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African horse sickness outbreak in the protection zone

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Introduction

On 13 April 2021, officials from the Vredendal State Veterinary Office were notified of the deaths of three horses on a farm situated east of the Cederberg mountain range, on the other side of the Pakhuis Pass approximately 20km from Clanwilliam. The farm falls within the African horse sickness (AHS) protection zone of South Africa. An investigation was immediately planned and samples from a fourth horse that died later in the day on 13 April 2021 were taken by Animal Health Technician: Clanwilliam. The samples were tested on 14 April 2021 and AHS virus was detected.

Outbreak control actions

A preliminary outbreak-controlled zone was designated, that mostly follows the boundaries of the Cederberg Local Municipality. A 10km active investigation zone was designated around the infected farm (fig 1).

A website hosted to provide up to date information on this outbreak is available at www.myhorse.org.za/ahs2021. An interactive map of the outbreak-controlled zone is available on the website.

No equines are allowed to move out of, into, through or within the outbreak-controlled zone without a permit issued by Western Cape Veterinary Services. Roads that make up the border of the outbreak-controlled zone are not included in movement restrictions, and transport of equines along these roads is permitted.

Currently, no vaccination against AHS is permitted as this is prohibited in the AHS surveillance and protection zones in the high vector risk period between 1 November and 31 May each year.

Horse owners are encouraged to stable their horses from two hours before sunset until two hours after dawn to decrease the risk of biting midges (the vector of the

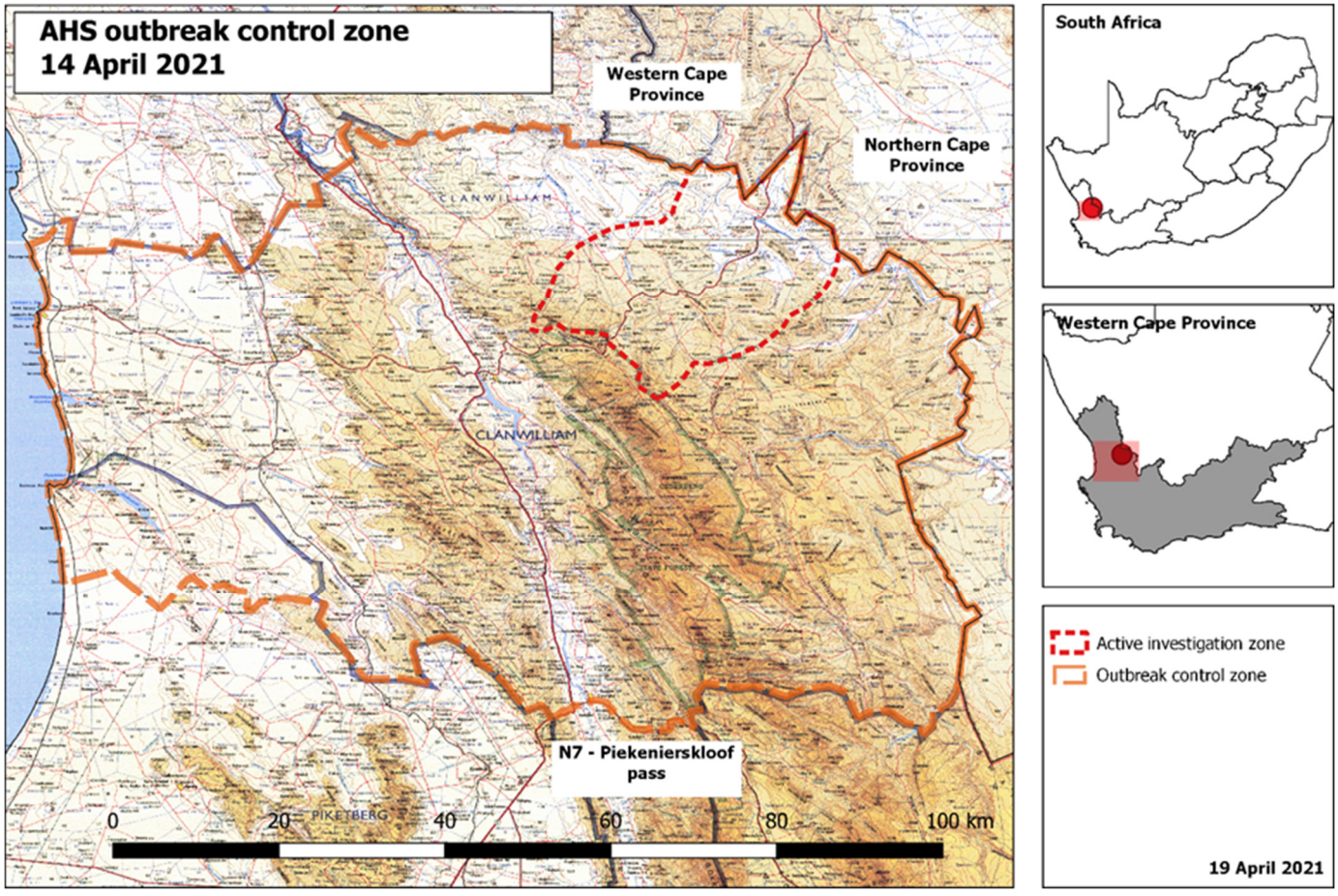

Figure 1: Outbreak control zones for African horse sickness in the Western Cape in April 2021

disease) having contact with their horses. Owners should also make use of a registered insect repellent and insecticide on their horses during the vector feeding periods as indicated above. Further protection of the stabled horses can be achieved by covering all stable openings with 80-100% shade cloth. Any owner within the AHS controlled area, and specifically within the outbreak-controlled area, detecting illness in horses involving unexplained fever, swelling of the head and neck and difficulty breathing should report the case to their local state veterinarian as quickly as possible.

Response and current situation

An initial census and surveillance programme by state officials in the area surrounding the affected property was performed to determine the extent of the outbreak. Officials worked outwards from the index farm with a focus on sampling all horses within the 10km zone (the active investigation zone), along the main road on which the affected farm is located. Other officials worked on the area immediately surrounding the active investigation zone, and this effort was primarily focussed on census and clinical surveillance. Two holdings were also sampled, to which horses had moved from the infected farm.

The initial census and surveillance programme was completed by the end of April 2021, by which time there had been a total of 30 cases of AHS with 14 deaths on the index farm. Clinical signs seen in affected horses have included swelling of the neck and supraorbital fossae, conjunctival oedema, dyspnoea and foam coming from the nostrils.

On 30 April, a horse died after fluid came out of its nostrils on a farm 11km north of the index farm. This was subsequently confirmed as the second AHS positive property.

There are two suspect cases (both deaths) within 20km and 100km of the index farm that have been sampled and results are pending. Surveillance was done on 275 different equids on 32 different farms by 5 May 2021. Of these, 64 were sampled for AHS testing from 13 farms. Over and above AHS testing, 45 equids were tested for equine encephalosis virus (EEV). EEV is also a midge-transmitted virus of the same family as the AHS virus. Twelve equines have tested positive for EEV.

The morbidity rate on the affected farm is currently 34% with a mortality rate of 28% and a case fatality rate of 80%. The AHS virus type has not been identified yet. The implications of this are that it is very unlikely that this virus is a live attenuated vaccine re-assorted or reverted to virulence strain, since the test that is used for typing would detect live attenuated vaccine strains.

Discussion

The origin of the virus on the affected property is not known. Investigations of legal movements have shown that there was unlikely to have been entry of AHS virus through horse introductions. Investigations into the source are ongoing and will include establishing the possibility of wind dispersal of infected midges. Knowing the type of the virus will also assist in this part of the investigation.

While there is still active circulation of AHS in the area, we are cautiously optimistic that the location of the outbreak could limit the spread of the virus. The Cederberg mountains to the west of the affected farm form a barrier to midges in a westerly and south westerly direction. Equine populations are low in the outbreak area and even more so to the north and north east, so spread here is also not likely to occur easily. There are small donkey, zebra, and horse populations along the eastern side of the Cederberg, but this area is enclosed by mountains to the south as well. Surveillance is ongoing here.

It is not currently known when the outbreak-controlled zone and associated control measures will be relaxed.

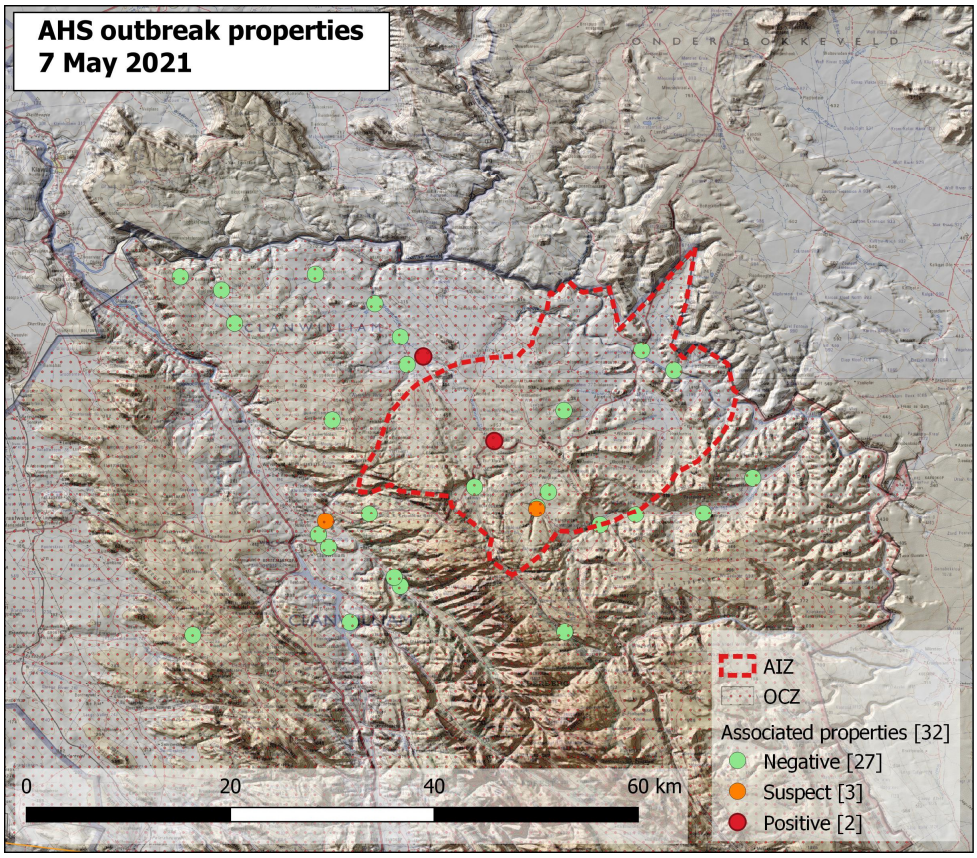

Figure 2: Properties visited for surveillance after the African horse sickness outbreak in the Western Cape in April 2021

Outbreak events

An outbreak of **African horse sickness** caused clinical cases and deaths on two properties in the **Clanwilliam** area. See the main article for details.

A **bat-eared fox** in the **Piketberg** area approached farm workers' houses where it attacked the dogs and was killed by them. There were no human contacts. The fox's brain subsequently tested positive for **rabies**. The dogs had been previously vaccinated against rabies and were vaccinated again in response.

Six outbreaks of **bluetongue** were reported in **sheep** from the **Great Karoo** near Leeu-Gamka, Beaufort West and Prince Albert. Sheep were seen with signs of foot pain and hypersalivation as a result of mouth lesions (fig 3). Morbidity rate ranged from 2-6% with mortality rate of 1-6%.

Outbreaks of **lumpy skin disease** (LSD) were reported in **cattle** near **Laingsburg** and **Greyton**. In the former case, five cattle in a herd of 80 were affected. Near Greyton, a group of 149 heifers of unknown vaccination status were bought in to a herd of cattle that were vaccinated against LSD. In the new group, 22 heifers showed clinical signs of LSD. The owner treated the sick cattle with antibiotics and anti-inflammatories and plans to vaccinate the group when they have recovered.

Skin lesions of **erysipelas of swine** were seen after slaughter on the carcasses of two pigs from a farm near **Barrydale**. The carcasses were condemned.

Near **Vanrhynsdorp**, approximately 15 out of a herd of 200 **ewes** began showing signs of **laminitis** and **coronitis**. The ewes were starting to lamb and their feed had been recently changed.

In a feedlot in the far north of the province near **Kliprand**, three month-old **lambs** died after showing signs of teeth grinding, arched backs and loss of appetite. Post mortem examinations of the lambs revealed the cause of death to be **abomasal impaction with sand**. The owner was advised to provide phosphate licks and creep feed for lambs to prevent them from eating sand. Grazing on natural veld is not currently possible due to drought.

Eight of 16 backyard **chickens** kept near **Stellenbosch** died after appearing depressed and lethargic. There were no specific findings on post mortem and samples taken tested negative for avian influenza and Newcastle disease. The suspected cause of the outbreak was **infectious coryza or fowl pox**, but the diagnosis was not confirmed as further testing was not done.

Many mortalities of **Egyptian geese** were reported on a farm near **Kalbaskraal** over a period of several weeks. Post mortem of three of the carcasses showed splenomegaly, foamy lungs, enlarged and haemorrhagic pancreas and haemorrhages in the gastrointestinal tract. The carcasses were autolysed and partially consumed by scavengers. Samples taken tested negative for avian influenza and Newcastle disease. The presumptive diagnosis is **bacterial pneumonia** as many bacteria were seen in the lungs on histopathology and tracheal cilia were destroyed. However, this may have been affected by the stage of decomposition.

Figure 3: Oral lesions seen in sheep with bluetongue (photos: J Kotze)

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