Western Cape Government
Agriculture

EPIDEMIOLOGY REPORT

VETERINARY SERVICES
April 2018
Volume 10 Issue 4

Rift Valley fever flares up in the Free State

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The Free State province reported a confirmed outbreak of Rift Valley fever that occurred on a sheep farm in the Western part of the province near Jacobsdal in late April 2018. Of the 600 sheep on the property, 250 (42%) were reported to have died.

Rift Valley fever (RVF) outbreaks occur in cycles of several years, usually emerging after a period of increased rainfall, when the virus is transmitted by mosquitos in the area. Many mammal species can be affected by the disease, including humans, but domestic ruminants such as sheep, cattle, goats and wild ruminants are usually affected, with sheep being particularly susceptible. Outbreaks of RVF can be prevented or their effects mitigated by vaccination of susceptible livestock.

The last time RVF occurred in the Free State was in 2010 and marked the beginning of a wide-scale outbreak that affected eight provinces and lasted until mid-2011. It caused illness and death in thousands of animals and over 300 cases of zoonotic RVF were also reported, causing the deaths of 25 people.

Outbreaks of RVF in the central interior of South Africa are more likely to be extensive than those that occur in the eastern parts of the country. Outbreaks often start in mid- to late summer and subside in winter, but it is possible for an outbreak emerging very late in the summer to continue to circulate during winter, especially if a particularly warm or wet winter occurs, and flare up again early the next summer. Vigilance and vaccination are therefore essential to prevent the next extensive outbreak.

Farmers and veterinary professionals should therefore be on high alert for signs of RVF outbreaks, which usually present in the form of increased mortalities in livestock. Clinical signs are non-specific and include pyrexia, depression, weakness, anorexia, diarrhoea and abortion storms. Necropsies of dead animals to collect samples for diagnostic testing should be performed only by experienced people using adequate personal protective equipment (at least overalls, gloves, eye-coverings and a mask) to prevent exposure to the virus.

Further reading:

Archer, B.N., Thomas, J. et al, 2013, Epidemiologic investigations into outbreaks of Rift Valley fever in humans, South Africa, 2008–2011, *Emerging Infectious Diseases* 19 (12).

Pienaar, N.J. & Thompson, P.N., 2013, Temporal and spatial history of Rift Valley fever in South Africa: 1950 to 2011, *Onderstepoort Journal of Veterinary Research* 80 (1).

Figure 1: Map illustrating the location (red dot) of the Rift Valley fever outbreak in South Africa in April 2018 (DAFF)

Dourine freedom survey in the AHS surveillance zone

Adapted from the dourine in equids surveillance report—Western Cape AHS surveillance zone by C. Gerstenberg[1], J.D. Grewar[2], K. Loxley[1] and C.T. Weyer[2]
[1] Department of Agriculture, Forestry and Fisheries
[2] SA Equine Health and Protocols

Dourine is a sexually transmitted disease of equids caused by *Trypanosoma equiperdum*. A requirement for the export of horses from the Western Cape to the European Union (EU) is that there is a period of freedom from dourine in the Western Cape during the prior six months. Previously, freedom from dourine within the territory of dispatch has relied on clinical passive surveillance by private veterinarians, active surveillance undertaken within the Thoroughbred breeding system and the individual testing of horses in quarantine prior to export. The EU's 2013 audit report finding, however, made it clear that these measures were not considered adequate. Additional dourine surveillance using the framework of the African horse sickness (AHS) sentinel program was therefore undertaken to address this issue.

Serum samples from the February AHS sentinel surveillance program not tested for AHS were used for dourine surveillance. A total of 88 horses were therefore sampled from 34 locations across the AHS surveillance zone (fig 2). All 88 samples tested negative for dourine antibody using the CFT test.

Analysis of the sensitivity of the surveillance program was performed using both the AHS sentinel program design prevalence and an effective population design prevalence of 2%. The latter was used in an effort to depict a reasonable minimum expected prevalence with so few cases of dourine reported in the previous two decades in the AHS surveillance zone (fig 3). The probability of freedom from dourine in the AHS surveillance zone, given this single surveillance effort, ranges between 79.5% and 98.1% depending on the effective design prevalence used.

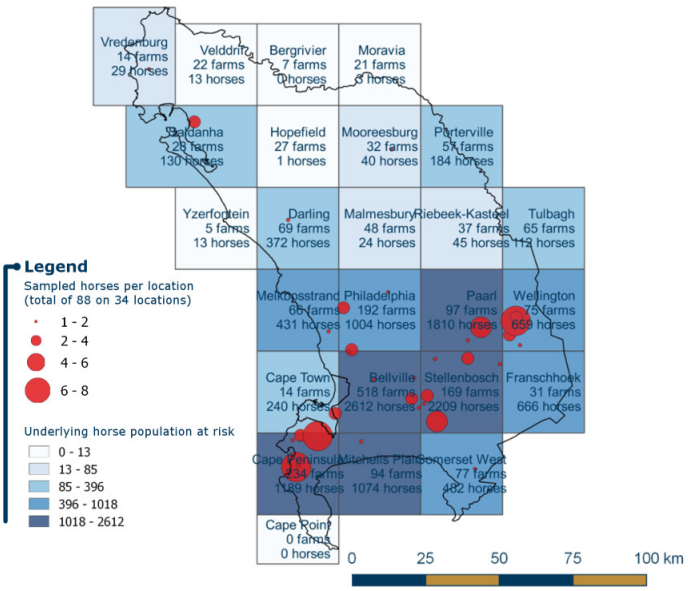


Figure 2: Dourine survey locations showing proportional circles for number of horses tested per location. The underlying population at risk is shown as a light to dark blue gradient.

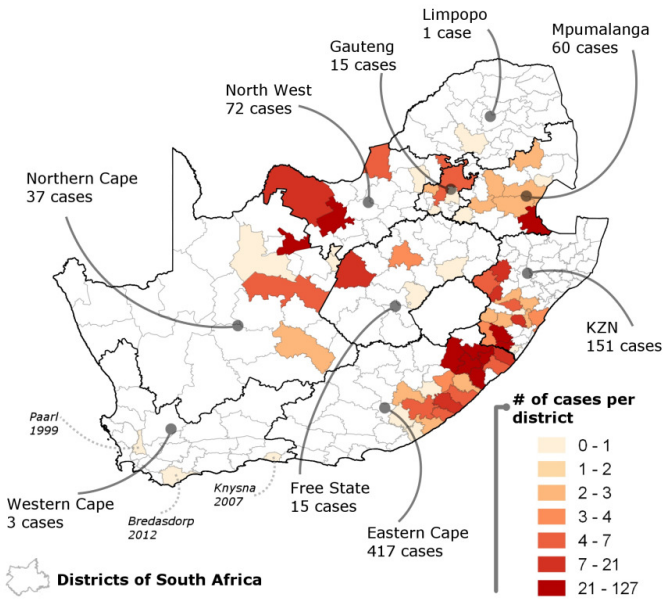
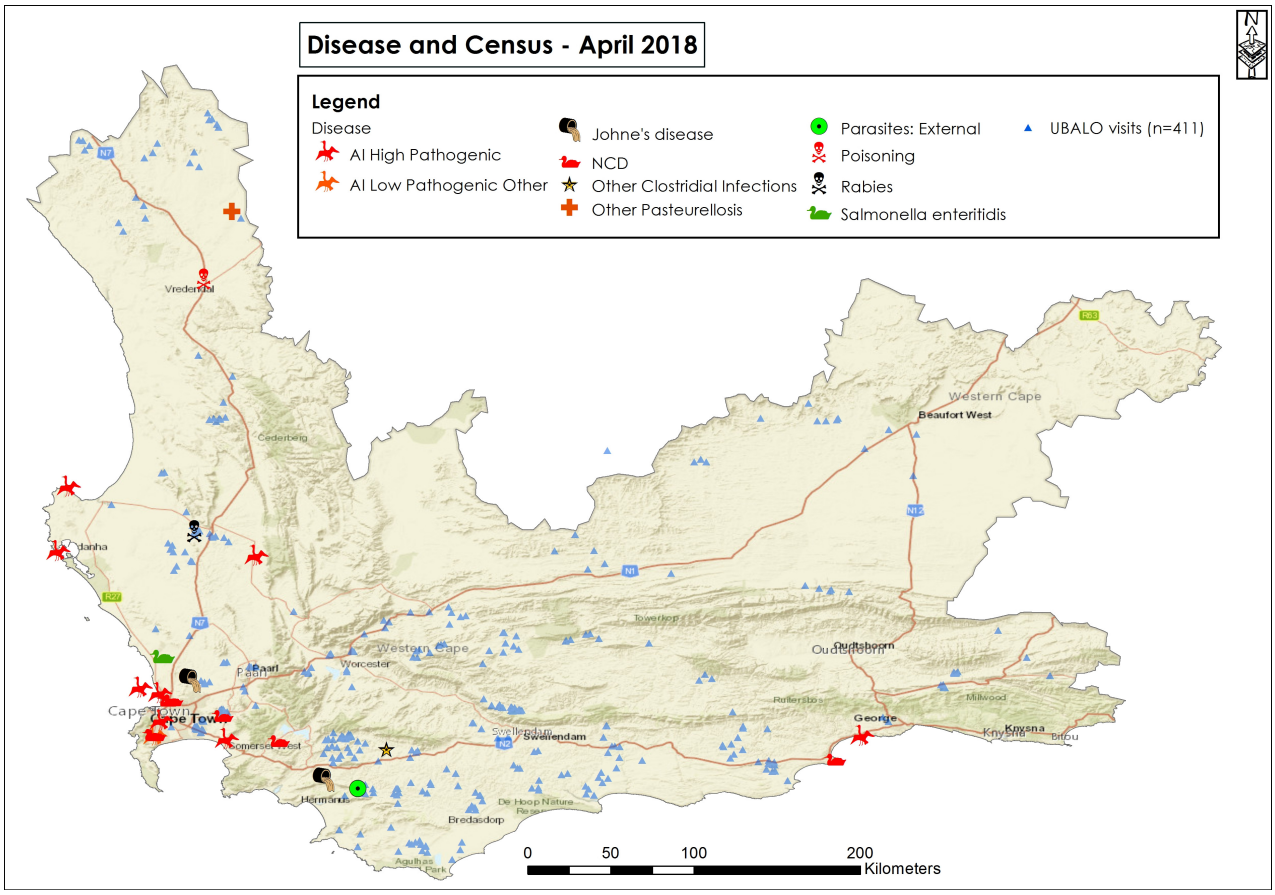


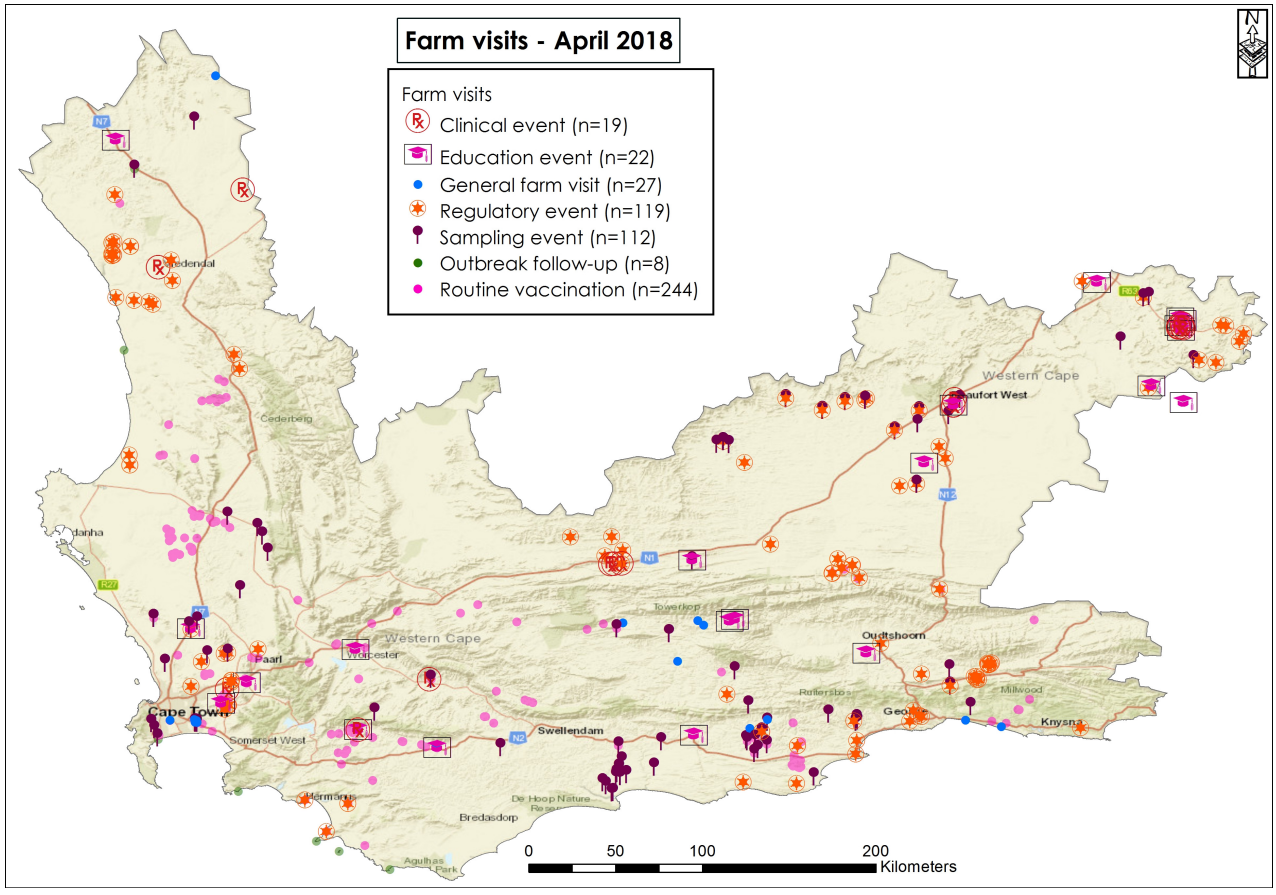
Figure 3: Historical dourine cases reported to DAFF from 1993 through June 2016. Cases have been aggregated by district while case totals per province are labelled. The three cases reported in the Western Cape are also labelled specifically.

Figure 3 shows all dourine cases reported in South Africa from 1993 through June 2016. Significant numbers of horses move into the AHS controlled area on an annual basis (over 4400 moved in 2017). Given this movement and the lack of cases in the Western Cape (three cases in two decades) we can subjectively say that the disease is very much location based. The majority of movements are horses within the commercial sector and, given the nature of dourine and its transmission patterns, it is likely that the disease is circulating within specific equine demographics which, given the available data, consist of working horses in non-commercial settings in South Africa. The last case in the Western Cape in 2012 occurred in a working mule in the Bredasdorp region.

Stand-alone surveillance efforts like the one described here supplement the current surveillance efforts in South Africa. While the scope is limited to the AHS surveillance zone we believe this will assist in export protocols that require dourine freedom statements where horses are exported from AHS free zone quarantine facilities such as Kenilworth Quarantine Station. A recommendation is that this surveillance be repeated every six months in the AHS surveillance zone to comply with the six month freedom statement required by the EU.

Disease and surveillance





Outbreak events

Outbreaks of **highly pathogenic H5N8 avian influenza** continued in several locations along the coast of the Western Cape. Cases were recorded in April in the following new locations/species:

- A **swift tern** showing neurological signs and dehydration was collected by a member of the public at **Stompneus Bay**. It was euthanased by a private veterinarian.
- A **common tern** was found weak and collapsed at a school in **Somerset West** and was euthanased.
- A weak **swift tern** was found approximately 80km inland, near **Porterville**.
- Mortalities of over 4000 **swift terns** occurred in the breeding colony on Malgas island in **Saldanha Bay**. About 90% of the affected birds were juveniles and chicks.
- **Hartlaub's gulls** showing neurological signs were found on **Blouberg beach** in Cape Town.
- A dead **Hartlaub's gull** was collected from an otherwise apparently healthy colony on **Robben Island**.
- A weak and ataxic **Hartlaub's gull** was found in a garden in **Rondebosch**, Cape Town.
- At Danger Point near **Gansbaai**, an **arctic skua** (fig 4) was found showing neurological signs.
- A member of the public telephonically reported three dead **cormorants** near **Groot Brakrivier**. No samples were submitted so the outbreak is unconfirmed.

Figure 4: An Arctic skua (Photo: L Shyamal)

Dead and dying **laughing doves** found in a garden in **Bergvliet**, Cape Town, tested positive for **Newcastle disease** and suspect positive for **avian influenza** that could not be further categorised.

Dying **laughing doves** and **feral pigeons** in the northern suburbs of **Cape Town** as well as **Cape turtle doves** in **Stellenbosch** all tested positive for Newcastle disease.

A farm near **Theewaterskloof** Dam with backyard **chickens** bought in chicks from Klipheuwel. A week later, several of the chicks died. PCR testing did not detect Newcastle disease virus, but serum taken from some of the chickens without a history of vaccination showed high positive antibody titres. This is therefore a possible outbreak of **Newcastle disease**.

Racing pigeons in **Mossel Bay** started showing neurological signs such as head turning and disorientation before dying. Around the area they were housed several dead **laughing doves** were also found. Samples taken from both the doves and pigeons tested positive for **Newcastle disease**.

On a fruit farm near **Piketberg** an ataxic **bat-eared fox was** observed near one of the homesteads in the early hours of the morning. Once the sun came up the fox was nowhere to be found. As this is a highly suspect case of **rabies**, all dogs and cats in the area were vaccinated.

Johne's disease was confirmed on sheep farms north of **Cape Town** and near **Caledon**. Both farmers had been experiencing problems with emaciation and chronic diarrhoea in small numbers of sheep for several years.

Salmonella enteritidis was cultured from routine environmental swabs on a broiler breeder **chicken** farm near **Mamre**.

A suspected case of **tetanus** occurred in a **bovine** near **Riviersonderend**.

Euthanasias of **dogs** suffering from **distemper** were performed by community service veterinarians in **Beaufort West**.

A case of **prussic acid poisoning** occurred in **sheep** near **Vanrhynsdorp**.

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