisy B, Thijl Vanstreels R, Blanco Marquez P, et al. Tapir Field Veterinary Manual. Tapir Specialist Group; 2007.
5. Ramsay E, Zainuddin ZZ. Infectious diseases of the rhinoceros and tapir. In: Fowler M, editor. Zoo and Wild Animal Medicine: Current Therapy. Philadelphia: WB Saunders; 1993. p. 459–65.
6. Bunn C. Foot and Mouth Disease (FMD) Risks Relating to Wildlife – Scope, Gap Analysis and Future Priorities. Sydney, NSW: Taronga Conservation Society Australia; 2013.
7. Gortázar C, Barroso P, Nova R, Cáceres G. The role of wildlife in the epidemiology and control of foot-and-mouth-disease and similar transboundary (FAST) animal diseases: a review. *Transbound Emerg Dis.* 2021;1–12.
8. Weaver GV, Domenech J, Thiermann AR, Karesh WB. Foot and mouth disease: a look from the wild side. *J Wildl Dis.* 2013;49(4):759–85.
9. Snowdon WA. The susceptibility of some Australian fauna to infection with foot and mouth disease virus. *Aust J Exp Biol Med Sci.* 1968;46(6):667.
10. Wildlife Health Australia. WHA Fact Sheet: Exotic - Foot and Mouth Disease in Native Wildlife. 2021 Jul 18; Available from: https://www.wildlifehealthaustralia.com.au/Portals/0/Documents/FactSheets/Exotic/EXOTIC_Foot_and_Mouth_Disease_in_Native_Wildlife.pdf
11. Schaftenaar W. Use of vaccination against foot and mouth disease in zoo animals, endangered species and exceptionally valuable animals. *Rev Sci Tech Int Off Epizoot.* 2002;21(3):613.