



Western Cape ostrich avian influenza surveillance: Jan 2021-June 2022

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The results of avian influenza (AI) surveillance on Western Cape ostrich compartments are presented for the three six-month periods that fell between January 2021 and June 2022 and are summarised, with the population structure, in the table below.

Ostrich farms in South Africa undergo compulsory biannual (6-monthly), pre-movement, pre-slaughter and post-movement avian influenza antibody testing (serology). Chicks younger than 6 weeks old and breeder ostriches are exempt. Further background to avian influenza surveillance in ostriches is provided in the 2018-2019 surveillance report, published in June 2020. The 2020 surveillance report was published in December 2020 and both are available on the [Vet Epi website](#).

Serology is used to demonstrate AI virus freedom on ostrich farms for export purposes, among others. All

positive serology suggesting presence of a new infection is followed up as soon as possible, ideally within a week, with polymerase chain reaction (PCR) testing, to attempt to detect and identify the virus involved and determine its pathogenicity. If viral genetic material is detected with PCR, genetic sequencing is also attempted, to characterise the virus further. Only high pathogenicity avian influenza (HPAI; H5 and H7) viruses should affect export status.

In each of the three six-month periods (Jan-Jun 2021, Jul-Dec 2021 and Jan-Jun 2022) respectively, 77%, 72% and 74% of populated ostrich farms were tested with AI virus serology. The majority of breeder farms and those with only small chicks were excluded. In each 6-month period, of testable farms with birds between 6 weeks old and slaughter age, 93%, 97% and 97% respectively were tested. Of tested farms, 3%, 10% and 2% were found to be newly sero-positive.

Table: Western Cape ostrich compartments, age structure and avian influenza surveillance results:

January 2021 to June 2022, for each six-month period

No. of ostrich compartments	Jan-Jun 2021	Jul-Dec 2021	Jan-Jun 2022
Total compartments	292	288	286
Hatcheries	21	18	18
Unpopulated (null census)	29	27	31
Populated	242	243	237
Breeders only (not testable)	45*	60	56
Testable farms**	197	183	181
Not tested	14	9	6
Tested	187	174	175
AIV sero-positive	21	27	11
Old antibodies	16	10	9
New detections	7 (6)	18	3
Negative follow-up	0	5	1
Undefined LPAI	2	1	1
H6Nx	1	4	0
H7N1	1	0	0
LP H5N2	1	(2)	0
HP H5N1	2 (1)	8 (6)	1

* Four breeder farms were tested (and found to be still sero-positive, since 2017). They have been counted as testable in this 6-month period

** Usually only birds 6 weeks old to slaughter age

Numbers in brackets indicate where 3 farms may have had LPAI H5N2 and not HP H5N1.

Avian influenza outbreaks detected in 2021

Eighteen ostrich farms tested avian influenza sero-positive in nineteen different events in 2021 and virus was detected on eight farms (44%).

Low pathogenicity avian influenza (LPAI) H5N2 virus, confirmed with next generation genetic sequencing, was detected on an ostrich farm on the eastern side of Hessequa municipality in March (Fig. 1).

One ostrich farm in Mossel Bay municipality was diagnosed with LPAI H7N1, using serology, in February. It was the last to be reported as part of the 2019 LPAI H7N1 outbreak.

Two farms were concluded to have had undefined, non-H5, -H6 or -H7 avian influenza infections in May and June. One had also had a suspect positive PCR test a few months earlier, but had been PCR- and sero-negative on follow-up testing.

High pathogenicity avian influenza (HPAI) H5N1 outbreaks were reported to the World Organisation for Animal Health (WOAH) from ten ostrich farms in the Western Cape in 2021. One additional farm was reported from mid-January 2022, based on serology.

Four H5N1 farms were HPAI H5 PCR-positive (36%), indicating presence of virus. Two, in Witzenberg and western Hessequa municipalities

(Fig. 1), experienced mortalities in June and July respectively, and HPAI H5N1 was confirmed with genetic sequencing. Of the other two PCR-positive farms, one was detected in late July, in the western part of Oudtshoorn municipality, and serological tests also indicated an H5N1 infection. The other farm, in the eastern Hessequa municipality, was PCR-positive in early June, but further virus typing was unsuccessful and the serological results were not aligned. The serology observed could be explained by the HPAI (H5N2) detection, on the same farm, mentioned above.

The remaining six HPAI H5N1 outbreaks were reported based only on serology, taking a precautionary approach. However, two did not have consistent cross-reactions on the relevant H5 haemagglutination inhibition (HI) antigens and could have in fact been infected with the LPAI H5N2 virus. They were reported as HPAI-infected due to proximity to the abovementioned property in eastern Hessequa municipality (Fig. 1).

One ostrich farm in Witzenberg municipality was found to be sero-positive for H6Nx avian influenza in February, and another four farms in the Beaufort West, Oudtshoorn and Mossel Bay municipalities (Fig. 1) were diagnosed in September and October 2021, all based on virus detection (PCR).

Avian influenza outbreaks detected between January and June 2022

Two new avian influenza outbreaks were detected in the first half of 2022. The first was the eleventh HPAI H5N1 ostrich outbreak to be reported to the WOA, in January, diagnosed on serology. The second was classified as undefined AIV after carcasses tested AIV PCR-positive in April and follow-up serology did not indicate a virus subtype.

2021 avian influenza surveillance in the European Union

The 2021 EU avian influenza surveillance report was published in August 2022, in the [EFSA Journal](#). To compare virus detection success: of 24 290 poultry establishments that were sampled, 27 were sero-positive for influenza A(H5) and four for A(H7) viruses (total 31). Of these, 24 were also tested with PCR (77%) and five establishments were PCR-positive (21%). These sero-positive establishments mainly raise waterfowl for hunting and breed ducks and geese, so the birds may have shown few signs of avian influenza infection, similar to what is experienced with ostriches.

For interest, 122 of the tested EU poultry establishments contained ratites (including ostriches), of which two were sero-positive and neither was PCR-positive.

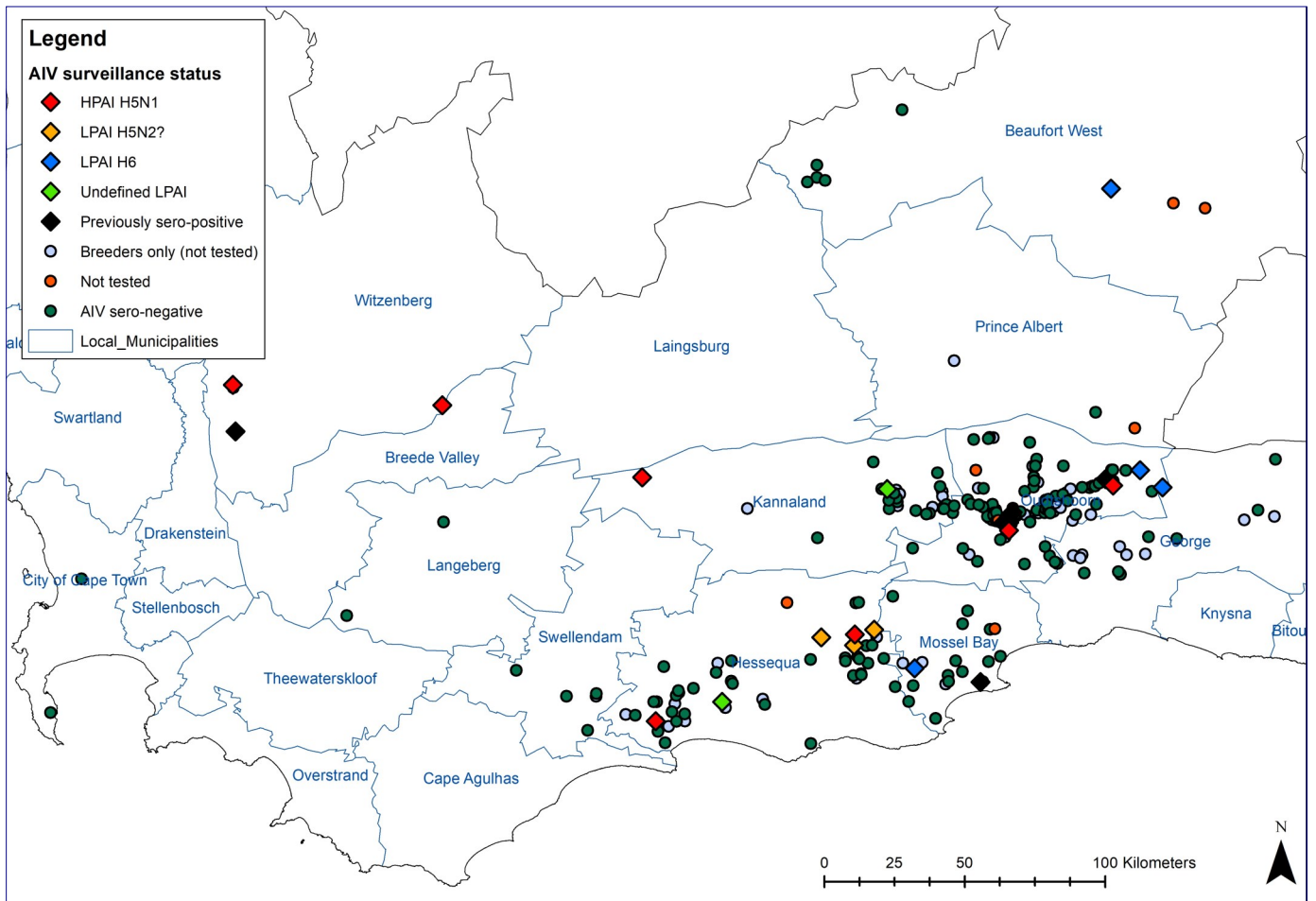


Figure 1: Ostrich avian influenza surveillance in the Western Cape, from July to December 2021: Locations of populated ostrich farms, showing avian influenza surveillance status and testing result

“LPAI H5N2?” denotes farms reported as HPAI H5N1 but that may have rather been infected with LPAI H5N2. One farm marked as LPAI H5N2? was detected earlier, in March 2021, but is included for convenience.

Outbreak events

Rabies was diagnosed in a **bat-eared fox** near **Riviersonderend**. The animal attacked a farm dog outside the house and was shot by the farmer. Since the dog was not vaccinated against rabies, euthanasia was advised and the owner agreed to it.

High pathogenicity avian influenza (HPAI) H5N1 was confirmed in a **Common Tern** from **Macassar Beach** and in three **African Penguins** from **Melkbosstrand, Simon's Town** and **Strand**.

An **ostrich** farm **south of Oudtshoorn** was diagnosed with HPAI H5N1 and **LPAI H6N2**, based on PCR, and sequencing of the H6N2 virus. Two ostrich farms **east of Oudtshoorn** were classified as infected with H6 virus, based on serology but no virus typing was possible on a third sero-positive farm. Virus was detected via PCR on two of these farms and H5 and H7 tests were negative but no further typing results have been received.

Two **poultry** farms in **Overstrand** Municipality received positive **Salmonella Enteritidis** test results from boot and bait station swabs respectively. No signs of illness were recorded and no source has been traced.

Community members reported wild birds dying in **Stanford**. A **dove** tested positive for virulent **Newcastle disease** virus and was probably infected with pigeon paramyxovirus but laboratory confirmation has not been received.

An **ostrich** farm in the **Witzenberg** municipality tested positive on the screening test for Newcastle disease but further PCR testing and genetic sequencing confirmed a **lentogenic avian orthoavulavirus 1**, which does not fall under the definition of Newcastle disease. The younger group of ostriches showed decreased appetite, weight loss and conjunctivitis.

Anaplasmosis (gall sickness) was diagnosed in a **cow** from **Botrivier**. The animal was recumbent and unresponsive and had reddish urine and pale mucous membranes. According to the owner, the diagnosis was made on post-mortem examination at the Western Cape Provincial Veterinary Laboratory.

Bovine babesiosis (redwater) was diagnosed by a private vet in **Grabouw**. Eight of 22 6 to 9 month-old calves died, showing pale yellow mucous membranes and urine that looked like blood. Five affected animals survived after treatment with imidocarb and tetracycline. The animals were suffering from a severe tick burden (mostly blue ticks).

Sarcoptic mange was diagnosed in **pigs** (Fig. 2) showing emaciation and scabs, itching and discomfort, near **Nuwerus**.

Sheep near **Bergrivier** were diagnosed with **red lice**.

Urolithiasis was diagnosed in two **rams** on two properties near **Vanrhynsdorp** and **sand impaction** was suspected in lambs on another farm in the same area.

Sheep on a farm near **Kliprand** were found to be suffering from **footrot**.

A pig from **Chatsworth** was euthanised after it developed purple ears, and nystagmus, started shivering and became anorexic. On post-mortem examination it was found to have septicaemia and a cerebellar abscess and meningitis caused by **Trueperella pyogenes**.

Western Cape Animal Health officials have been on high alert for foot-and-mouth disease (FMD). A heifer with an ulcerated lesion on the nose, diarrhoea and fever, near Hermon, was diagnosed with **bovine viral diarrhoea**. Two cattle on a property near Albertinia were found on have erosions in the mouth, but there were no epidemiological links to FMD outbreaks and FMD tests were negative. **Officials visited another 118 properties with cattle in August, from which they reported no signs of FMD.**



Figure 2: Lesions on a pig with sarcoptic mange
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