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Highly pathogenic avian influenza (H5N1) breaks out

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Nearly a month after the first South African case of highly pathogenic avian influenza (HPAI) in 2021, the disease broke out in the Western Cape. Several outbreaks have been confirmed in the province since 4 May. The virus has been sequenced in many cases as the same clade 2.3.4.4b H5N1 subtype that occurred in other provinces.

Outbreaks in 21 locations were reported from the Western Cape this month (Fig. 1):

- Ten on commercial chicken farms
- Seven in wild birds (reported mostly per suburb)
- One in captive wild birds in a bird park
- Two in domestic and feral geese
- One in domestic turkeys

The commercial chicken farms comprised of:

- Two broiler farms
- Four broiler breeder farms (one rearing)
- Four layer farms (one rearing)

Wild bird species that were affected included:

- Great white pelicans (40/100 died)
- Hartlaub's gulls (7)
- Kelp gull (1)
- Grey-headed gull (1)
- African penguin (1)
- Egyptian goose (1)
- Spur-winged goose (1)

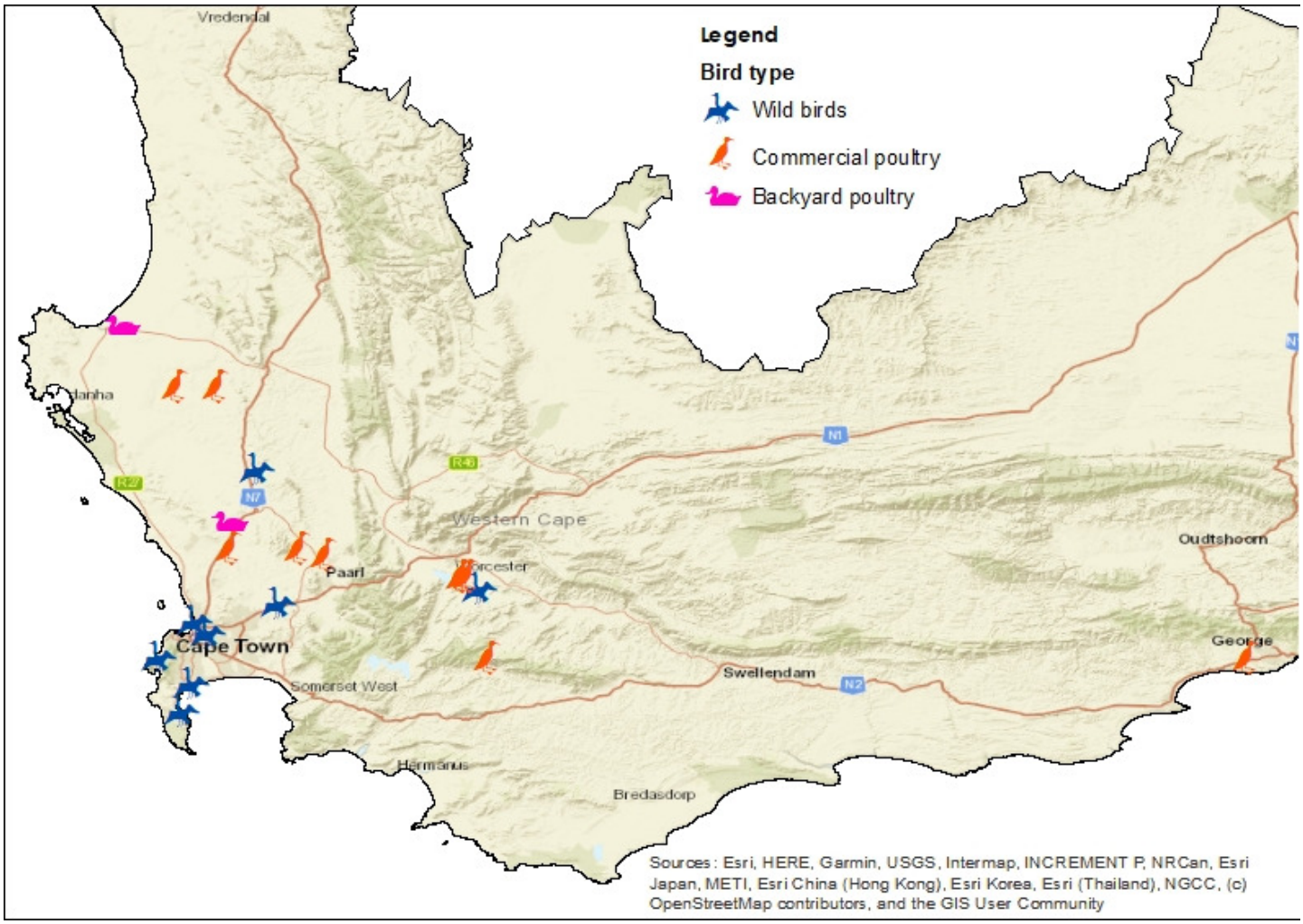

Figure 1: Approximate locations of outbreaks of confirmed and suspect H5 highly pathogenic avian influenza in the Western Cape in May 2021

From the available poultry farm capacity data, it is estimated that about 11% of the broiler breeders and 12% of the layers in the province were lost in May.

Typically, abnormal numbers of acute deaths were reported from the affected poultry farms, and sometimes lethargy and anorexia were observed in the chickens. Common post-mortem findings included enlarged and mottled spleens, haemorrhages in the visceral fat and reddened legs (Fig. 3).

Three of the affected commercial farms had multiple sites. On two farms the disease was isolated to one site after rapid culling and increased biosecurity measures (Fig. 5). One of these initiated culling after a 0.05% mortality rate and post-mortem signs suggestive of HPAI. Culling and burial (Fig. 2) was completed by the next day.

At least two single-site farms attempted to isolate the virus to a single house but neither was successful and had to cull the whole farm. Despite the rapid response on one farm, where the initial infected house was culled in close to 24 hours, a second house was affected a week later.

The odds of a commercial chicken farm having tested positive in May were four times higher if it was within 10km of another positive farm than if it was not. However, in one area where the viruses from both outbreaks have been sequenced, the viruses did not appear to be related. The risk of infection may therefore be related to the risk of wild bird exposure in that area. The sequencing evidence so far indicates multiple separate introductions from wild birds rather than transmission between farms. To support this, Egyptian and spur-winged geese on one positive commercial farm also tested H5 positive.

Clinical signs in the turkeys included green diarrhoea, difficulty breathing, bluish heads and hanging wings. Geese had swollen heads, twisted necks (Fig. 4), green faeces and appeared blind. The most common signs seen in seabirds were neurological, ranging from weakness to abnormal head movements.

Figure 2: Chicken carcasses bagged and ready for disposal after culling (Photo: M. Oosthuizen)

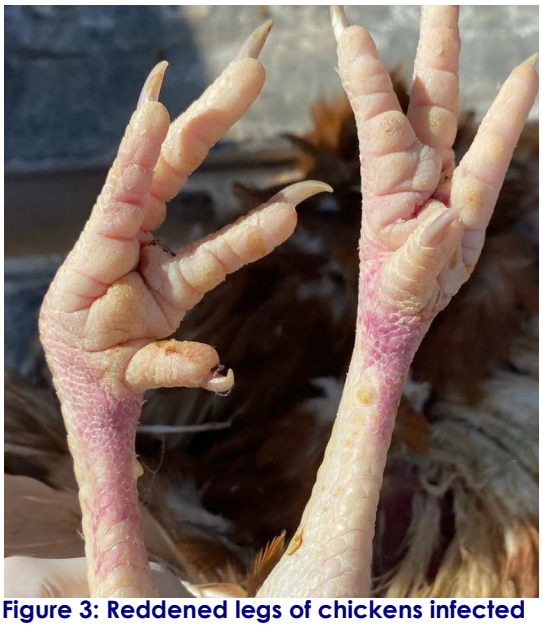

Figure 3: Reddened legs of chickens infected with HPAI (Photo: M. Oosthuizen)

Figure 4: Geese infected with HPAI, showing twisted necks (Photo: M. Swart)

Figure 5: Disinfection of facilities and use of lime on a chicken farm

African swine fever update

Since February 2021, African swine fever (ASF) outbreaks have been reported in four locations in the Western Cape province (Fig. 6). The outbreak on one affected property, a small farm near Wilderness, has since been resolved and quarantine lifted, but outbreaks remain active in three areas:

Mfuleni was the first area in which outbreaks of ASF were reported in February. Pigs belonging to 17 of the approximately 150 pig owners in the area were confirmed infected, with pig deaths continuing to be reported by new owners since the outbreak was confirmed. Of the approximately 5000 pigs kept in Mfuleni, at least 500 have died to date, but the mortality rate seems to have decreased since the outbreak initially occurred.

In late April, an outbreak of ASF was reported from an informal farming area near Saldanha after the local animal health technician (AHT) was alerted to pig mortalities by an agricultural extension officer. The area contained about 500 pigs belonging to 19 owners and many deaths occurred suddenly for 15 of the owners. The farmers had all shared a boar shortly before the outbreak and there were few to no biosecurity measures in place between pigs belonging to different owners. By the end of May only 82 pigs remained alive in the area.

In May, another ASF outbreak occurred amongst a group of small-scale farmers in the Strand area of Cape Town. Approximately 250 pigs are kept by 27 owners. Almost all pigs can have some contact with each other and several owners allow their pigs to roam freely.

The three areas in which there are active outbreaks remain under quarantine. Quarantine notices were given to each owner along with educational material. AHTs provide the community with disinfectant and lime and train farmers how to use these and implement biosecurity measures to prevent the spread of ASF. Pig owners are also advised how to dispose of dead pigs according to the local situation and environmental legislation. Each area is visited weekly by the local AHT to monitor the situation.

For an update on the ASF situation in South Africa, see the latest update from DALRRD, available at https://nahf.co.za/wp-content/uploads/ASF-update-2021-05-21.pdf

Given the wide distribution of ASF outbreaks in the Western Cape and the ongoing outbreaks in almost all other provinces of South Africa, the risk of introducing ASF when buying pigs is high. Pig owners and keepers should remain vigilant and practice strict biosecurity.

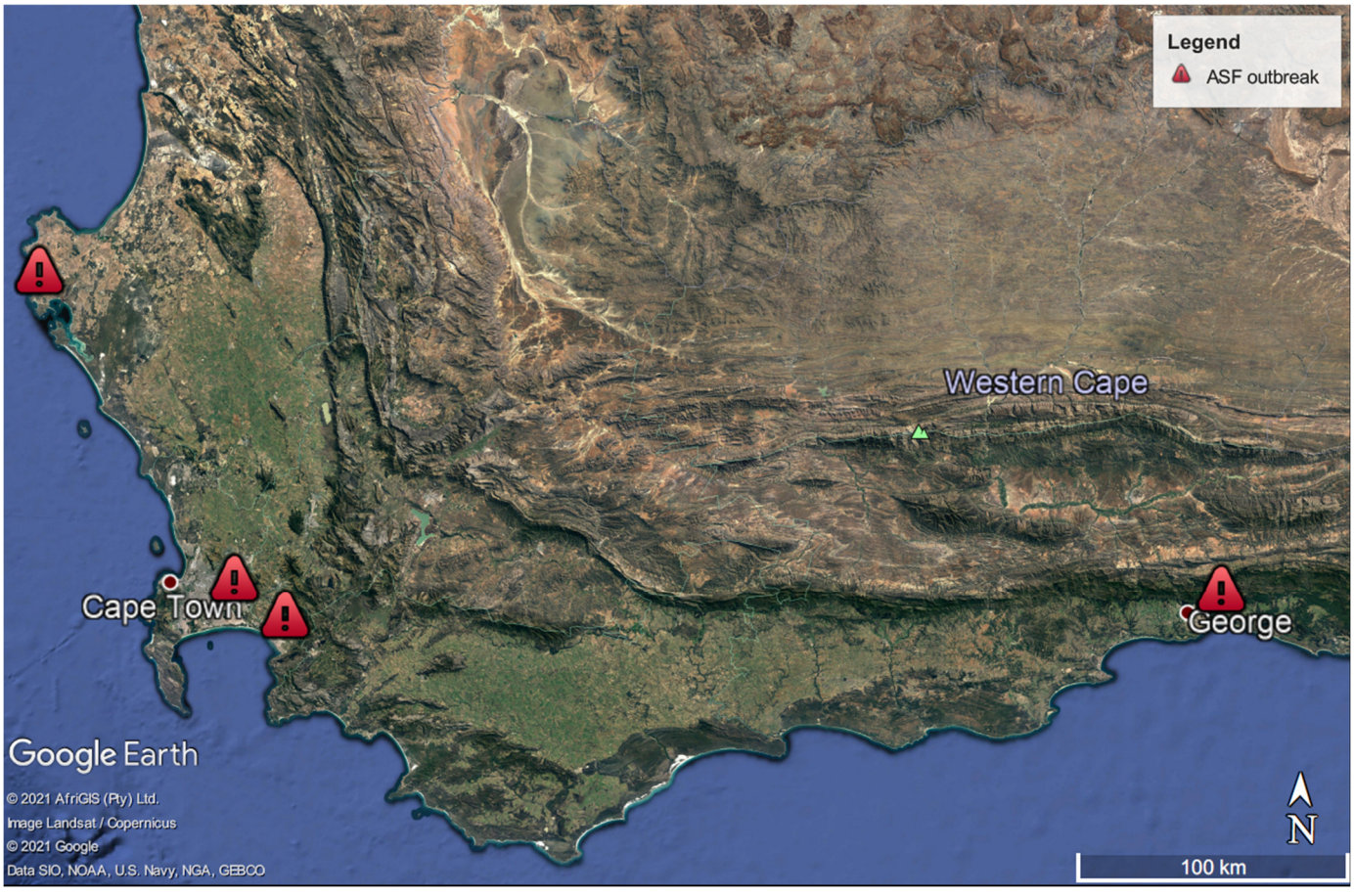

Figure 6: Locations of outbreaks of African swine fever in the Western Cape between February and May 2021

African horse sickness outbreak in the protection zone: update

On 14 April 2021, an outbreak of African horse sickness (AHS) was confirmed in the Cederberg local municipality. The outbreak occurred in the AHS protection zone which is the outer zone of the AHS controlled area of South Africa (Fig. 7).

As of 31 May 2021, there have been a total of 37 confirmed cases with 20 deaths. Cases have been reported on a total of four properties. Sampling of 72 different equids on 15 different farms has taken place. Laboratory results have confirmed 31 lab positive AHS cases. Over and above AHS testing, 57 equids were tested for the closely related equine encephalosis virus (EEV) and 18 equines have tested positive. In total, 33 holdings have been visited by officials and 278 individual equines have been associated in the investigation, with 241 equines classified as negative based on laboratory or clinical surveillance. Trace-forward investigations relating to movement from the outbreak control zone (OCZ) into the AHS surveillance and/or AHS free zone were completed, and no known movements of this nature took place after 1 March 2021.

The morbidity rate in the active investigation zone (AIZ) is currently 16.3% with a mortality rate of 9.69% and a case fatality rate of 59.46%. The AHS virus type has not been identified yet. Cases have decreased in recent weeks with only three having occurred since 6 May 2021.

Investigations into the origin of the virus are ongoing. The lack of typing of positive results to date makes it 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. The location of the outbreak and decrease in temperatures is likely to have facilitated lack of spread and decrease in cases since early May.

For more information, please visit www.myhorse.org.za/ahs2021, that facilitates communication of the extent, control, and progression of the outbreak. Movement control measures are still in place. Due to the current outbreak, as well as recent confirmed cases of EEV, the start of the AHS vaccination period within the AHS controlled area has been delayed. The situation will be reviewed, and the risk re-assessed on a two-weekly basis.

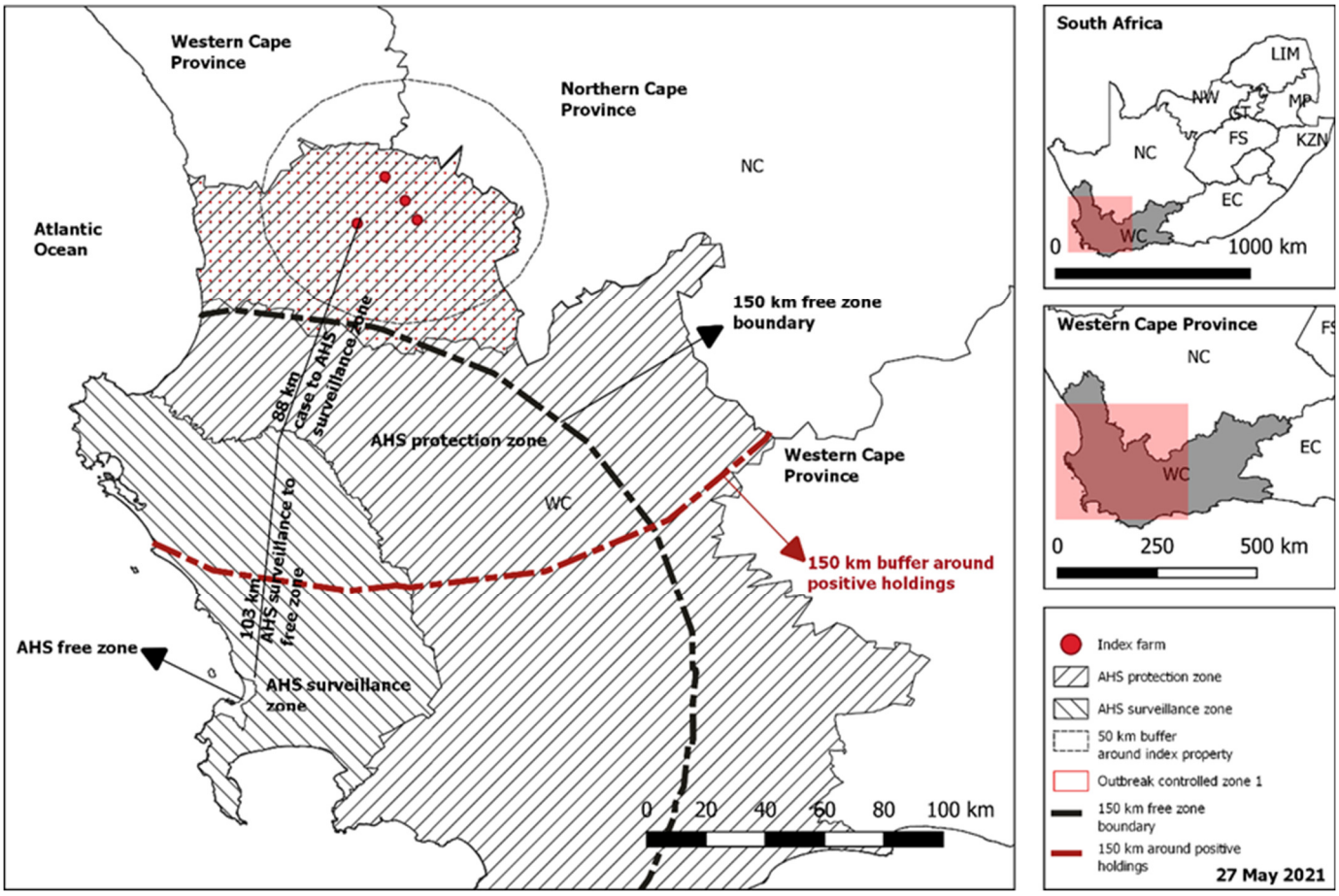

Figure 7: The location of the current outbreak-controlled zone and associated affected holdings. The 150 km buffer zone surrounding these holdings falls short of South Africa's AHS free zone in the Cape Town metropole and is therefore unlikely to have any substantial impact on future trade with the European Union.

Outbreak events

Cases of highly pathogenic avian influenza are detailed on page 1, African swine fever on page 3 and African horse sickness as well as equine encephalosis virus in the protection zone on page 4 of this report.

Several cases of **African horse sickness** were reported from the infected zone of the province:

⇒ In the Beaufort West state vet area, north of **Murraysburg** and **Nelspoort**, four properties experienced deaths of horses and clinical signs typical of AHS (Fig. 8). AHS was confirmed on three of the properties, but on the fourth the horse could not be sampled as it disappeared and is believed to have died in the veld.

⇒ A 20-year-old gelding near **Klawer** died overnight after showing clinical signs of AHS. Samples tested positive and the virus was typed as type 5. Although this case is about 50km from the outbreak in the protection zone around Clanwilliam, there is no evidence that the outbreaks are associated.

Figure 8: Horses in the Karoo died after showing clinical signs of AHS, including foam running from the nostrils and conjunctival swelling. (Photos: J. Pienaar)

A **bat-eared fox** on a farm near **Clanwilliam** appeared disorientated and let dogs play with it before the farmer noticed and killed it. The fox tested positive for **rabies**. The dogs had been previously vaccinated against rabies and were re-vaccinated in response to having contact with the fox.

Another **bat-eared** fox in the **Paardeberg** area near Paarl was seen in the veld with a stick in its mouth and chased the farm dogs aggressively. It was shot and killed by the farmer before it had any contact with humans or other animals. This fox also tested positive for **rabies**.

Ostriches in the **Albertinia** area tested PCR positive for H5 avian influenza on swab samples taken in April and May. The virus was later sequenced as **low pathogenic avian influenza (H5N2)**.

Feral pigeons in **Cape Town** were found ill and dead on the roof of an office building. The live birds were caught and euthanased. They subsequently tested positive for Newcastle disease virus. Further typing is awaited, but it is likely the cause of death was **pigeon paramyxovirus**.

Lumpy skin disease was reported in unvaccinated **cattle** on properties near **Klapmuts** and **Wolseley**. The morbidity and mortality rate was low, at approximately 3% and 0.4%, respectively. On one property a calf was affected, with classic skin lesions and a secondary eye infection, while on the other several cattle showed atypical lesions, including lumps on the inside of their nostrils and on their udders and scrotum, as well as swollen legs. On this latter property lumpy skin disease was confirmed by PCR.

Five pigs from a piggery near **Bonnievale** were diagnosed with **erysipelas of swine** at the abattoir after diamond-shaped skin lesions were detected by the veterinarian on duty at the abattoir. On inspection of the farm of origin, four more pigs were found with skin lesions. The pigs showed normal habitus and were eating well. These pigs were isolated and recovered fully after being treated with penicillin.

Distemper outbreaks were reported in **dogs** in **Touws River** and **Swellendam**. About 110 dogs were euthanased by animal welfare organisations and it is unknown how many dogs died naturally as a result of the disease.

Bovine babesiosis (redwater) was reported telephonically by a farmer near **Stanford**. One cow aborted and another two showed red urine. The owner reported a high tick burden and possible resistance against a pour-on product used recently .

Figure 9: Oral lesions caused by bluetongue in a sheep (photo: J. Kotze)

Bluetongue outbreaks were reported in **sheep** from the **Vanrhynsdorp** and **Murraysburg** areas, affecting a total of 13 sheep on four farms and causing eight deaths. Affected sheep showed fever, coronitis, loss of appetite, salivation and mouth lesions (Fig. 9). Farmers were advised to vaccinate their ewes after lambing season to prevent outbreaks in 2022.

Wool loss and inflamed skin were seen on a sheep inspected at an auction facility near **Paarl** (Fig. 10). The sheep was kept with six other sheep belonging to four different owners. A diagnosis of **sheep scab** was made on skin and wool scrapings taken from the affected sheep. The property was placed under quarantine and the owners decided to slaughter the sheep for own consumption. The skins and wool were burned.

An ill stray **pig** was found in **Cape Town** and taken to a local animal welfare organization, where it was euthanased on suspicion of African swine fever. Subsequent tests were negative for ASF, but a pure culture of ***Salmonella*** was obtained from the lungs.

Pigs kept in the **Ashton** area died suddenly after showing discolouration of their ears and ventral abdomens, epistaxis and foaming at the mouth and nostrils. The carcasses were sent to the lab for post-mortem and pooled stomach content tested positive for **phosphine toxin**. The pigs were fed grain from a nearby co-op and waste food from an retirement home and a school. The source of the toxin could not be determined with certainty.

Rumen acidosis was reported in several **sheep** near **Murraysburg** after their feed ration was changed.

Karoo paralysis, caused by the tick, *Ixodes rubicundus*, affected six **sheep** in a flock of 600 near **Three Sisters**.

Lambs died within the first week of life of **joint and navel ill** on two properties near **Vanrhynsdorp**. A few that survived showed severely swollen forelimb joints. The surviving lambs were treated with antibiotics and anti-inflammatories and the farmers were advised to move the ewes still to lamb to another part of the farm.

Four roan antelope were found dead on a farm in the Prince Albert area. A necropsy of one of the dead roan showed oedema in almost all organs. Tests were done for bluetongue, bovine ephemeral fever and African horse sickness viruses, but all were negative.

Large numbers of sick and dying Egyptian geese were reported from a farm near Porterville. Carcasses were collected from the farm dams for investigation. The geese tested negative for avian influenza and Newcastle disease, and non-specific signs were seen during necropsy.

Deaths of almost all (67/80) chickens belonging to a farmer near Bredasdorp died after showing weakness, diarrhea and pus in the eyes over several months. The chickens tested negative for avian influenza and Newcastle disease. No definitive diagnosis could be made.

Figure 10: Wool loss as a result of sheep scab (photo: M. Fourie)

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