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EPIDEMIOLOGY REPORT 2024

Western Cape Government
Agriculture

EPIDEMIOLOGY REPORT

VETERINARY SERVICES
January 2024
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Rift Valley fever? Investigation of a suspect case

In early January a private veterinarian contacted State Vet: Worcester with a suspicion of Rift Valley fever (RVF) in a sheep flock outside Montagu. The area experienced heavy rains and flooding in 2023 and the flock was not vaccinated against RVF.

Two sheep showed suspect clinical signs. The first appeared lethargic three weeks prior and had a fever. The farmer had treated it with sulfonamides and probiotics. The second was a four-year-old pregnant Dormer ewe that aborted and had a fever. She was observed to be lethargic, walking aimlessly in an uncoordinated manner and lost weight, but had a swollen abdomen. She died after five days of illness. On post mortem, the spleen and liver appeared significantly enlarged and the liver was brittle. The private vet took organ samples in formalin.

The local animal health technician followed up by taking serum samples from 10 sheep in the flock, all of which tested ELISA positive for RVF IgG and one of the samples also tested IgM positive. The RVF ELISA is not a highly specific test, and another test was needed to confirm the diagnosis. Unfortunately, there were no fresh organ samples available to do a PCR test.

Subsequent histopathology of formalinised organ samples from the dead ewe revealed numerous neoplastic cells in the liver, spleen and associated blood vessels, compressing the normal cells and causing hepatic lipidosis and bile stasis. A diagnosis of suspected lymphoid leukemia or leukemic lymphoma was made.

No further deaths or abortions were reported on the farm and the lambs that were born appeared healthy.

Outbreak events

A **bat-eared fox** was seen close to **Elands Bay** wandering aimlessly. It was reported to Cape Nature, who contacted the State Vet's office and then shot the fox and delivered the carcass for sample collection. Samples taken of the fox's brain tested positive for **rabies**. A rabies vaccination campaign for all dogs and cats in the area was planned.

Wool disturbances were seen in a flock of sheep on a farm near **Mossel Bay**. *Psoroptes ovis* mites were seen on microscopic examination of a wool sample, confirming a **sheep scab** infestation. A second infestation was found on another farm in the same area when contact farms were inspected. Both farms were placed under quarantine and the sheep treated twice under official supervision.

***Salmonella* Enteritidis** was cultured from routine swabs taken on five different broiler **chicken** farms in the **Cape Town**, **Malmesbury** and **Worcester** areas.

A farmer near **Kliprand** reported that one of his **goats** had died after showing neurological signs. Another nanny goat was affected with similar clinical signs, appearing lame and with her head pulled back over her shoulder (Fig. 1). **Tetanus** was suspected and the farmer advised to treat the affected goat with antibiotics and vaccinate the rest of the herd.

A routine inspection of **sheep** near **Bot River** found them to be infested with **red lice**. A skin scrape sample was taken and sheep scab excluded.

Figure 1: A goat showing clinical signs of tetanus, including lameness and retrocollis (Photo: J. Kotzé)

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Western Cape Government

EPIDEMIOLOGY REPORT

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February 2024
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High pathogenicity avian influenza virus detections in ruminants in the USA

Laura Roberts

On 18 March, the USA reported an outbreak of clade 2.3.4.4b high pathogenicity avian influenza (HPAI) H5N1 in goats to the World Organisation for Animal Health (WOAH). On 25 March, the US Department of Agriculture also released a statement about HPAI virus having been detected in unpasteurised milk and an oropharyngeal swab from dairy cattle (Fig. 1). This follows reports of HPAI (H5N1) in 232 other mammals in the USA since March 2022, but all were carnivorous or omnivorous species believed likely to have eaten an infected bird. There is also no definitive evidence of mammal-to-mammal transmission in the country. The sole human case of clade 2.3.4.4b H5N1 diagnosed in the USA so far was in 2022. It was someone involved with culling infected poultry, who reported only fatigue and did not require treatment. HPAI virus had never before been detected in a domestic ruminant in the USA.

The outbreak in goats started on 24 February on a backyard property in Minnesota that had recently had an HPAI outbreak in ducks and chickens. The WOAH report states that new-born goats showed neurological signs and ten died in a flock of 165 animals. Virus was detected in brain and other tissues from five kids between the ages of seven and nine days, which provides convincing evidence that the virus was the major cause of disease. The kids were born soon after the property had been depopulated of domestic birds and the goats had shared a water source with the birds. The virus from the goats was also found to be very similar to the virus detected in the birds.

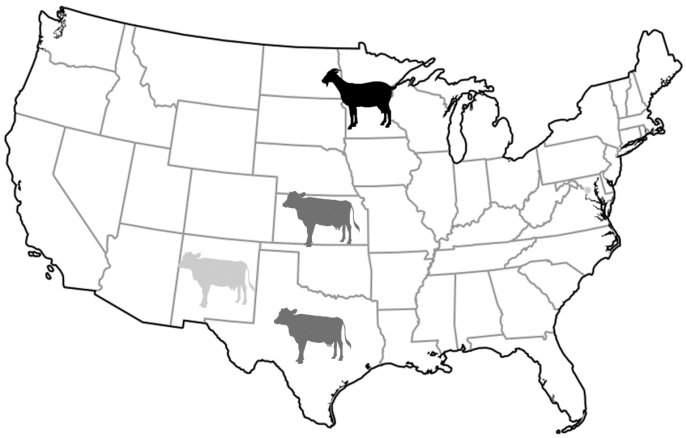

Figure 1: Map of the USA showing states with confirmed HPAI in goats (black), positive HPAI samples from dairy cows (dark grey) and cows with similar clinical signs (pale grey)

The HPAI detections on dairy farms followed investigations into dramatic drops in milk production and reduced feed consumption, mostly in older cows, in Texas, New Mexico and Kansas. Approximately 10% of each herd was affected and a statement from the Texas Department of Agriculture also reported cows are affected for 7 to 10 days. They are febrile and produce thick, discoloured milk. Testing for HPAI virus was done after some farmers reported dead wild birds. Two farms in Kansas had HPAI virus-positive milk and two in Texas tested positive, one on milk and one from an oropharyngeal swab. Further investigation, sampling and genetic analysis will be needed to provide a full picture and estimation of further risk, and presumably before a report to the WOAH can be made. The American Veterinary Medical Association rightly states, "While it is too early to conclude that HPAI is responsible for illness in all of the affected dairy cattle, this finding marks important progress toward confirming a cause".

Influenza A viruses have been associated with bovine respiratory disease and decreased milk yield, through the study of antibodies, but there is little evidence of natural infection with avian influenza viruses, let alone HPAI viruses. There are results of experimental studies where pandemic viruses (human H3N8 in 1977 and an H5N1 from a cat in 2008) were sprayed into the noses of calves. No clinical signs were observed with the H3N8 viruses, though the calves did seroconvert, so must have been infected. Similar results were observed with the H5N1 virus and there was also evidence that virus may have transmitted from the inoculated calves to a contact calf kept with them but not inoculated.

Infection of ruminants with HPAI viruses is therefore possible and could have serious effects. However, much more information will be required before we can accurately estimate the risk to our herds. It is possible that subclinical infections are already widespread, but are not being detected due to lack of indication for testing. It is also possible that only certain viruses will be infectious for ruminants or that high doses, under specific circumstances, will be necessary to cause disease. For the moment, it is advisable that ruminants should not have access to dams or open water where sick or dead wild birds have been observed.

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High pathogenicity avian influenza reaches Antarctica

HPAI was confirmed to have reached the mainland of Antarctica after being detected on islands in the Sub-Antarctic region several months ago. In October 2023, HPAI (H5N1) was detected in seabirds and marine mammals on the island of South Georgia. By the end of January 2024, at least 200 gentoo penguins (Fig. 2) had died from HPAI in the Falkland Islands and the virus was also detected in gentoo and king penguins on South Georgia. At least 50 wandering albatrosses also died on South Georgia early in 2024 and other procellariiform species affected in the region include southern fulmar and black-browed albatross in the Falklands. In February 2024, A Spanish-led research team confirmed H5 HPAI in samples taken from dead skuas at Primavera Station on the northern end of the Antarctic peninsula. Detections of HPAI in the Antarctic region are being recorded by the Sub-Antarctic and Antarctic highly pathogenic avian influenza H5N1 monitoring project, accessible at https://scar.org/library-data/avian-flu.

Figure 2: Gentoo penguins (Photo: B. Hart)

Outbreak events

New outbreaks of **African swine fever** (ASF) were reported from **George**, **Knysna** and **Plettenberg Bay**. All affected locations were areas in which many small-scale farmers keep livestock in close proximity to each other, with few biosecurity measures in place. Free-roaming pigs were observed and farmers reported feeding uncooked swill to their pigs. The outbreaks were detected when farmers reported deaths of pigs after showing loss of appetite and redness of the skin (Fig. 3). Necropsies showed haemorrhages on the internal organs and lymph nodes (Fig. 4). ASF was confirmed by PCR testing of organ samples taken. All three areas were placed under quarantine and farmers were informed about biosecurity and carcass disposal. Lime was distributed to aid with disinfection.

Sheep scab was detected on a farm in the **Caledon** area after scratching, biting and skin lesions were seen in the sheep. Based on the size of the lesions, it is suspected that the infestation was brought onto the farm in September when the sheep were sheared. Another infestation of sheep scab was detected on the neighbouring farm of a previously infected farm in the **Three Sisters** area. Both affected farms were placed under quarantine and the sheep will be treated under official supervision.

***Salmonella* Enteritidis** was isolated from chick crates and dead-in-shell chicks on three commercial **broiler** farms in the **Worcester** and **Malmesbury** areas.

Figure 3: Pigs that died of African swine fever near George showed red patches of skin on their undersides (Photo: L. Janse van Rensburg)

Figure 4: Haemorrhagic lymph node from a pig that died of African swine fever near George (Photo: L. Janse van Rensburg)

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EPIDEMIOLOGY REPORT

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March 2024
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African horse sickness sentinel surveillance 2023

JD Grewar, CT Weyer & LS van Helden

Overview

The African horse sickness (AHS) sentinel surveillance program provides additional confidence of AHS freedom in the AHS free (FZ) and surveillance zones (SZ) of South Africa. The program incorporates the monthly sampling of recruited horses proportionately selected within the zones, based on the estimated underlying population. Historically, the program had two components – a sero-sentinel program that evaluated the changing serological status of horses on a month-to-month basis; and a PCR-based program that is used to detect the presence of AHS viral RNA within recruits. In 2023 the serological component of the program was suspended, with the PCR-based program remaining the focus of the program for the foreseeable future.

The PCR sampling target is drawn up to detect AHS at approximately a 2% minimum expected prevalence (with a 95% confidence level), resulting in a monthly sampling target of 150 animals. The vaccination status of PCR sentinels does not influence their recruitment, unless vaccination against AHS took place sufficiently recently to result in positive PCR results on initial testing.

A detailed description of the original program is available in the January 2016 Western Cape Epidemiology Report. The summary report for the 2021/22 season can be found in the July 2023 Epidemiology Report. All other reports can be found at www.myhorse.org.za.

Viral RNA PCR testing is generally performed at the Western Cape Provincial Veterinary Laboratory (WCPVL) in the sentinel surveillance program. During 2023 however, samples were tested at the University of Pretoria/Equine Research Center's Molecular Diagnostics Laboratory as the WCPVL was undergoing renovations. The PCR test method used is a University of Pretoria (Equine Research Center) developed and WOAH validated real-time RT-PCR (Guthrie et al. 2013).

General overview of sampling and results

1719 PCR sentinel samples were analysed from 63 different farms, at an average of 143 samples from, on average, 48 different farms per month. All samples tested negative.

Investigations

There were no follow-up investigations as a result of

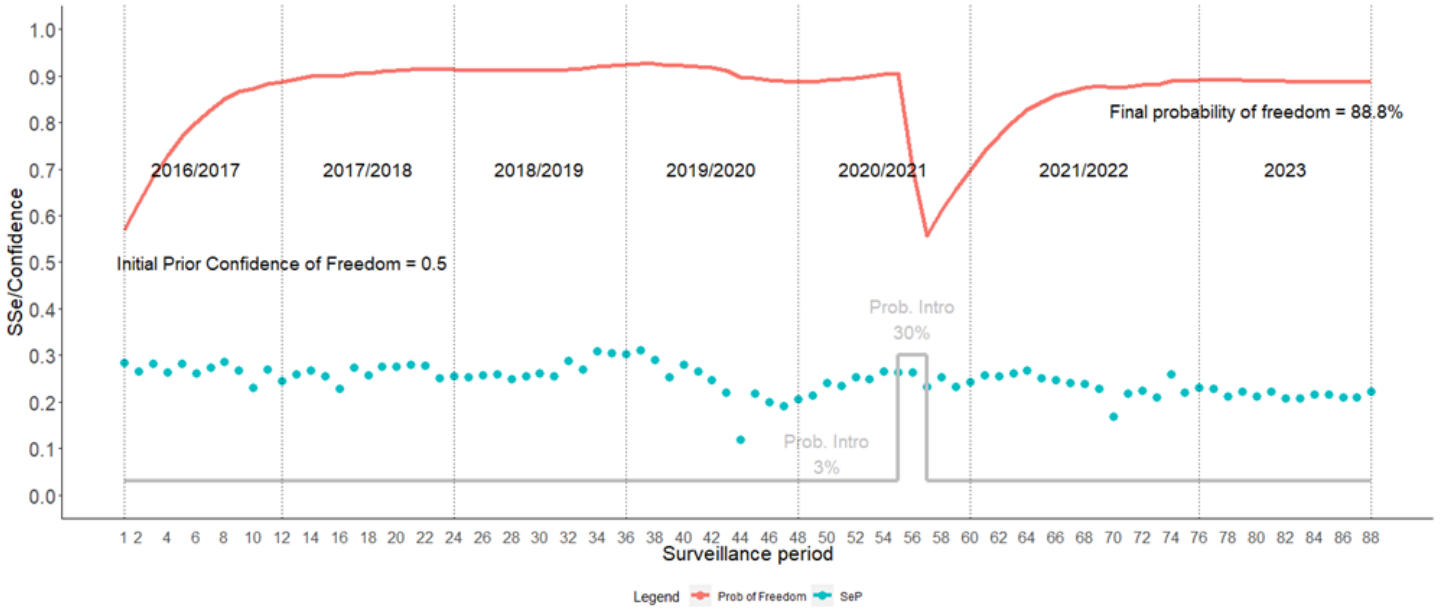

Figure 1: The sentinel surveillance sensitivity of individual surveillance periods (SeP dots) with probability of freedom curve (red line) for the past seven surveillance seasons: the season currently reviewed is the 2023 calendar year. Probability of AHS introduction of 3% is set for periods where no AHS outbreaks are present in the AHS controlled area (grey line at 0.03 on y-axis) but at 10X that rate for where outbreaks are present as in April and May 2021 in the Cederberg AHS Protection zone.

suspect or positive laboratory results during the year. There was however an investigation into a fever reaction on a sentinel property in December 2023, though the fever was not in a sentinel animal. The affected animal presented with fever and mild ataxia on the 22 December 2023. Infection with equine encephalosis virus (EEV) was considered a differential diagnosis by the attending veterinarian.

The sample that was taken tested negative for both AHS and EEV RNA. There were 4 sentinel farms in total, within a 10 km radius of the fever case. A total of 16 sentinels from within this area were tested (all negative) in the December 2023 sentinel sampling cohort.

Spatial considerations

The sentinel surveillance program is based on a proportional sampling system with most sentinels in areas of the surveillance area that have the highest population of horses. The current sentinel farms' distribution in the PCR sentinel program are based on the underlying population. Some improvement has been made in the Paarl area when compared to 2021/2022, with the Mitchells Plain area still requiring most improvement.

Surveillance system evaluation

The surveillance program is designed to detect AHS in the AHS surveillance zone at a minimum expected prevalence of 2% (MEP). In this section of the report, we establish the monthly sensitivity of the surveillance program. Note that previous analyses evaluated the program at a 5% MEP based on European Commission Decsiosn 2008/698 requirements – this legislation is now repealed and, since the program aims at a 2% MEP, the evaluation thereof has been adjusted to this level.

The analysis is based on evaluating sensitivity of surveillance programs (Martin et al. 2007). The historical surveillance outcome is considered as it provides information that aids in determining an accurate final probability of freedom as of December 2023. The final probability of freedom from Sept 2016 through December 2023 (88 months) was 88.8% - see Figure 1.

The sensitivity of the sentinel surveillance alternates around the 25-30% mark throughout. This is the seventh AHS season running where cases of the disease have not been detected in the AHS surveillance and free area, although an outbreak of AHS occurred in the AHS protection zone in 2021

Discussion and Conclusion

The primary goal of demonstrating AHS freedom in 2023 was achieved. A 7-year review of sentinel results show that the probability of freedom attained for this program, at an animal design prevalence of 2% and herd-level design prevalence of 2%, shows a 88.8% probability of freedom from AHS in the AHS surveillance and free zones. This level was achieved in the face of the AHS outbreak that occurred ~ 88km from the border of the AHS surveillance zone in 2021. It further does not take into consideration the passive surveillance component. Spatial representativeness remains challenging, but gains have been made in the Paarl region.

Acknowledgements

This program would not be possible without the support of the horse owners in the AHS surveillance zone who freely give of their time and resources to allow and facilitate the monthly sampling of horses. We are grateful to the University of Pretoria Molecular Genetics Laboratory who performed the testing of samples this season.

In this season the sentinel program was again achieved through collaboration between the Western Cape Department of Agriculture (Veterinary Services) and South African Equine Health and Protocols (SAEHP). In this regard we specifically acknowledge Dr Tasneem Anthony. The WCDOA also currently fund the testing costs associated with the program. We are grateful to the SAEHP team who are directly involved with the program: Esthea Russouw and Lizel Germishuys.

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Outbreak events

Outbreaks of **bluetongue** were reported on three **sheep** farms in the **Vanrhynsdorp** area. Very hot temperatures were experienced in the area, which is unusual for March. Some rains occurred and together with irrigation water this provided a breeding environment for disease vectors.

***Salmonella* Enteritidis** was cultured from routine samples taken from four broiler **chicken** farms/hatcheries in the **Swellendam**, **Malmesbury** and **Worcester** state veterinary areas.

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EPIDEMIOLOGY REPORT

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African horse sickness vaccinations permission 2023

JD Grewar, CT Weyer & LS van Helden

Introduction

Annual vaccination against African horse sickness (AHS) is compulsory in South Africa (Animal Diseases Act, 35 of 1984) except in the AHS free and surveillance zones in the AHS controlled area in the Western Cape Province. Vaccination against AHS in these zones can only be performed following written approval from the Veterinary Services of the Western Cape Department of Agriculture (WCDOA). Permission to vaccinate against AHS is only granted for vaccination to be performed between 1 June and 31 October each year. This vaccination period is based on the potential for vaccine virus re-assortment/reversion to virulence and the risk of transmission during periods of increased vector activity. The restricted vaccination period mitigates this risk.

The process for vaccination permissions is summarized and available online here . This report briefly summarises the vaccination permission applications that were received, and the descriptive statistics of those permissions that were issued during 2023. Permissions are given on an individual horse basis, with horses associated with specific holdings, and the information is analysed as such.

Summary of permissions issued

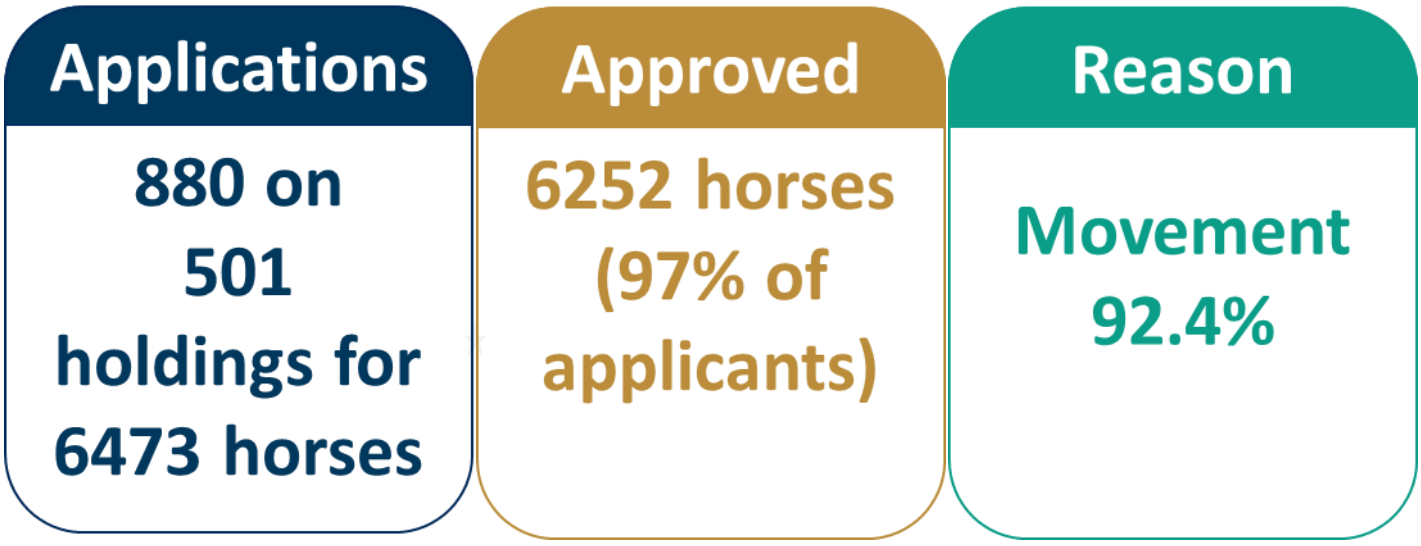
The numbers of unique permission applications and horses applied for have decreased over the years with 2023 now the lowest to date at 880 applications for 6473 horses. In 2023 the majority (205 of 221 – 92%) of declined applications related to invalid or non-existent passports, with only six horses declined due to incomplete applications.

Forty veterinarians and veterinary practices were registered as the associated vet likely to perform the vaccination – this has remained stable with 29 in 2022 and 2020 and 37 in 2021. The top five practices were responsible for vaccinating 80.2% of the permission granted horses (n= 5018 of 6252), and the top 10 practices responsible for 90.1% of all permission granted horses.

Reasons must be provided by applicants when requesting permission to vaccinate. The majority of horses that were granted permission to vaccinate (92.4%, up from 91.1% in 2022 and 89.4% in 2021) were to enable horses to comply with AHS movement requirements.

We now have seven years of detailed, individual horse information for the vaccination permission process in the AHS controlled area. A total of 4116 horses that were granted permission in 2023 had also been granted permission in 2022 (compared to 4271 in 2021 – 2022, 4195 in 2020 - 2021 and 4457 in 2019 -2020), making up 65.8% (66.7% in 2021-2022, 63.14% in 2020-2021) of the total for the year. Across seven years: 1057 horses were granted permission to be vaccinated in 2017 through 2023, accounting for 17% of permission granted horses in 2023. There are currently 19 093 horses registered in the AHS surveillance and free zone.

When vaccination permissions are requested, it is for prospective vaccination, and follow up verification of actual vaccination is not undertaken. Below we evaluate the horses that have been granted



vaccination permission since 2017, and query the movement database to establish what percentage of those granted permission would reasonably have required it. Since 2017: a total of 18 092 individual horses have obtained permission to be vaccinated. Of these, 68.7% have moved in a fashion that would have required AHS vaccination. Of the remaining 31.3%: the primary reason permission was requested was on the basis for movement or competition (83.4%) and individual horse/yard protection (15.6%).

Conclusion

Vaccination coverage within the AHS controlled area, including the AHS surveillance and free zone, continues to be fairly comprehensive with approximately 40-50% of the known population being vaccinated, based on permissions requested during any year. 18 092 different horses have been vaccinated in the AHS surveillance and free zone in the last 7 years (i.e. since 2017). A high number of those horses are associated with repeat requests from year to year, and also, since vaccination is a prerequisite for movement into the controlled area, any new adult horses entering the controlled area will be vaccinated already.

Vets

40 practices with top 5 vaccinating ~80%

Repeats

65.8% from prior year 1057 horses every year since 2017

Acknowledgements

We are grateful to both horse owners and veterinarians for their patience during the vaccination permission season. We are grateful for the continued support of the Western Cape Veterinary Services who assist in this program. We acknowledge team members from the SAEHP: Danielle Pienaar; Esthea Russouw; Marie van der Westhuizen; Johanne Jacobs and Lizel Germishuys who performed much of the data processing for the vaccination permission system.

Outbreak events

A one-year-old **dog** in **Cape Town** began to show signs of back pain and was diagnosed with discospondylitis. Further diagnostics revealed that the cause was ***Brucella canis*** infection. The dog will be euthanased and contact animals in the household tested.

A juvenile **Swift Tern** (*Thalasseus bergii*) was found in **Witsand** showing head tremors and corneal oedema. It was euthanased and brain samples subsequently tested positive for H5 **avian influenza**. The virus has been sequenced and is the same H5N1 virus that has been infecting seabirds since 2021.

Outbreaks of **bluetongue** were reported on **sheep** farms in the **Vanrhynsdorp** and **Malmesbury** areas.

***Salmonella* Enteritidis** was cultured from routine samples taken from two broiler **chicken** farms in the **Cape Town** and **Malmesbury** state veterinary areas.

After **sheep** were seen losing weight on a farm near **Cape Town**, samples were taken and **Johne's disease** was confirmed.

Two **cattle** on a farm near **Ladismith** showed nasal discharge and blindness: clinical signs consistent with **bovine malignant catarrhal fever**. The cattle are kept in an area close to golden wildebeest.

A caracal (Fig. 1) was found dead in the enclosure of hand-reared lamb next to the owner's house in Vanrhynsdorp. The caracal was old and emaciated and it is suspected it died of exertion while killing the lamb. A brain sample was taken and tested negative for rabies.

Figure 1: Dead caracal in Vanrhynsdorp (Photo: J. Steenkamp)

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Western Cape Government

EPIDEMIOLOGY REPORT

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May 2024
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Rabies in the Western Cape: seals, dogs and jackals

Lesley van Helden

This month, several cases of rabies were reported in the Western Cape (Fig. 4). Most notably, an outbreak was detected in Cape fur seals (Fig. 1), a species in which rabies had not been recorded previously .

On 20 May 2024, a three-year-old pitbull in Capri, Cape Town, was presented to a private vet with a fever and a history of fighting with another dog in the house. The next day it was brought back to the veterinary clinic after spending the night attacking the furniture of the house. It was extremely aggressive on arrival at the clinic and was euthanased on suspicion of rabies. The laboratory results came back positive on 28 May and an investigation immediately took place, involving the state veterinarian and the Department of Health. There were three other dogs in the household without records of previous vaccination against rabies. All were euthanased.

The owner of the pitbull suspected that her dog had been bitten by a seal while walking on the beach. Though she had not witnessed this happening, she reported that her dog had developed a habit of harassing seals and had returned to her during a walk on the beach with a bite wound.

Shortly afterwards, there were reports of a seal being involved in a fight with dogs at Big Bay on 22 May and an aggressive seal biting surfers at Muizenberg beach on 26 May. Veterinary Services requested rabies testing for these cases and other recent suspect seal cases. Fresh brain samples could be obtained for the seal from Big Bay and it tested positive for rabies on fluorescent antibody testing at ARC-Onderstepoort Veterinary Research. Only formalinised brain samples were available for the seal from Muizenberg and another seal found on Strand beach on 15 May. These were therefore tested using immunohistochemistry at the University of Pretoria's Faculty of Veterinary Science. Both tested positive for rabies.

Figure 1: Cape fur seal (Photo: Sea Search)

After the initial findings, the scope of the investigation into rabies in seals was widened. A research organisation, Sea Search, had been storing samples from seal mortalities since 2021, including brains in formalin. The decision was taken to test these samples, starting with those with a history of aggression. Of these, immunohistochemistry was positive for rabies in seals from Fish Hoek (October 2023) and Pringle Bay (February 2024), though another twelve brain samples were negative.

Frozen brain samples were available for a seal from Melkbosstrand (August 2023) and Plettenberg Bay (January 2024). Another seal showing abnormal behaviour was reported from Die Dam near Gansbaai in June 2024. All three of these samples tested positive for rabies on fluorescent antibody testing at ARC-Onderstepoort Veterinary Research.

Figure 2: Cape Fur Seals are a social species and can live in large breeding colonies. (Photo: Sea Search)

As several of these seals displayed aggressive behaviour and were involved in biting people and animals, efforts are being made by the Department of Health, Veterinary Services and several NGOs to trace all the people and animals who have been in contact with suspect rabid seals in the last six months, so that they can receive medical or veterinary attention as soon as possible. Anyone who has had contact with a suspected rabid animal should visit their health practitioner as soon as possible for an assessment, while

contact animals should be reported to the state veterinarian.

Cape fur seals occur along the coast of Africa between Southern Angola and Algoa Bay, Eastern Cape. They are a social species and, when on land, usually live close together in colonies (Fig. 2). They are known to approach people and other animals in certain circumstances, either out of curiosity or if motivated by food. Seals may interact with domestic animals in the same areas where they come into contact with humans e.g. with domestic dogs on beaches, or with other wild animals living at the coast. Jackals, for example, have been observed predating on seal pups along the West Coast (Fig. 3). Cape fur seals can travel extensively in the ocean in search of food or new territory, swimming hundreds of kilometers in a matter of days.

The origin of the rabies outbreak in seals is not currently known. Sequencing of the viruses found in the seal samples is underway and will hopefully provide more information about the epidemiology of rabies in this species.

Not only coastal areas in the Western Cape have been affected by rabies in May. On 14 May, a rabid black-backed jackal appeared in the town of Murraysburg in the central Karoo and attacked a dog (Fig. 5). The dog was unvaccinated and a court order had to be issued before it could be confiscated and euthanased on 23 May. When the dog was confiscated, it was observed to be salivating profusely (Fig. 6) and it subsequently tested

Figure 3: Predation by a black-backed jackal on a seal pup in Namibia (Photo: Sea Search)

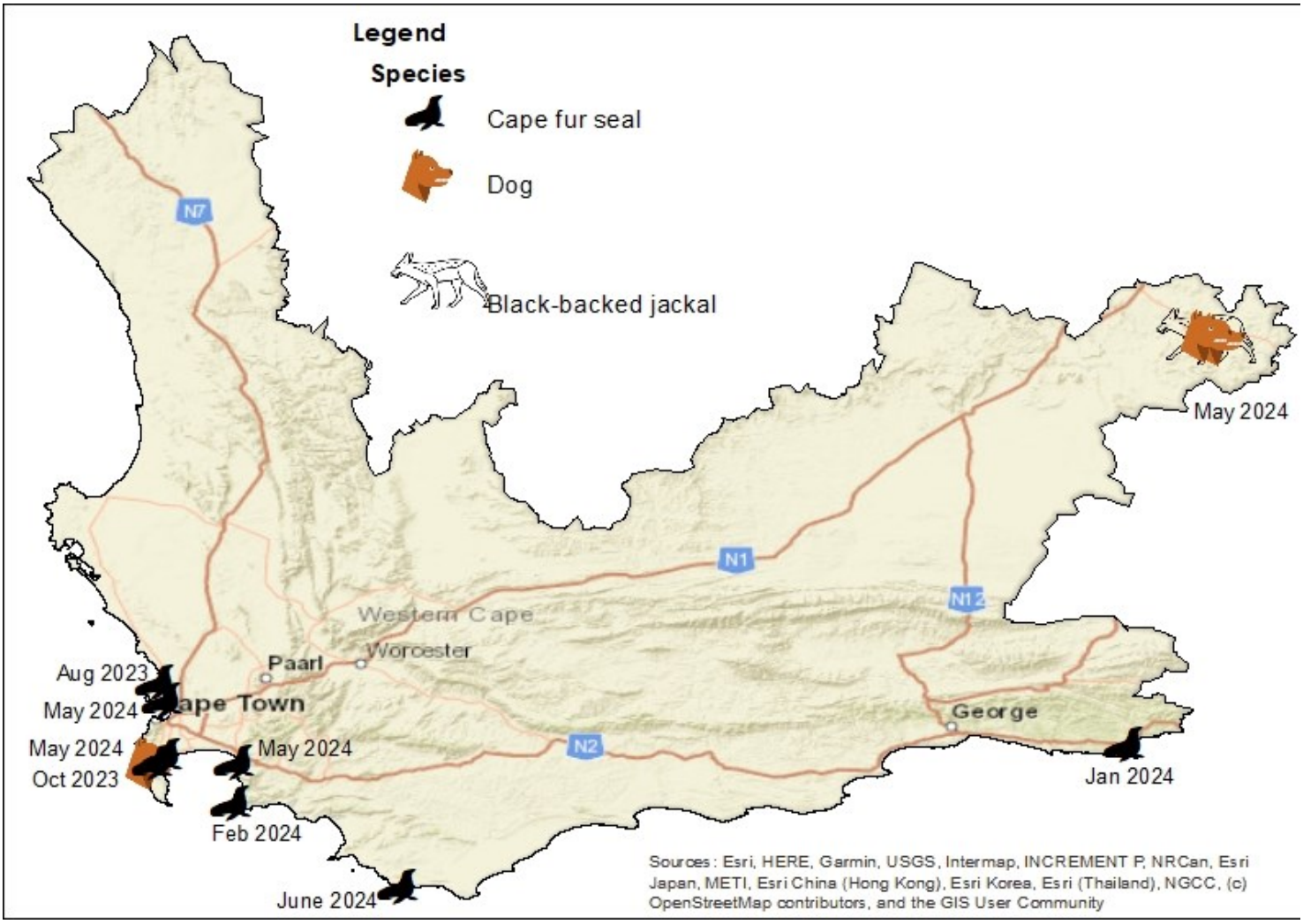

Figure 4: Historical and current rabies cases reported in the Western Cape in May and June 2024. Icons showing cases are labelled with the month in which the case(s) occurred.

positive for rabies. Then, on 28 May, on a farm near Murraysburg, a stray dog came into a farmhouse and was shot by the farmer. This dog also tested positive for rabies.

These cases illustrate that rabies should be considered a risk to people and animals in all parts of the Western Cape. All domestic dogs and cats must, by law, be vaccinated against rabies at three months of age, again within a year and every three years thereafter. Vaccination against rabies is recommended annually in high risk areas or if indicated by the vaccine manufacturer.

Figures 5 and 6: A dog was bitten (left) by a rabid jackal on 14 May. Nine days later, the dog began showing clinical signs of rabies, including hypersalivation (right). (Photos: L. Kruger and A. Barnard)

New publication

Prof. Celia Abolnik, Dr Laura Roberts et al. describe avian influenza viruses detected in South Africa in 2023, in a new article published by *Viruses*. Environmental samples taken by University of Pretoria staff and poultry veterinarians around the country revealed that H5Nx, H7Nx, H9Nx, H11Nx, H6N2, and H12N2 viruses were present in wild water fowl, though H5Nx viruses predominated. Viruses detected during HPAI H5N1 outbreaks in poultry and wild birds (mostly seabirds) showed that only two of the fifteen sub-genotypes present in 2021/22 were detected in 2023. The SA15 sub-genotype caused poultry outbreaks in the Western Cape and KwaZulu-Natal, and there was no genetic evidence for spread between areas or provinces. Only two seabird infections were found to be caused by SA15 viruses and the rest were caused by SA13 viruses, which have been found only in seabirds, since 2021. Read the full article here: https://doi.org/10.3390/v16060896

Outbreak events

A **ram** on a farm near **Ladismith** was observed to be losing weight and was unresponsive to treatment. A private veterinarian performed a necropsy and **Johne's disease** was diagnosed using histopathology. The farm was placed under quarantine.

***Salmonella* Enteritidis** was cultured from routine cloacal swabs taken from day-old broiler **chicks** on a farm in **Cape Town**.

***Salmonella* Enteritidis** was cultured from a **Hartlaub's Gull** chick that had been brought to a seabird rehabilitation centre in **Cape Town**. The chick was euthanased after showing signs of weakness, lethargy and loss of balance. Gulls commonly consume food waste, which is a possible source of *Salmonella* infection.

Five dead **pigeons** were found in a garden in **Malmesbury**. Other reports of dead pigeons from the area were also received. A necropsy of the pigeons showed lymphocytic interstitial nephritis with associated pancreatic necrosis, consistent with **pigeon paramyxovirus**. Confirmatory PCR testing was not available at the time.

A farmer near **Riviersonderend** reported **bovine babesiosis** (redwater) in his cattle after moving them to a new camp. Clinical signs observed included anaemia, inappetence, high fever, abortions, and haemoglobinuria.

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Western Cape Government

EPIDEMIOLOGY REPORT

Agriculture
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Animal disease outbreak events

Rabies was diagnosed in another seven **Cape fur seals** in June, on samples taken between August 2022 and 27 June. Three historical samples were tested with immunohistochemistry and the remainder with the fluorescent antibody test. Five of seven cases were found around the **Cape peninsula**, one at **Die Dam** (June) and one in **Plettenberg Bay** (April). Two were found dead; one with signs of old wounds and one with no obvious signs, two showed aggression, one was alive but non-responsive, one showed slightly abnormal behaviour and one had bite wounds but no abnormal behaviour was reported.

A **dairy** cattle herd near **Hopefield** has tested positive for ***Brucella abortus*** after cows aborted**.** Positive cattle were branded and the pregnant cows were slaughtered.

An **ostrich** farm in the **de Rust** area tested seropositive for **avian influenza.** No virus was detected and serology did not indicate subtype after follow-up sampling, so a previous undefined, non-H5, -H6, -H7 Influenza A virus infection is therefore concluded.

Two **sheep** farms in the **Philadelphia** and **Kliprand** areas were found to be infested with **sheep scab** mites (*Psoroptes ovis*). One had introduced a ram from a previously-infested farm. The other was detected by an AHT at an auction, and the animals were sent back to the farm. Treatment was done under official supervision on both farms.

A **broiler breeder** farm in the **Philadelphia** area tested positive for ***Salmonella* Enteritidis** on boot cover samples.

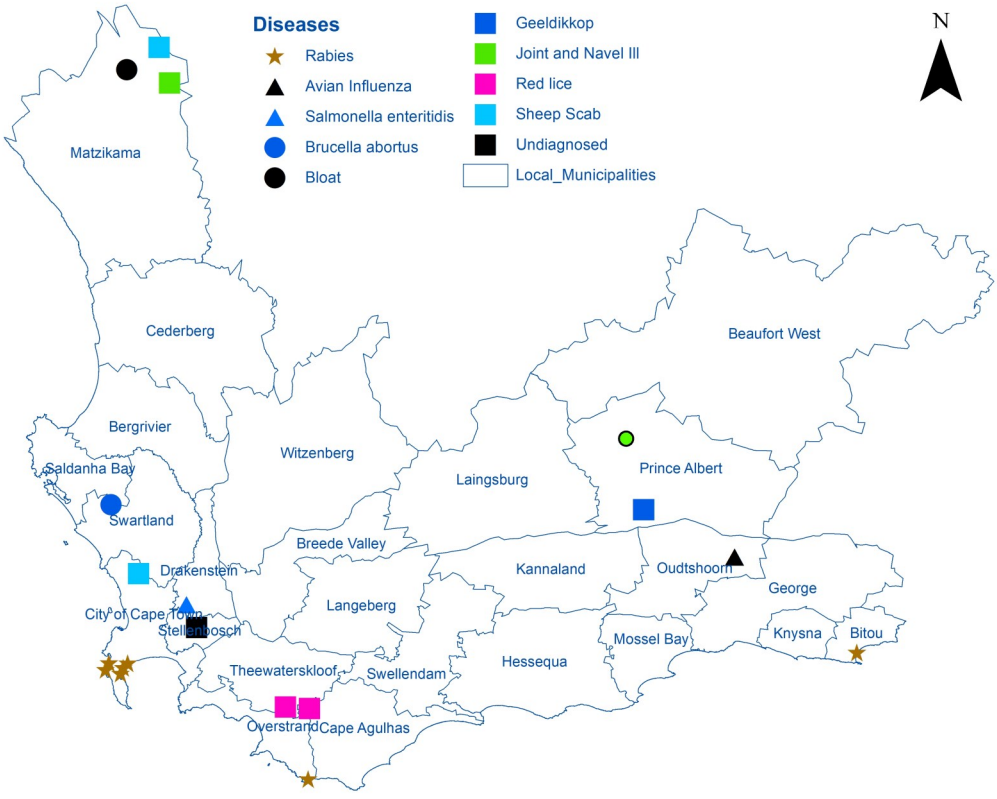

Figure 1: Animal diseases reported to Western Cape Animal Health in June 2024

Two **sheep** farms near **Stanford** were diagnosed with **red lice** infestation.

The local AHT was called to farms in the **Kliprand** area and treated **bloat** in a **calf** and observed **joint and navel ill** (omphalitis and arthritis) in **lambs**.

A **sheep** farm near **Prince Albert** experienced late term **abortions and still births**. Samples taken from one lamb tested *Chlamydia*, and *Coxiella* PCR negative, so the cause is still unknown. The same farm had sheep with healed lesions around the ears, muzzles and coronary bands, that were suspected to be healed **geeldikkop** (toxic photosensitivity) lesions.

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Western Cape Government

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Cape fur seal rabies update

Lesley van Helden

After rabies was first detected in Cape fur seals in Cape Town in early June 2024, seals showing clinical signs suspicious for rabies were reported from several locations in the province and post-mortem samples were taken from these animals for testing. Retrospective testing of approximately 135 brain samples stored in formalin also took place at the University of Pretoria using immunohistochemical methods.

As of 31 August 2024, rabies was detected in a total of 24 individual seals along the coast between the mouth of the Groenrivier, in Namaqua National Park, and Plettenberg Bay (Fig. 1). Seventeen of these seals were confirmed rabies positive using fluorescent antibody testing, while an additional seven cases were detected from retrospective samples kept in formalin, using immunohistochemical methods. The earliest case detected occurred in Cape Town in August 2022.

Of the 24 rabid seals, 19 were found dead or died shortly after being found. Five were euthanased due to suspicion of rabies.

Observed clinical signs varied greatly, including abnormal aggression (Fig. 2), vocalisation, repeated movements (Fig. 3), twitching, muscle tremors, paralysis and coma.

Sequencing of the rabies viruses found in seals shows the majority clustering closely together, with their nearest relatives being rabies viruses from wildlife in Namibia. These findings support the theory that rabies was introduced into a seal by a terrestrial wild animal, likely in Namibia, and has since been transmitted from seal to seal to become endemic in the population. The rabies

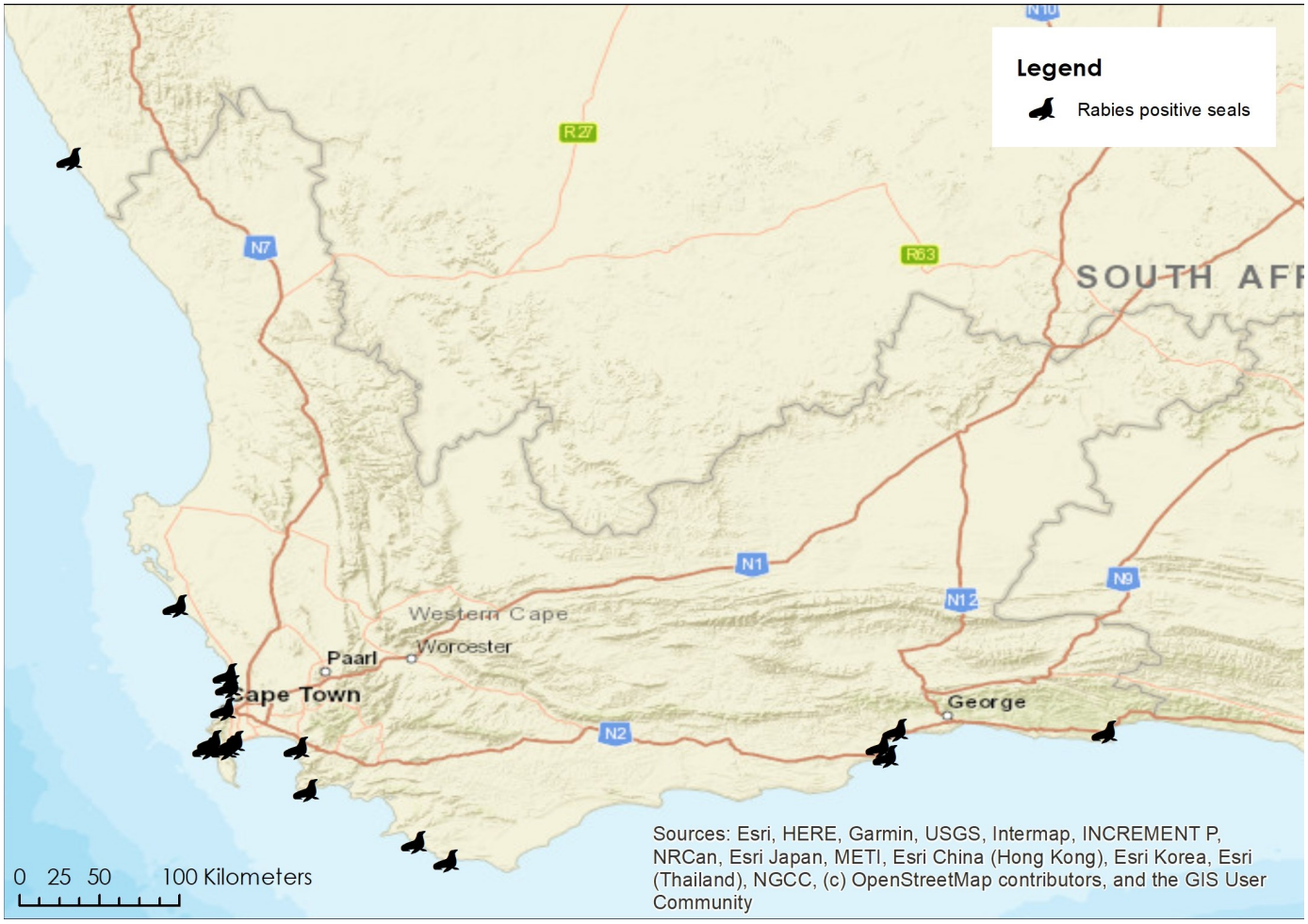

Figure 1: Locations in South Africa where rabies positive seals were detected as of 31 August 2024

Figure 2: A rabid seal attacking a rope (Photo: D. Coulson)

Figure 3: Repetitive retroflexion of the head and neck in a seal with rabies (Photo: J. Barnard)

virus sequenced from the dog in Cape Town in late May also clusters together with the seal viruses, showing that the dog was infected by a seal.

One of the seal rabies virus sequences did not cluster together with the others, but rather with viruses found in bat-eared foxes in the Western Cape. This seal was found in Plettenberg Bay in early 2024 and was likely to have been an isolated case, with the seal serving as a dead-end host. However, this conclusion may change if further related sequences are detected.

These results illustrate the possibility that multiple introductions of rabies may occur into a population without the virus necessarily becoming endemic.

Available control strategies aimed at stopping transmission in the seal population are limited. Oral vaccination has been used in other countries to control wildlife rabies, but this requires the target species to pick up and bite into bait blocks containing vaccine. Wild seals are not scavengers by nature, and usually eat only live prey, meaning the use of large-scale bait vaccination will not be effective.

Current rabies management strategies focus on the reduction of risk to species that may come into contact with seals, such as people and their pets who use coastal areas for their work or for recreational purposes.

Coastal areas in the Western Cape have set up networks at a municipal level in order to respond quickly to suspect cases of seal rabies and therefore prevent contact with people and other animals. Some municipalities have put additional measures in place, such as regulating the leashing of dogs in public places.

While the majority of rabies surveillance in seals thus far has taken place along the coast of the Western Cape, we are collaborating with colleagues in other provinces and countries to facilitate surveillance throughout the range of the Cape fur seal population.

Foot-and-mouth disease on our borders

Western Cape Veterinary Services remains vigilant to the threat of foot-and-mouth disease and has put several measures in place to prevent outbreaks in the Western Cape.

Public awareness is an integral part of disease prevention and this is included in daily activities, field visits, farmer education days and media communication. Regular meetings also take place with industry representatives to discuss the situation and keep all stakeholders informed.

Information packs have been produced for animal and/or land owners, auctioneers and livestock transporters, so that all are aware of their responsibilities and the regulations pertaining to them. These are available at https://www.elsenburg.com/western-cape/infopaks/ and include information about documentation required to accompany transported livestock (Gov. gazette 50977, 26 July 2024) i.e.

⇒ Origin/ owner health declaration

⇒ Destination/ buyer 28-day isolation declaration

Frequent roadblocks and vehicle checks are done by the Western Cape Mobility Department and Veterinary Services officials participate to ensure that documentation is available and transported animals are not showing any signs of disease.

Outbreak events

Rabies was confirmed in four **Cape fur seals** in July in **Yzerfontein**, **Mossel Bay** and **Plettenberg Bay**. In August, four more cases were detected in **Pearly Beach**, **Hartenbos**, **Cape Town** and **Groot Brakrivier**.

A farmer near **Moorreesburg** witnessed a **bat-eared fox** showing no fear of people and biting a water pipe. He shot the fox and it subsequently tested positive for **rabies**.

A dairy cow on a farm in the **Swellendam** area showed decreased milk production, depression, weakness, excessive salivation, anorexia and vocalisation (Fig. 4) and collapsed the following day. A second cow presented a week later with similar clinical signs, including hindquarter ataxia. Brain samples taken from both **cows** tested positive for **rabies**. Sequencing of one of the rabies viruses showed that it was most closely related to local bat-eared fox rabies. All people exposed to the rabid cattle received post-exposure prophylaxis and dogs, cats and cattle on the farm were vaccinated against rabies in response to the cases.

Two new outbreaks of **African swine fever** occurred near **The Crags** in areas where small-scale farmers keep livestock together in the same area, with few biosecurity measures in place.

Bovine brucellosis was diagnosed on two neighbouring pieces of land near **Worcester** after an abortion was reported to a private veterinarian. In both areas, several small-scale farmers graze their livestock together. The land has been placed under quarantine and all cattle are being tested. Those that test positive are branded and slaughtered.

Three **ostrich** farms in the **Langkloof** and **Leeu-Gamka** areas were diagnosed with H6 (low pathogenicity) **avian influenza** infections. PCR detected H6 virus on one farm and serology was indicative of H6 on the other two farms. A fourth ostrich farm tested avian influenza seropositive but only one bird was found to be seropositive and no subtype could be determined with follow-up PCR testing or serology.

Two outbreaks of **sheep scab** were detected and treated in the **Caledon** and **Malmesbury** areas.

***Salmonella* Enteritidis** was cultured from routine cloacal swabs taken on a broiler **chicken** farm near **Cape Town**.

Two **lambs** near **Vanrhynsdorp** showed neurological signs, including heads tilting to one side (Fig. 5) and walking in circles. The cause is suspected to be **coenurosis**, caused by the tapeworm larvae migrating in the brain after ingestion of tapeworm eggs. This disease is also known as "draaisiekte" (turning sickness) in Afrikaans.

Figure 4: Rabid cow vocalising when approached (Photo: M. de Wet)

Figure 5: Head tilt in a lamb suspected to be caused by coenurosis (Photo: J. Kotze)

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EPIDEMIOLOGY REPORT

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Western Cape active avian influenza surveillance Jan-Jun 2024

Laura Roberts

Introduction

Routine surveillance for avian influenza (AI) in South Africa is necessary to assist with detection of high pathogenicity (HP) strains, i.e. H5Nx or H7Nx, that can cause serious economic losses in poultry and are the most likely strains to lead to human influenza pandemics. These characteristics also make surveillance important for export certification of poultry products.

Biannual surveillance in backyard chickens, commercial poultry and ostriches is prescribed by Appendix 9 (Notifiable Avian Influenza (NAI) Surveillance), of the HPNAI contingency plan of 2009. Additional surveillance is done in order for poultry compartments to be approved for export (VPN 44) and in ostriches (VPN 04).

Bird serum is screened with an influenza A enzyme-linked immunosorbent assay (ELISA). Positive ELISA tests are followed by haemagglutination inhibition (HI) tests to screen for H5, H6 and H7 antibodies.

A farm from which serology results in a positive ELISA test should be retested as soon as possible. Further serum samples are taken and also tracheal swabs for detection of viral RNA via polymerase chain reaction (PCR). Samples that are PCR positive for avian influenza RNA must then be screened further for H5 and H7 RNA, using more specific PCR tests. RNA sequencing is required to determine other (non-H5 and –H7) subtypes and to provide further information on the exact strain involved. For more details on the surveillance strategy, please read the introduction to the June 2020 Epidemiology Report.

Commercial Poultry

The Western Cape has approximately 135 poultry farms owned by companies that have at least two farms. Approximately 45 more farms are run as stand-alone operations. Approximately 40% of the poultry farms produce broilers for meat, 30% have layers producing table eggs, 25% have broiler breeders and the production system is currently unknown for 5%. The majority of poultry farms are concentrated northeast of

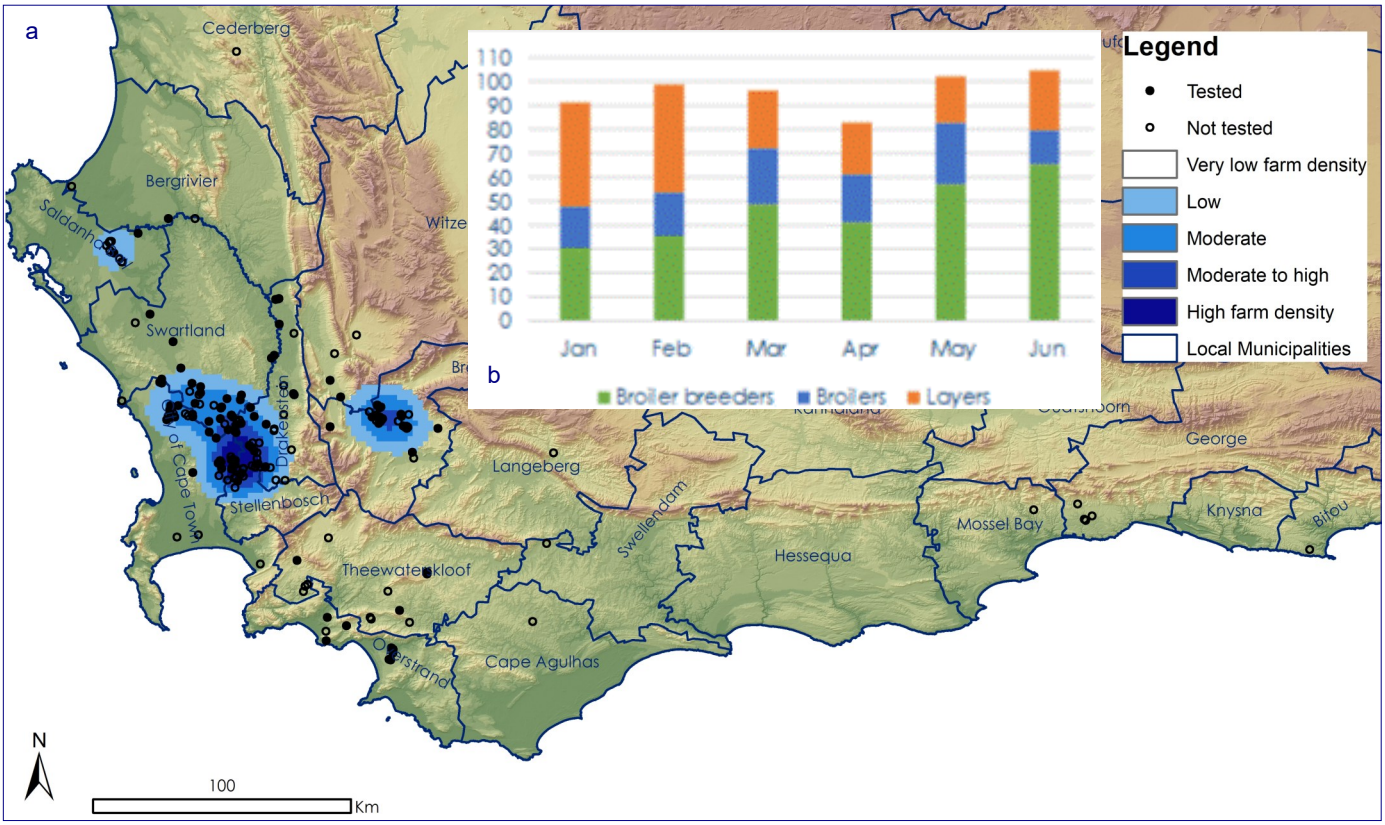

Figure 1 a) Avian influenza surveillance coverage in commercial poultry in the Western Cape, and b) poultry farms sampled per month, January-June 2024.

Cape Town, with another, smaller, densely populated area around Worcester (Figure 1a)

Between January and June 2024, 97 farms, belonging to nine companies, were tested at least once for avian influenza antibodies (Table 1). Companies tested between 25% and 93% of their farms. The higher number of farms tested, compared to previous periods (Table 1) is probably due to more farms applying to be registered under VPN 44, which is required for approval to vaccinate against HPAI. Similar numbers of farms were tested every month, with a slight dip in April. More layer farms were tested earlier in the period, though more broiler breeder farms were tested later in the period (Figure 1b).

Twelve poultry farms, belonging to two companies, tested influenza A ELISA positive, but H5, H6 and H7 HI tests were negative. Five farms tested positive more than once in the same production cycle, but follow-up PCR testing and serology on eleven of the positive farms had negative results. More farms were positive on follow-up tests in previous surveillance periods, most notably in the January to June period in 2023 when seven HPAI H5N1 outbreaks occurred in the Western Cape. It is possible that wild bird movements that introduced HPAI virus in 2023 also introduced low pathogenicity viruses and such movement did not occur in the first half of this year.

Table 1: Results of avian influenza serosurveillance on commercial poultry farms, Western Cape, January - June 2024.

Surveillance period	Farms tested	Companies	Farms positive	Companies positive	Farms positive on follow-up
Jan-Jun 2023	75	10	15 (16%)	3	13/14
Jul-Dec 2023	84	9	12 (14%)	3	3/11
Jan-Jun 2024	97	9	12 (12%)	2	0/11

Backyard poultry

Western Cape animal health technicians sampled 79 backyard poultry premises between January and June 2024. Eleven tested ELISA positive and, of the eight that underwent follow-up testing, five remained ELISA positive, though HI negative. Ten of the eleven positive properties were tested at the ARC-OVR laboratory, before the Western Cape Provincial Veterinary Laboratory reopened after renovations. Approximately half the properties tested at OVR had at least one positive ELISA test.

Ostriches

The Western Cape had 270 registered ostrich establishments between January and June 2024, 18 of which were hatcheries. Thirty-two farms were empty and 48 had breeder ostriches only, leaving 172 eligible for avian influenza serological testing.

Of the eligible farms, 160 (93%) were tested. Four of the farms not tested with serology were seropositive farms, tested for slaughter using PCR and depopulated before 6-monthly serology could be done.

Twenty-two farms tested avian influenza seropositive but twenty had been seropositive since 2022 (one farm) or 2023. One of the other two farms tested negative on

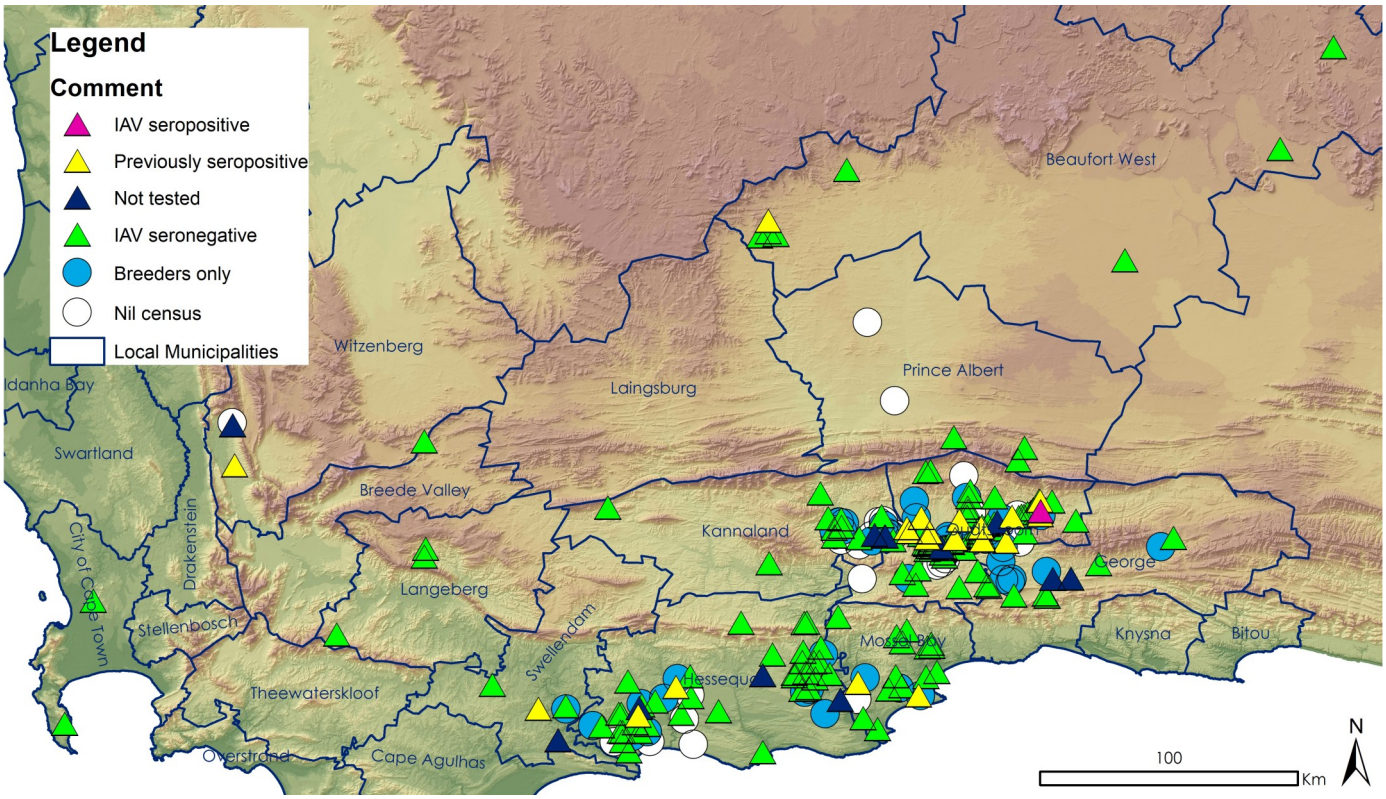

Figure 2. Avian influenza surveillance coverage in commercial ostriches in the Western Cape, January -June 2024.

follow-up testing, leaving one newly seropositive farm (prevalence = 0.6%). That farm tested PCR-negative and HI testing failed to indicate a subtype, so a previous, undetermined low pathogenicity avian influenza virus infection was concluded.

Summary

No evidence of HPAI infections was found during avian influenza surveillance in the Western Cape between January and June 2024. The only outbreak reported was one of an undetermined low pathogenicity virus in ostriches.

Outbreak events

Brucellosis was detected in **cattle** herds at **Botrivier** and **Zwelethemba, Worcester.** The herd at Botrivier was tested as part of tracing from another brucellosis outbreak near Worcester, reported previously. The two cows that tested positive had been brought from the infected Worcester herd in April. One of the farmers in Zwelethemba reported an abortion in early September. Heifers had been introduced from the other infected Worcester herd in August 2023 and four animals in the herd tested positive. Most of the infected animals in the original herd have now been branded and the first few batches have been slaughtered.

Rabies was diagnosed in a **water mongoose** (Fig. 3) from **Riviersonderend** after it entered a house and attacked a person and inanimate objects.

A **cow** on a farm in the **Swellendam** area tested positive for **rabies**. She was originally reluctant to move with the herd and later broke through a fence. Clinical signs included recumbency and a twisted neck, as well as ataxia and twitching of head muscles. This farm is about 4km away from another farm in the Swellendam area from where two rabid cattle were reported in August 2024.

Four more cases of **rabies** in **Cape fur seals** have been confirmed or suspected, bringing the Western Cape total to 27. A seal from **Mossel Bay** was euthanised after showing aggression and severe spasms of the hindquarters. She was found to be pregnant on postmortem examination and the brain of the foetus also tested rabies positive. Another confirmed case was a juvenile seal found dead on Muizenberg beach, **Cape Town** and a third case was an aggressive seal observed in **Velddrif**, that died overnight. There was also a suspected case from **Langebaan,** diagnosed based on an unprovoked and persistent attack on two canoeists. The animal was not found for testing.

Low pathogenicity H9N2 avian influenza was detected in **wild bird** faecal samples from a dam near a poultry farm in the **Caledon** area.

Two **ostrich** farms in the **Heidelberg** area tested **avian influenza** positive, but the virus subtype could not be identified. It was only possible to exclude H5 and H7 subtypes and therefore high pathogenicity avian influenza.

Figure 3: Water mongoose/ kommetjiegatmuishond/ *Atilax paludinosus* (Photo credit: D. Keats, shared under a creative commons licence (https://creativecommons.org/licenses/by/2.0) via Wikimedia

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EPIDEMIOLOGY REPORT

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Canine leishmaniasis on the Garden Route

Lesley van Helden

In October, a dog was presented to a private veterinarian in Plettenberg Bay with alopecia on both shoulders and flaky skin around the tail. A biopsy was taken and showed lymphohistiocytic dermatitis with possible intracytoplasmic protozoa: highly suspect for leishmaniasis. Kidney involvement was also indicated by other diagnostic tests.

The dog was one of two in the household that had been imported from Spain in March 2023. Both dogs had undergone a standard pre-import indirect fluorescent antibody test for *Leishmania* infection, which was negative. This test was repeated in October 2024 and both dogs tested positive.

Leishmaniasis is a disease caused by parasites in the genus *Leishmania* that can affect several species of mammals, including dogs, rodents, livestock and humans. The parasite is transmitted between hosts by biting female sandflies (Fig. 1) in many parts of the world (Fig. 2). In humans, approximately 1.2 million new clinical cases of leishmaniasis occur annually worldwide, causing approximately 30 000 deaths.

Very little information regarding the presence and distribution of sand flies in South Africa is available, but local species have been described. The possibility of the parasite being transmitted by South African sand flies or by other vectors has not been investigated. Furthermore, the current distribution of sand fly vectors has great potential to expand and to move into new areas as one of the effects of climate change. In Namibia, sand flies are known to carry *Leishmania* parasites and a small number of sporadic clinical cases of leishmaniasis have been diagnosed since 1970.

Figure 1: A *Phlebotomus* sand fly (www.cdc.gov)

Most mammalian hosts of the parasite are subclinically infected, but in a small fraction clinical signs will develop, in many cases as a result of a weak or suppressed immune system. The disease occurs in three forms: cutaneous (causing ulcers of the skin), mucocutaneous (ulcers in the mouth, nose and throat that can completely destroy mucous membranes) or visceral (skin ulcers progressing to enlarged spleen and liver, fever and anaemia).

Treatment using drugs is often unsuccessful in improving clinical signs and does not eliminate the parasite from the infected host. In the cutaneous form, lesions can be excised, but severe scarring can occur if they are large in size.

As leishmaniasis does not currently occur in South Africa and treatment is not curative, the options for infected animals are to be re-exported to a *Leishmania*-endemic country or euthanased. In this case, the dogs will be

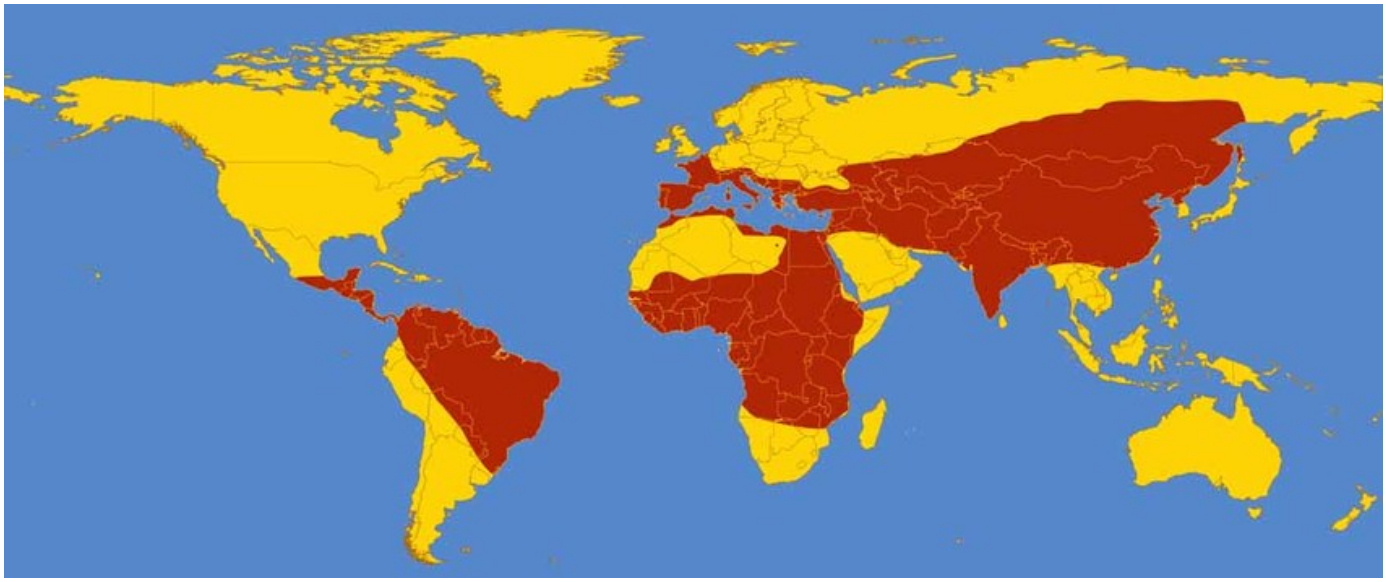

Figure 2: Global distribution of endemic leishmaniasis (Lopes et al., 2010)

exported back to Spain, and are being kept under strict conditions of isolation until then.

Those working in the veterinary and medical professions should be familiar with the presentations of leishmaniasis as early detection of pathogens entering the country is essential to prevent human and animal illness.

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Avian influenza suspected on Marion Island

Laura Roberts

High pathogenicity avian influenza (HPAI) is suspected to be affecting seabirds on Marion Island (Fig. 3). Clinical signs are currently key to the presumptive diagnosis because it is not yet possible to do any testing, though samples are being stored.

Since mid-September, birds on Marion Island have been observed showing neurological clinical signs similar to those seen in infected seabirds elsewhere, and since early November, the mortality rate in Wandering Albatross (Fig. 4) fledglings has risen above normal. Approximately 6% of fledglings present in November have died so far. Subantarctic/Brown Skuas and Southern Giant Petrels have also been found dead around the island, with a small number observed showing clinical signs consistent with HPAI. In addition, a small number of adult King Penguins (Fig. 5) have been observed to be severely ill, some with neurological signs, but it is not yet clear if the mortality rate is increased. The affected colony contains approximately 40 000 birds and some mortality is normal. Marine mammals breeding on the island are being closely monitored, given the devastating effects of the virus observed in South America and in South Georgia, but no conclusive clinical signs have been observed.

Other bird species at risk include the critically endangered Crozet Shag, two endangered tern species, Northern Giant Petrel, Southern Rockhopper, Gentoo and Macaroni Penguins, four more albatross species, including the endangered Sooty and Yellow-nosed Albatrosses (on neighbouring Prince Edward Island) and a wide variety of small prions and petrels that nest in burrows.

Clade 2.3.4.4b HPAI (H5N1) viruses moved down through South America during 2022 and to the Falkland Islands and subantarctic islands of South Georgia in late 2023. The first case from the Antarctic Peninsula was confirmed in January 2024 (see the February 2024 Epi Report).

Figure 3: Marion Island, looking towards the research base

Suspect cases were reported from southern elephant seals at Possession Island in the Crozet Archipelago, east of Marion Island, on 21 October 2024.

More about Marion Island

The Prince Edward Islands (PEIs) include Marion Island and neighbouring Prince Edward Island and are a Special Nature Reserve, managed and protected by South Africa, through the Department of Forestry, Fisheries and the Environment. According to the Prince Edward Islands Act of 1948, the Prince Edward Islands fall under Ward 115 (Port of Cape Town) of the City of Cape Town Metropolitan Municipality, Western Cape. The islands can be found about 2000km southeast of Cape Town, half the distance to Antarctica, and are reached usually only once a year by the S.A. Agulhas II, South Africa's research vessel. The vessel transports researchers, field assistants and personnel to run the research base on Marion Island, who stay on the island for a year at a time. Field assistants monitor seabirds and marine mammals breeding on the island, among other tasks, and this year have the added responsibility of reporting on the suspected avian influenza outbreak. This is not easy, given that the island is 25km long and the terrain is very challenging. It can take five days to check the sites furthest from the research base and small field huts must be used as accommodation. On top of this are now extra biosecurity measures to prevent spread between colonies and infection of the personnel themselves.

More about some of Marion Island's birds

Subantarctic skuas are considered endangered in South Africa because the Marion Island population has halved in the last 30 years. They have often been the first species affected by HPAI (H5N1) at other sites in the subantarctic

Figure 5: King Penguins on Marion Island

Figure 4: Wandering Albatross and chick

region and at least three survived infection after showing clinical signs, so they may play a role in spreading the virus. They are scavengers, which could be an important route of infection. Additionally, birds from the PEIs and Crozet Archipelago and some from South Georgia and Kerguelen spend the winter in similar areas, where they could possibly share viruses.

Wandering Albatrosses are huge birds with wingspans up to 3.5m. About 3 600 pairs breed at the PEIs annually. They breed when about ten years old and live at least 42 years. Each chick takes about nine months to raise, so pairs rarely breed more often than every second year. While feeding chicks, parents forage over huge distances, with trips of up to 13 000km recorded. Some travel close to South Africa, especially in winter, but seldom closer than 100km to the coast.

King Penguins are the second largest penguin species after Emperor Penguins and can be nearly a metre tall. About 225 000 pairs breed at the PEIs and both pairs incubate the egg on their feet, like male Emperor Penguins.

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South African National Antarctic Programme

Outbreak events

Two cases of **canine leishmaniasis** in **Plettenberg Bay** are described on page 1 of this report.

Suspect **high pathogenicity avian influenza** on **Marion Island** is described on pages 2 and 3 of this report.

Rabies was confirmed in six **Cape fur seals** in October in **Cape Town** and **Lambert's Bay**. In November, three more cases were detected in **Cape Town** and **Elands Bay**. The two seals from Cape Town in November both originated from Kommetjie beach within a two-week period and had contact with people and animals:

⇒ A girl who was swimming at Kommetjie was pursued by a seal in the water that bit her on her forearm and back. She immediately went to a clinic, where she received rabies post-exposure prophylaxis. The seal was caught by City of Cape Town officials and euthanased.

⇒ Three dogs that were walking with their owner on the beach were attacked and bitten by a seal that came out of the water. The owner had noted large bite wounds on the neck of the seal. Later that day, the same seal was found dead on the beach. None of the three dogs had up-to-date rabies vaccinations and all were euthanased after the attack.

Outside of the Western Cape, rabies was confirmed in samples taken from dead seals found at three seal colonies along the coast of the Northern Cape, as well as in an aggressive seal from Port Nolloth.

A farmer near **Swellendam** found an aggressive **bat-eared fox** biting one of his pregnant Dorper ewes on the mouth and hanging onto her lower jaw. The fox later bit the ewe on the hindlegs. The fox was shot and tested positive for **rabies**. The ewe was placed in isolation until she gave birth to her lamb. The ewe was slaughtered thereafter and the lamb is now being hand-reared. This property neighbours a farm on which there were two rabid cows in August 2024, which were shown by sequencing to be associated with bat-eared fox rabies in the area.

New outbreaks of **African swine fever** occurred amongst small-scale pig farmers in Wallacedene, Mfuleni and Kuyasa, all within **Cape Town**. The areas have been placed under quarantine and the affected farmers provided with advice about biosecurity and lime for disinfection. Outbreaks of African swine fever occurred previously in Mfuleni and Wallacedene in 2021.

After abortions were seen in a small herd of **cattle** in the **Stellenbosch** area, bovine **brucellosis** was diagnosed. Twelve of the 22 cattle on the farm were seropositive. The origin of the infection is unclear as there had apparently been no movements onto the property for many years and there are no cattle kept on the neighbouring farms. The farm was placed under quarantine.

A farmer from **Cape Town** bought **sheep** at an auction in the Western Cape in 2022. In October 2024, one ewe started showing signs of diarrhoea. She was killed and organs sent for histopathology, where it was found that the villi stroma of the small intestine was infiltrated by large numbers of macrophages with an eosinophylic, finally granular cytoplasm. Large numbers of acid-fast organisms were present in the cytoplasm of the macrophages in the intestinal mucosa. Infection of the flock with **Johne's disease** was diagnosed and the property was placed under quarantine.

***Salmonella* Enteritidis** was cultured from routine boot swabs taken on a **broiler** farm near **Worcester**.

Eleven **ostrich** farms tested **avian influenza** (AI) positive in October. Six were diagnosed with an untyped H7 infection that may be caused by the low pathogenicity H7N7 virus detected in September. One was H7 PCR positive and the others were diagnosed based on serology. The affected farms are situated around **Oudtshoorn** and one in the **Langkloof**. The other five farms appear to have been infected with an undefined low pathogenicity virus: H5, H7 and H6 serological tests were negative, as were H7 and H5 PCR tests on the two farms where Influenza A virus was detected.

Another fourteen ostrich farms tested AI positive in November. Full sets of laboratory results have not yet been received but a low pathogenicity H5 virus was detected by PCR on one farm in the Langkloof and three more have tested H7 seropositive on their first round of positive tests.

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Western Cape Government

EPIDEMIOLOGY REPORT

AGRICULTURE
VETERINARY SERVICES

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2024 animal diseases in review

Surveillance/ field activities

In 2024, the 36 animal health technicians working in the field for Western Cape Veterinary Services made approximately 12 000 visits to properties where animals are kept in order to do animal disease surveillance, animal census, farmer education, primary animal health care and disease control.

This report would not be possible without these animal health technicians and state veterinarians who collect and report data from the field, as well as the private veterinarians, animal keepers and all other members of the public who participate in reporting suspect outbreaks of animal diseases.

Rabies (Fig. 1)

A dramatic increase in rabies cases occurred in 2024 compared to previous years as a result of the detection of rabies in Cape fur seals. Of the 46 rabies cases reported in the Western Cape, 36 were cases of seal rabies from all areas of the provincial coastline. Of these seal cases, 35 were confirmed through laboratory testing, while one was diagnosed based on clinical signs only. One case of rabies also occurred in a dog in Cape Town as a result of transmission from a rabid seal.

Three cases of rabies occurred in Murraysburg within a month: the first in a black-backed jackal that infected a dog in the town, and the third in a stray dog seen on a farm nearby.

Three cases of rabies were seen in bat-eared foxes in the province. South of Swellendam, cattle on two farms in close proximity were infected with rabies that was linked to bat-eared fox rabies via phylogenetic analysis. Rabies was also detected in a water mongoose west of Swellendam.

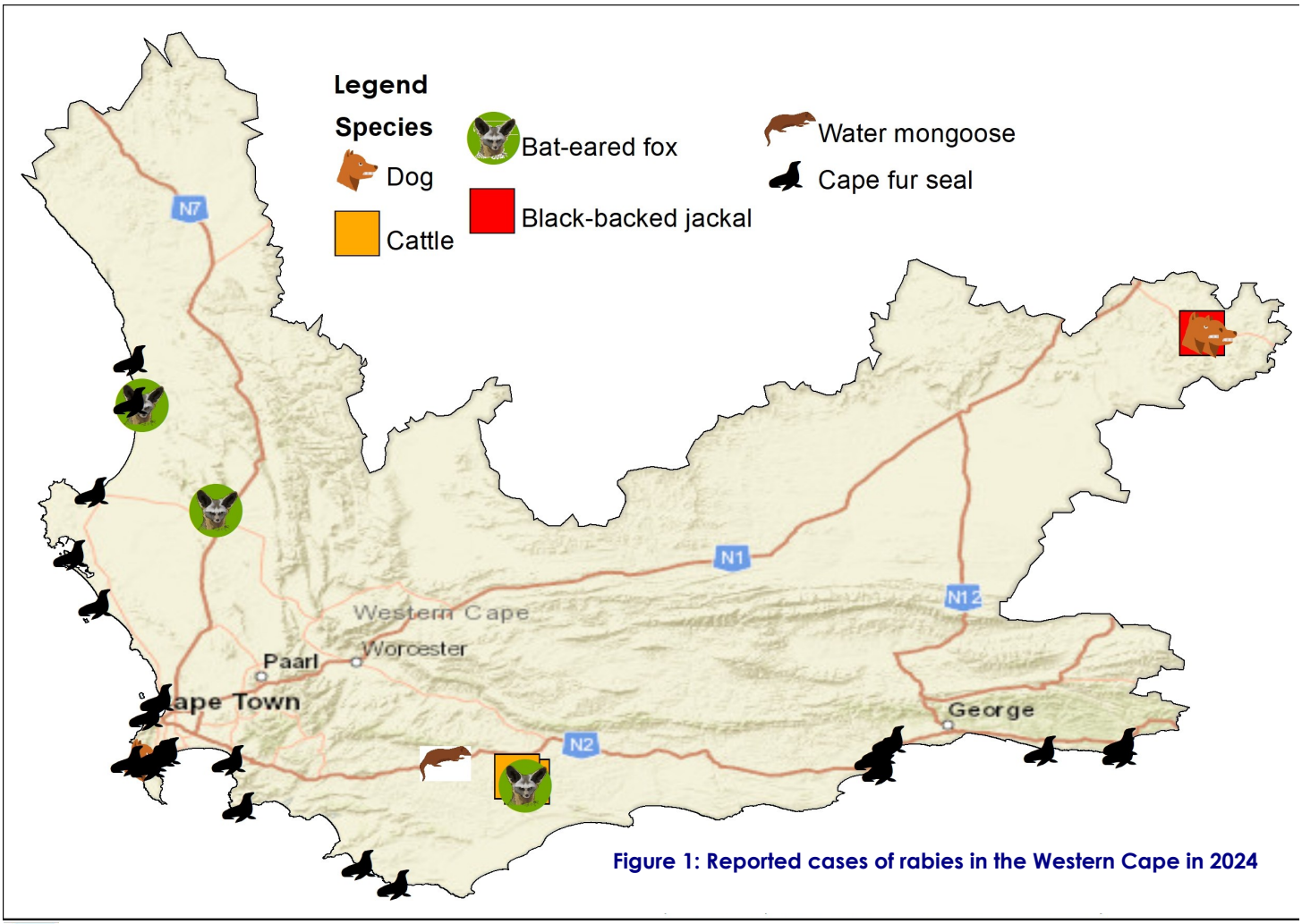

Figure 1: Reported cases of rabies in the Western Cape in 2024

Approximately 140 000 pets were vaccinated with state-sponsored vaccine in the province in 2024. This took place in the form of rabies vaccination campaigns, routine vaccinations during farm visits and provision of vaccines to animal welfare organisations.

Canine diseases

A case of *Brucella canis* was diagnosed in a year-old castrated male dog in Cape Town that had been adopted from an animal welfare organisation as a puppy. The dog was euthanased.

In Plettenberg Bay, leishmaniasis was detected in two dogs that had been imported from Spain in 2023. The owner elected to re-export the dogs back to Spain, where the disease is endemic.

Pig diseases (Fig. 2)

Eight new outbreaks of African swine fever were detected in the province in 2024. All outbreaks occurred in small-scale farming areas where pigs are kept free-ranging and with minimal biosecurity measures in place. Two of the outbreaks in Cape Town occurred in areas that were previously affected by ASF in 2021.

Cattle diseases (Fig. 2)

Six properties in the province were quarantined after testing positive for bovine brucellosis. Three of the properties, in Worcester, are adjacent small-scale farming areas where multiple owners keep their livestock in close proximity to each other. Another positive herd in the Theewaterskloof area is linked to movement of cattle from one of the properties in Worcester.

Two cases of bovine malignant catarrhal fever occurred where cattle were kept adjacent to wildebeest.

Small stock diseases (Fig. 2)

Eight outbreaks of sheep scab were reported and the infested flocks were treated at least twice.

Johne's disease was confirmed on three sheep farms. These farms were placed under quarantine and the affected farmers were advised to consider a vaccination programme.

Bluetongue outbreaks were reported from six sheep flocks in the Western Cape. Outbreaks occurred in March, April and December. Anecdotal reports of bluetongue were received from other areas, and it is apparent that bluetongue outbreaks are underreported.

Avian diseases (Fig. 3)

After reports of wild pigeons dying in Malmesbury, a necropsy of some of them found lymphocytic interstitial

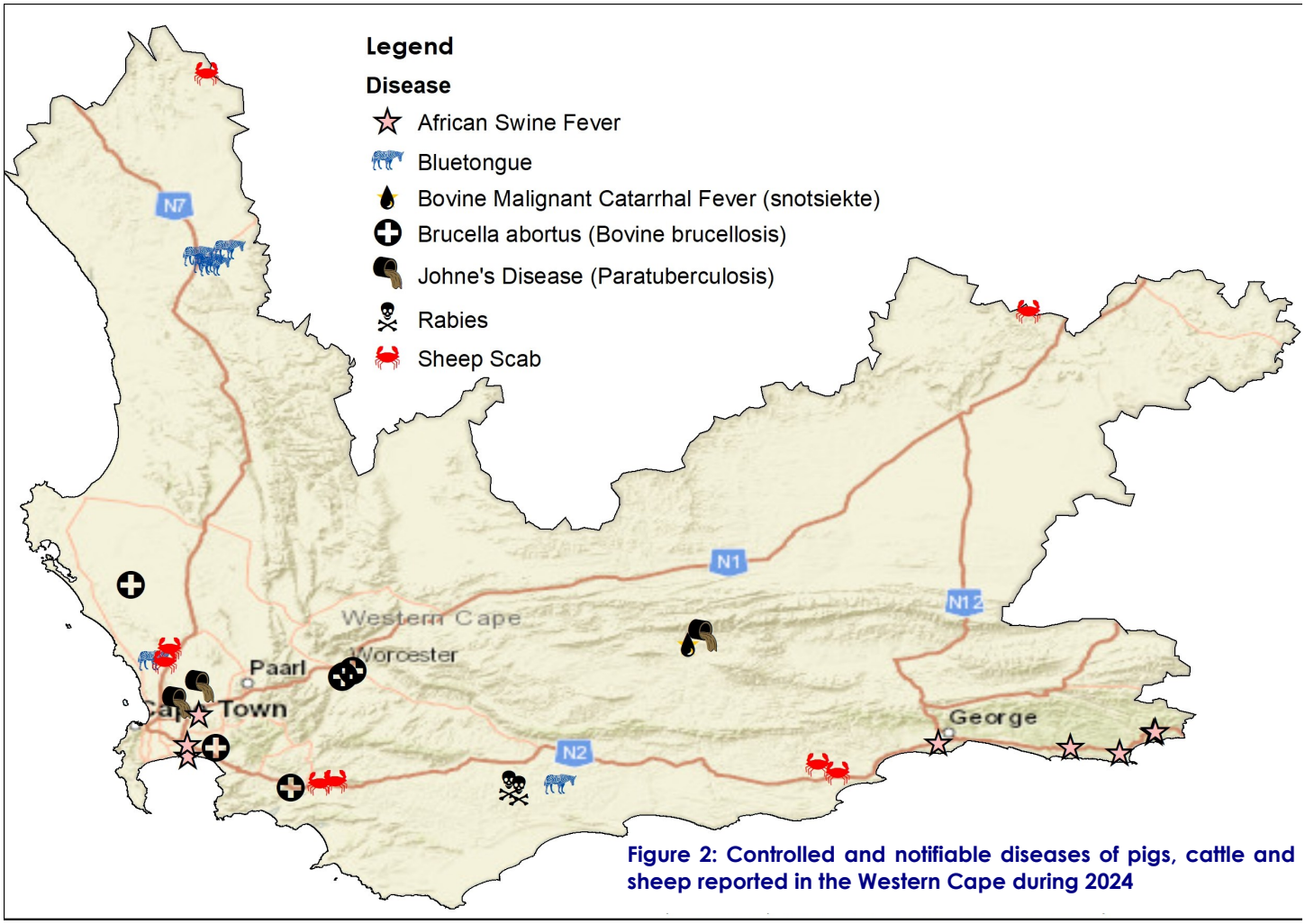

Figure 2: Controlled and notifiable diseases of pigs, cattle and sheep reported in the Western Cape during 2024

nephritis with associated pancreatic necrosis. These findings are most consistent with pigeon paramyxovirus. PCR testing was not possible at the time.

Salmonella Enteritidis (SE) was detected 19 times on broiler chicken farms during routine testing. This is a decrease of over 60% compared to 2023. SE was also cultured from an ill Hartlaub's Gull chick in Cape Town. Scavenging of food scraps was considered a possible source of infection.

Increased mortalities were observed in layer chickens near Malmesbury and *Salmonella gallinarum* was identified as the causative organism, using serotyping. The flock was quarantined and vaccinated.

Thirty-one avian influenza outbreaks were reported in ostriches between June and December. An H6N2 virus was sequenced from the George area in August and another four H6 outbreaks were diagnosed on serology in July and November. A low pathogenicity H7N7 virus was sequenced from the Oudtshoorn area in September and H7 virus was detected with PCR near Calitzdorp in October. Another twelve H7 outbreaks were diagnosed on serology between October and December. The remaining twelve outbreaks of avian influenza were diagnosed based on serology: influenza A ELISA tests were positive but H5, H7 and H6 haemagglutination inhibition tests were negative, so another low pathogenicity subtype is assumed.

Three avian influenza detections were made in other species. The seabird sub-genotype of high pathogenicity avian influenza (HPAI) H5N1 was sequenced from two Swift Terns at Keurbooms River Mouth and Witsand, in March and April. An low pathogenicity H9N2 virus was sequenced from environmental samples in the Theewaterskloof municipality in September.

In addition, an outbreak of avian influenza was suspected to have started in seabirds on Marion Island in September, based on neurological clinical signs and increased mortality. Once the samples could be transported to mainland South Africa, laboratory testing in March 2025 confirmed infection with HPAI H5N1.

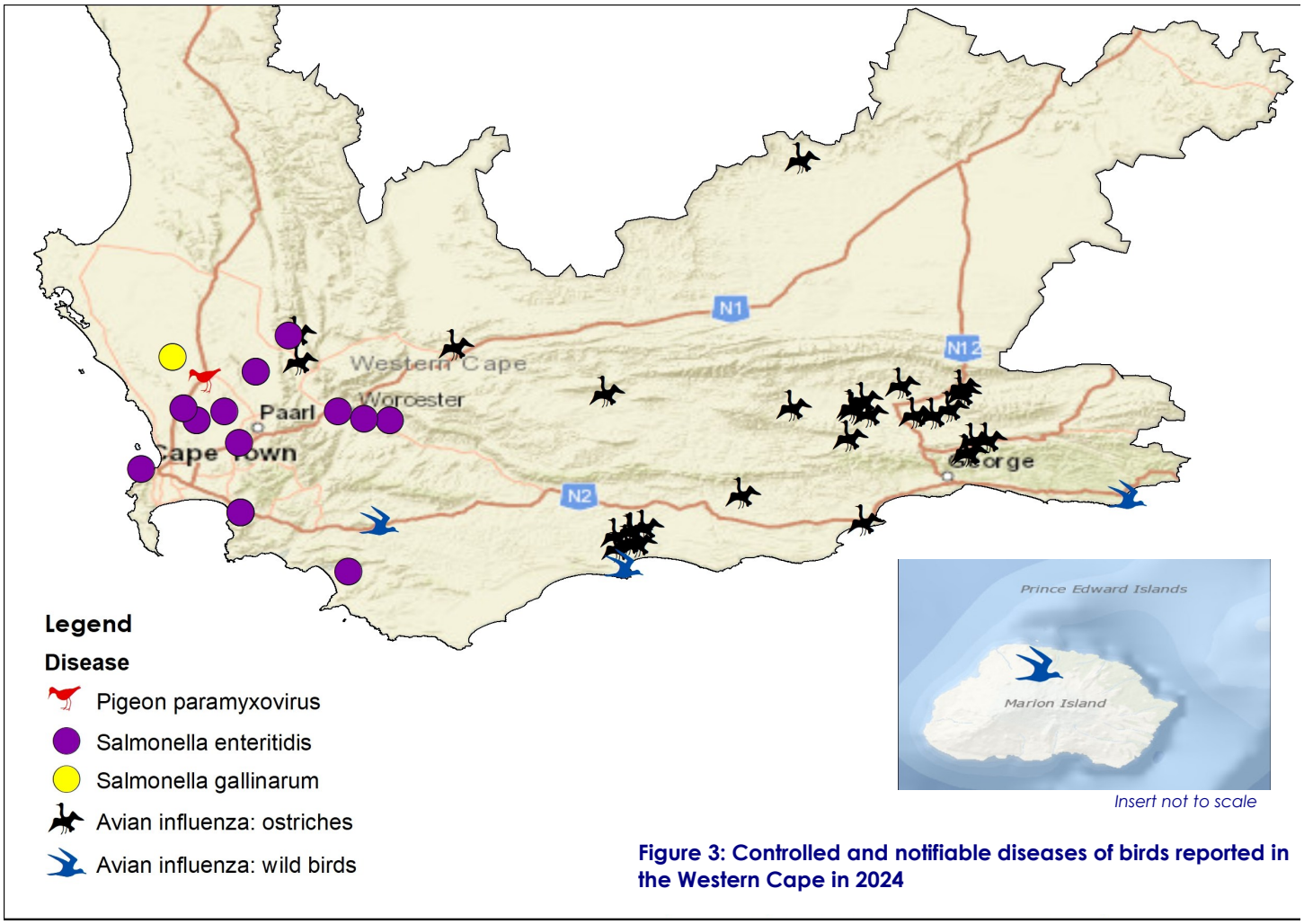

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Figure 3: Controlled and notifiable diseases of birds reported in the Western Cape in 2024

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