NSW GOVERNMENT

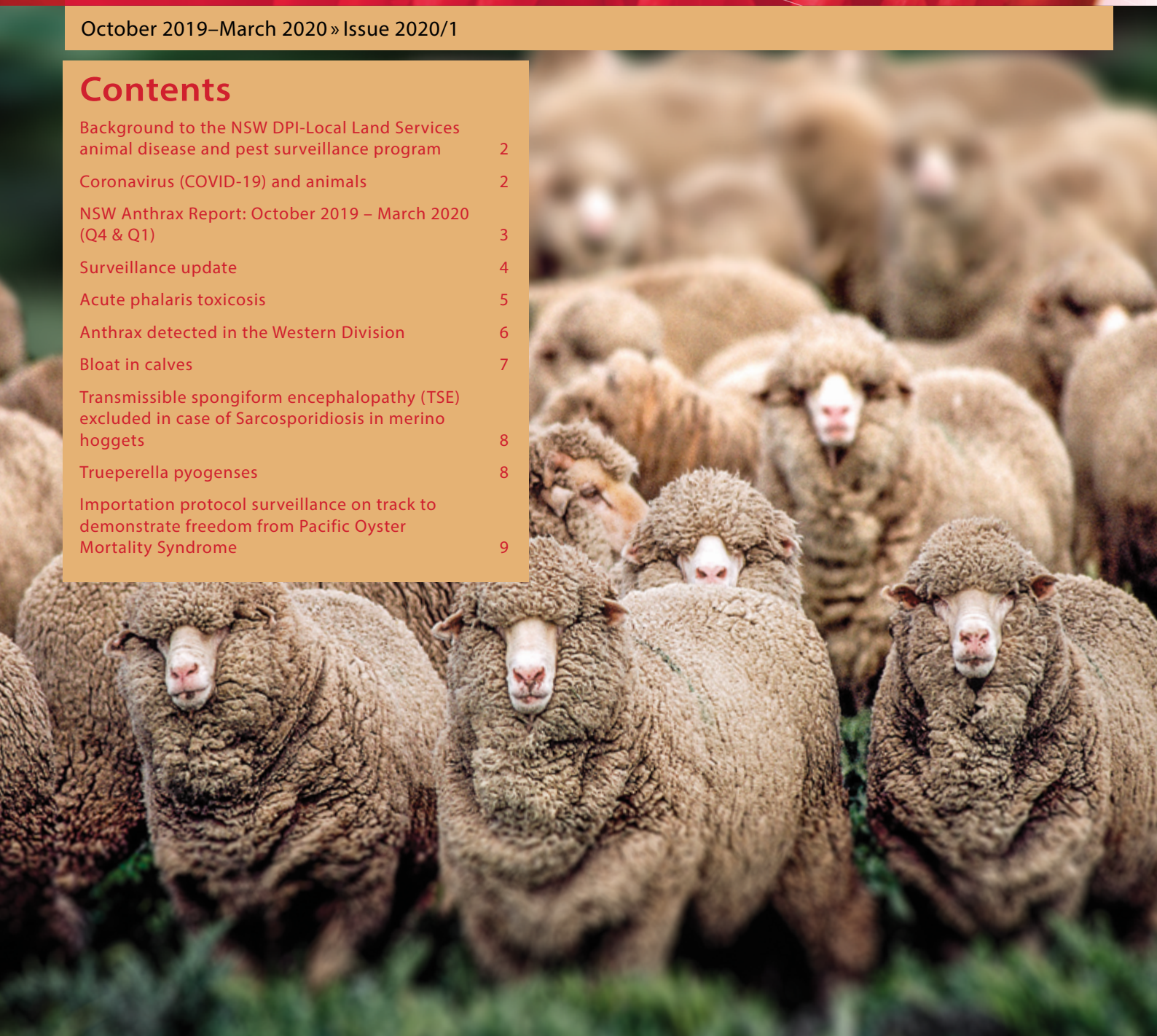
Information contributed by staff of
NSW Department of Primary Industries
and Local Land Services

NEW SOUTH WALES

ANIMAL HEALTH SURVEILLANCE

October 2019–March 2020 » Issue 2020/1

Contents



Background to the NSW DPI-Local Land Services animal disease and pest surveillance program

The NSW DPI is obliged under the *Biosecurity Act 2015* to detect and manage notifiable animal disease outbreaks. This obligation is met by government veterinary officers being required to investigate potential notifiable disease outbreaks and unusual diseases that may be new, emerging or difficult to diagnose. They also conduct targeted surveillance projects, inspections of stock at saleyards and monitoring of compliance programs.

The desired outcome is the early detection of notifiable diseases, including exotics, and thus minimisation of negative impacts, and accurate, verifiable data on the animal disease and pest status of NSW. Reports are collated at the state level, for subsequent official reporting to the National Animal Health Information System (NAHIS), which is managed by Animal Health Australia. The NSW surveillance program is supported by Laboratory Services at Elizabeth Macarthur Agricultural Institute (EMAI) and by research staff who design and improve diagnostic tests and, working with field veterinarians, investigate the epidemiology of diseases that may have significant biosecurity impacts.

Coronavirus (COVID-19) and animals

The World Organisation for Animal Health (OIE) advises that currently there is no evidence to suggest that animals infected by humans are playing a role in the spread of COVID-19. The current spread of COVID-19 is driven by human-to-human transmission.

Worldwide, there have been few isolated reports of animals testing positive for COVID-19. In these situations, cases have followed close contact with a confirmed human case. There have been no detections of COVID-19 in domestic or wildlife animals in Australia.

Animal Welfare and COVID-19

It is important during these uncertain times that animal owners and carers take the appropriate steps to ensure that animal welfare standards are maintained. Contingency plans should be established to address how you will meet your animals' needs if you or other people who care for your animals become sick, or restrictions make it difficult to maintain existing arrangements to support your animals. Having a plan will help you look after yourself and your animals during the COVID-19 pandemic.

The plan should consider

- the basic feed and care arrangements for your animals;
- how to secure sufficient supplies, such as feed and medication through a possible period of self-isolation or in the event of availability disruptions;
- care arrangements in the event you or other people are unable to care for the animals appropriately; and
- contact details for your local veterinary clinic and emergency veterinary clinic, as some clinics may be affected by the COVID-19 pandemic and operating at a different level of service to normal.

Discuss your plan and make prior arrangements with staff, neighbours, family or friends to ensure they are aware of your plan and able to assist by caring for your animals.

It is essential that COVID-19 does not lead to inappropriate measures being taken against domestic or wild animals which might compromise their welfare and health or have a negative impact on biodiversity.

Animal Biosecurity and COVID-19

When handling and caring for animals, basic hygiene measures should always be implemented. This includes hand washing before and after being around or handling animals, their food, or supplies, as well as avoiding kissing, licking or sharing food. Producers are also encouraged to implement a farm biosecurity plan if they don't already have one in place.

When possible, people who are sick or under medical attention for COVID-19 should avoid close contact with their pets and have another member of their household care for their animals. If they must look after their pet, they should maintain good hygiene practices and wear a face mask to reduce transmission to your pet. Owners infected with COVID-19 should practice social isolation principles with their pets and also ensure that pets are prevented from straying.

Currently, diagnostic testing and surveillance in Australian animals for COVID-19 is not routinely undertaken. The current priority remains on testing humans as the known form of transmission. To find out more, read the information from the Australian Government's Animal Health Committee.

Further information

As the COVID-19 situation is rapidly evolving, NSW Department of Primary Industries has established a COVID-19 Primary Industries Liaison Team to help primary producers navigate the challenges and impacts of COVID-19 on their business and industry. Further information can be found on the *DPI COVID-19 webpage*.

Information about COVID-19 and animals can also be found on these websites:

Australian Veterinary Association

Animal Health Australia

The Department of Agriculture, Water & Energy

NSW Health

Department of Health

World Organisation for Animal Health

World Health Organisation

NSW Anthrax Report: October 2019 – March 2020 (Q4 & Q1)

There were three anthrax incidents during the two quarters.

The first incident occurred on a property at Ivanhoe where at least 50 of 100 rams on agistment died over a one-week period prior to 10th October 2019. The district veterinarian conducted immunochromatographic tests (ICT) with positive results on three of four animals. Two of three samples were confirmed positive on culture and three of three on polymerase chain reaction (PCR) testing at Agriculture Victoria Veterinary Diagnostic Services (AgriBio) as part of the Anthrax ICT Sheep Validation project.

The second incident occurred on a Nyngan property on 19 December 2019. A private practitioner reported conducting a post-mortem on a cow that was the fourth of 40 stud heifers to have died within two weeks. An ICT was subsequently performed on a sample from the cow at the veterinary clinic with a positive result. This was subsequently confirmed with a positive PCR test at Elizabeth Macarthur Agricultural Institute (EMAI) and culture and PCR at AgriBio. Samples were also collected on 20th December from 20 of 100 sheep that had died some time previously and these were sent directly to AgriBio in Victoria. Although negative on ICT (carcasses were more than 48 hours dead), the swabs were positive for culture in two of eight samples tested and PCR positive in five of eight samples.

The third incident occurred on a property near Cumnock on 28th January 2020. There were seven deaths in 2 pens within a feedlot of 6500 sheep which were reported to the District Veterinarian. The ICT was positive and tissues confirmed anthrax positive by PCR at EMAI.

All properties are located in the known anthrax endemic area of the state. They were managed according to NSW DPI Biosecurity Anthrax Procedure. Properties were placed under quarantine and all at-risk animals were vaccinated. Carcasses were destroyed by burning and sites and equipment decontaminated. Neighbours were notified and recommended to vaccinate. Exposed people were advised to contact their Public Health Unit for advice. Any at risk movements were traced.

There were 100 investigations where anthrax was excluded as the cause of death. Fifty-five of these were in cattle where alternate diagnoses included bloat, nitrate/nitrite toxicity, lead toxicity, *Clostridium novyi*, *C. perfringens*, *Histophilus somnus*, plant poisonings including *Cestrum parqui*, *Myoporum acuminatum* and nitrate toxicity. Forty-two investigations involved sheep where alternative diagnoses included, hypocalcaemia, pneumonia, septicaemia, clostridial infection, nitrate/nitrite toxicity, water deprivation and lactic acidosis.

Eighty-five of these investigations had negative anthrax ICT results. Of these 24 were confirmed negative by laboratory testing.

Single exclusions in each of a pig, an alpaca and a horse, had no alternative diagnoses.

Fifteen investigations including the horse and the pig were excluded by laboratory testing alone.

For further information contact Barbara Moloney, Technical Specialist Disease Surveillance, NSW DPI, Orange, on (02) 6391 3687.

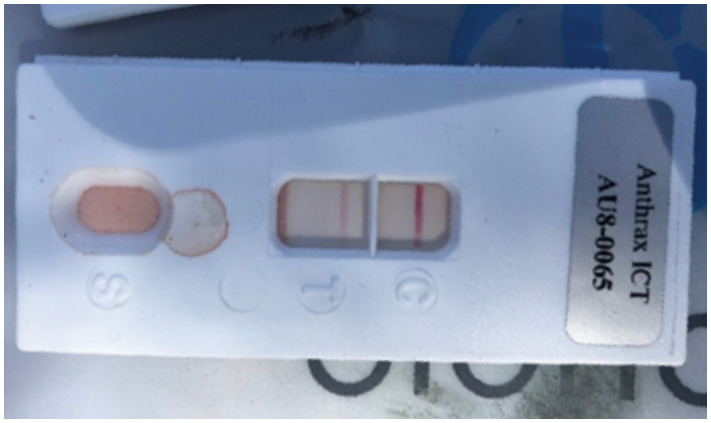


Figure 1: Positive ICT test for Ivanhoe property. Photo by T. McCarthy

Figure 2: Sampling dead heifer on Nyngan property. Photo E. Kennedy.

Figure 3: Enlarged spleen on postmortem at property near Cumnock. Photo A. Masters.

Surveillance update

The key purposes of surveillance by the government veterinary service (GVS) in NSW are the detection and exclusion of exotic and endemic notifiable diseases. This enables disease-control strategies to be put in place to minimise the impact of these diseases if detected, and to support disease-freedom claims through evidence of absence of disease when excluded. In 2019 a total of more than 2600 disease investigations were conducted by the NSW Government as illustrated in *Figure 1.*, below.

NSW reports data on laboratory testing for notifiable diseases to the National Animal Health Information Program (NAHIP) via the National Animal Health Information System. NAHIP is an ongoing collaboration between governments, livestock industries and Wildlife Health Australia to collate and utilise surveillance and monitoring data to provide an overview of animal health in Australia. In 2019, more than 1700 disease investigations by both government veterinarians and private practitioners in NSW included laboratory testing for at least one NSW notifiable disease *(see Figure 2., below)*.

Private practitioners in NSW have been supported by the GVS in 2019 via the delivery of an Emergency Animal Disease (EAD) webinar program, which focused on the detection, reporting and management of EADs, with the opportunity to join live Q&A sessions with the 10 presenters. An expanded program will be launched in 2020.

For further information contact Claire Harrison, Veterinary Policy and Project Officer, NSW DPI Animal Biosecurity, Orange, on (02) 6391 3490.

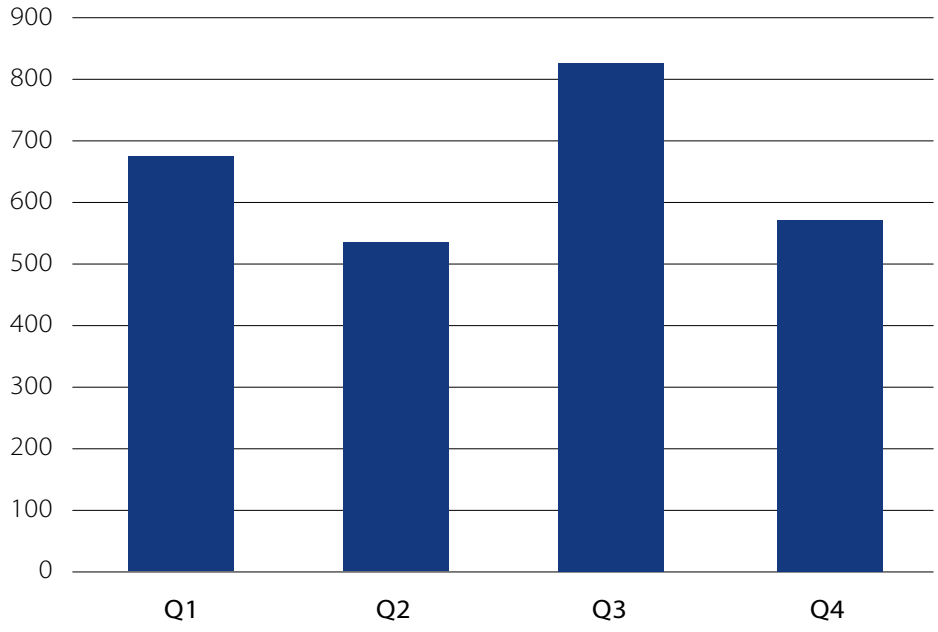


Figure 1. Quarterly numbers of NSW disease investigations by the NSW GVS in 2019. (Note: this data excludes investigations that were revisits and those that were part of a targeted surveillance program or an emergency response.) Graph by C. Harrison.

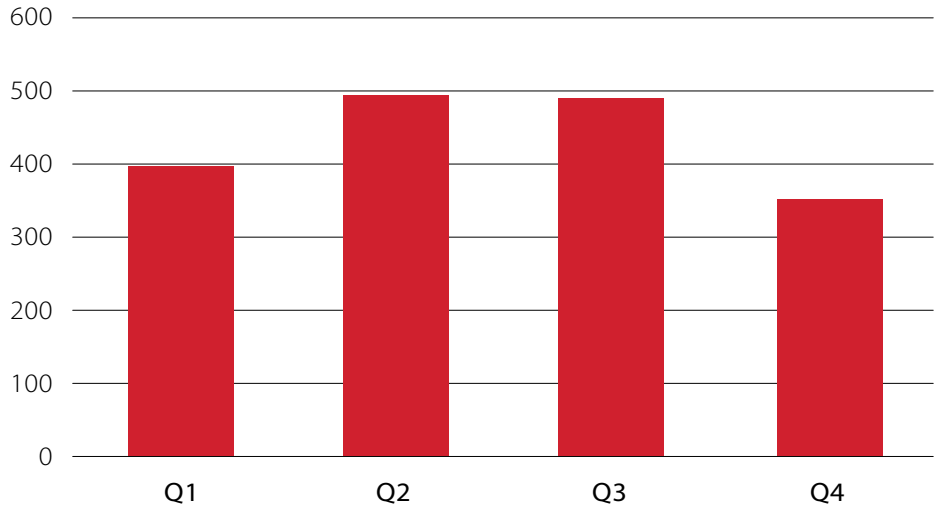


Figure 2. Quarterly numbers of disease investigations in NSW with laboratory testing for at least one NSW notifiable disease in 2019. (Note: this data does not include testing for reasons other than suspicion of disease (e.g. export testing). Graph by C. Harrison.

Acute phalaris toxicosis

A call was received from a property in Molong to investigate the sudden death of multiple pregnant, single bearing ewes in June 2018. The producer had discovered 100 dead ewes in a paddock that morning. They appeared well the previous evening.

There were 470 ewes in the mob. The ewes had been yarded while being scanned, crutched, drenched, vaccinated and sorted. They had been fed hay and faba beans during this time. The exact amount of feed given per head per day was not quantified. The mob had been let out into a lambing paddock the afternoon before the deaths were discovered. The paddock was predominantly phalaris (*Phalaris aquatica*) and had been spelled in preparation for the ewes. The week previously there had been 12mm of rain, following a dry period.

There were two live ewes that were ataxic and wandering aimlessly. The remaining ewes had been moved to a different paddock and appeared unaffected.

There was no history of anthrax on the property, however the property is located in the anthrax belt of NSW. Two anthrax immunochromatographic (ICT) kits were used on different carcases, using blood that was in the mouth and nostrils and both were negative. *Bacillus anthracis* was excluded at Elizabeth Macarthur Agricultural Institute (EMAI) by examination of the aqueous humour (AH) sample using a polymethythele blue stain.

AH was obtained from four dead ewes for a ruminant AH profile. One affected ewe was euthanased by captive bolt and a postmortem performed. There were no significant findings on the gross postmortem examination. Fixed brain, liver, kidney and lung was sent for histopathology. The AH of this ewe was also tested (5).

The glucose, ketone, calcium, magnesium, nitrate, nitrite and D-lactate were within normal limits in the AH samples. The urea was slightly elevated in two ewes, all had significantly elevated ammonia levels *(see Table 1.)*.

Figure 1: Deceased ewes on property at Molong. Photo by L Downs.

Parameter	Normal	Units	1	2	3	4	5
Urea	2.9-7.1	mmol/L	4.2	11.3	5.3	7.0	8.2
Ammonia	0-200	umol/L	3923	5693	2522	5638	2520

Table 1: Laboratory results from AH samples from five affected ewes.

The laboratory report notes that ammonia results are time dependent and can be affected by cellular contamination of the sample. Ammonia concentrations will increase postmortem, with an approximate doubling in concentration every 24 hrs postmortem in the eye. As these samples were taken from ewes that had died in the past 18 hours, including one that was taken immediately post-mortem and the levels were >1000 umol/L, these results were considered significant.

The pathology report noted perivascular and perineuronal vacuolation in cerebral sections, is indicative of swelling of astrocytic processes. Other histologic changes observed in non-neural tissues were of little consequence.

The introduction of hungry sheep onto a phalaris pasture that was short, dry weather affected and freshly shooting made acute phalaris toxciosis the main differential diagnosis. Elevated ammonia in serum and AH is a common finding in cases of acute phalaris poisoning and is thought to occur due to the interruption of the urea cycle by an unidentified toxin. The histopathology results were consistent with, but not definitive of, acute phalaris toxicosis. Liver failure and urea toxicity were ruled out as causes of elevated ammonia.

For further information contact Lucienne Downs, District Veterinarian, Central Tablelands Local Land Services, Orange, on (02) 6363 7883.

Anthrax detected in the Western Division

In October 2019 Western Local Land services responded to a call from a producer reporting sudden losses in a ram flock. The Merino rams had been on agistment in a 5000 acre paddock for the past 6 months, with no supplementary feeding. The paddock was watered by multiple troughs filled by a bore and a dam. The piping for these tanks had been dug up and replaced in the last 12 months. The public road through the property had also been recently graded. The flock was mustered and 37 were confirmed dead with 13 animals unaccounted for.

The local district veterinarian attended the property for investigation. On examination of the flock, the rams were in an average body condition score of 2.5/5. Two additional animals had died overnight with a third in lateral recumbency and minimally responsive. Examination of the recumbent animal revealed small twitching-like seizure activity and a rectal temperature of 39.5 degrees Celsius. Blood samples were collected from this animal. Closer examination of the two deceased animals revealed rapid decomposition despite being checked and confirmed alive late the previous evening. Of these deceased animals, foamy blood was noted coming from the mouth of one animal with blood from the eyes and nose of the other. Anthrax immunochromatographic tests (ICT) were performed on samples from both these animals with one returning a strong positive and the other a weak positive result. Numerous carcasses (7+) were identified around the dam, with samples collected for ICT and laboratory diagnostics. One test was positive and the other negative, for unknown reasons.

No animals had been moved onto or off the property in the last 21 days. Total numbers of stock on the property included the affected mob of 102 rams, a mob of 650 merino ewes, two mobs of approximately 600 Dorper ewes currently lambing and approximately 20 cattle. All other mobs appeared unaffected. A biosecurity direction was issued based on positive anthrax ICT results that anthrax was likely to be present. No animals were moved on or off the property and all carcasses were burnt to ash in-situ as soon as possible. The landholders were advised to seek medical attention due to possible exposure to carcases without appropriate personal protective equipment.

Vaccination of all susceptible stock present on the property was to be undertaken as soon as practicable. Many of the lambs present on the property were under 2 weeks of age which meant they would not be protected under the vaccine recommendations. A plan was developed with the landholders to vaccinate only the currently marked lambs and ewes, and to vaccinate unmarked lambs during marking.

Anthrax was confirmed by polymerase chain reaction and culture at Elizabeth Macarthur Agricultural Institute. The total stock loss on this property was 55 animals, which were all treated as suspect anthrax and all carcasses located and burnt. Neighbouring properties were all notified of the anthrax detection, encouraged to vaccinate and provided with information. During discussion with neighbouring properties anecdotal reports arose of similar death events and widespread anthrax vaccine use on one of the larger neighbouring properties dating back to the 1970's – 80s.

For further information contact Trent McCarthy,District Veterinarian, Western Local Land Services , Buronga, on (03) 5021 9403.

Figure 1: Sheep mustered on the affected property. Photo by T. McCarthy.

Figure 2: Rapid decomposition. Photo by T. McCarthy.

Figure 3: Blood coming from nose and eyes of one of the affected rams. Photo by T.McCarthy.

Bloat in calves

Frothy bloat was diagnosed as the cause of death in four young calves near Forbes, central New South Wales. They were part of a mob of 115 cows, a portion with calves at foot, and confined to an 80 acre paddock on the property. The mob was fed a ration of 75% barley, 25% commercial cattle pellets in commercial feeders, delivering 1 tonne every 2 days, with ad lib barley stubble in hay rings. There was negligible feed in the paddock. Bore water was pumped into a poly trough, and there was a large dam still carrying water. The calves born had not yet been marked or vaccinated.

The calves had all died suddenly within the last week, were the bigger calves of the group and estimated to be 3 months of age. The producer had found the fourth calf at the point of death, and was concerned as he noticed a small amount of blood discharging from one eye. There was no history of anthrax recorded on the property, however the disease was known to occur in the local area.

A property visit was conducted. The carcase appeared freshly deceased as the owner had described, and was notably distended. Blood had oozed from the eye and anus, but was dried and clotted. An anthrax immunochromatographic test (ICT) test kit yielded a negative result, so a post mortem was conducted.

Subcutaneous emphysema on the uppermost side was present, and there was significant anterior congestion of the carcase, with dark blood oozing and pooling from severed tissues including and cranial to the thorax. The rumen was large and gas filled, with a tear apparent on the medial surface likely to have occurred at or soon after death, as there was minimal leakage of gut content. The rumen was well developed and contained a large amount of lush green ingesta, consistent with lucerne, with evidence of frothy bubbles in a stable foam. The liver was slightly pale, tan in colour, and with subtle rib imprints. The trachea

Figure 1: Large, gas filled rumen with tear on medial surface found on postmortem. Photo by N.Cronin.

mucosal surface was slightly reddened and scattered with diffuse petechiae. Although there was no distinct 'bloat line', there was a slight change in colouration of the oesophagus to indicate congestion of the proximal end.

Laboratory testing on blood smears confirmed the negative anthrax ICT result. Lead levels on fresh liver submitted were not elevated, and the blood sample was negative on the Chlamydia complement fixation test.

A diagnosis of bloat was made on the basis of the post mortem findings, specifically the distended carcase, subcutaneous emphysema, anterior congestion and large gas filled rumen containing evidence of frothy bubbles. The producer had recently noticed the odd calf squeezing through a gap in the fence into a small adjacent paddock of marginal lucerne. Two weeks prior there had been a minor rain event with 13mm rainfall recorded, which had 'slightly' freshened up the lucerne stand. This appeared to allow enough growth to cause a problem for these calves, and after repairing the fence the losses stopped.

For further information contact Nik Cronin, District Veterinarian, Central West Local Land Services, Forbes, on (02) 6850 1600.

Transmissible spongiform encephalopathy (TSE) excluded in case of Sarcosporidiosis in merino hoggets

In early December 2019 a producer on the Northern Tablelands initially reported clinical signs of weakness and collapse when handled, in approximately 5-10% of 2300 merino hoggets. Affected mobs appeared normal from a distance however, once forced to walk around some animals at the tail of the mob would show signs of ataxia and weakness, then stumble and fall. These sheep struggled to stand immediately following collapse, however, would later recover without treatment.

The hoggets had been fed in confinement for an extended period of time due to drought conditions and the wether portion had experienced ongoing urolithiasis issues. All sheep were fed a ration of 60% barley, 40% dried distillers grain pellets with adlib access to barley straw. They were supplemented with lime and salt throughout the feeding period and also had added ammonium chloride. All animals received a 5-in-1 clostridial vaccination and a dose of vitamins ADE approximately two months before the onset of signs.

Affected individuals remained alert with normal mentation, mildly increased heart and respiratory rates with temperatures up to 40.8°C. All affected hoggets displayed ataxia, a fine muscle tremor and reduced strength. Post-mortem examinations were performed on five affected sheep, with the only gross pathological findings being occasional small areas of consolidation in the lung and one animal with significant suppurative pneumonia. A full range of samples was collected and submitted to Elizabeth Macarthur Agricultural Institute (EMAI) for diagnostics and the exclusion of Transmissible Spongiform Encephalopathy (TSE).

Serum biochemistry showed moderate increases in GLDH, AST and CK with no evidence of either hypocalcaemia or hypomagnesaemia which were considered differential diagnoses at the time. Histological examination found no lesions suggestive of TSE's at the brain sites specified in the 'Australia and New Zealand Standard Diagnostic Protocols for Animal Diseases'. Histological findings indicated significant, widespread protozoal infection. These findings included multifocal, lymphoplasmacytic encephalitis, myositis and myocarditis with intralesional protozoal cysts. PCR was used for protozoal speciation, identifying *Sarcocystis tenella* as the causative organism.

Infection of sheep with *sarcocystis* sp. is relatively common in southern Australia, however, it is typically considered to cause few animal health or production issues. This outbreak was an unusual presentation of sarcosporidiosis, particularly in Australia where such events are rarely described. It is likely that the clinical signs observed were from a combination of damage to both the nervous and muscular systems.

For further information contact Amanda Walker, District Veterinarian, Northern Tablelands Local Land Services, Armidale, on (02) 6770 2026.

Trueperella pyogenses

The District Veterinarian, Murray Local Land Services, was called to a property to investigate sheep with swollen, scabby faces. The mob of around 1700 ewes had been running in a 'bush paddock' in rangeland country for around a month. The sheep had been fed barley and faba beans for over 18 months due to drought. The paddock they were in included Dillon bush, trefoil burr, ryegrass, poverty bush and a small amount of saltbush. The owner reported that some of the sheep had been noticed sticking their heads into the bushes to chase the green pick.

There were approximately 6 sheep noticed to be showing symptoms. Severity ranged from mildly affected, having only a swollen top lip, to severely affected with swollen faces and multiple scabs. Affected sheep were noticeably thinner than those unaffected, most likely due to the impact on their ability to feed.

The mob was yarded for shearing and all affected sheep were put aside for examination. The sheep examined were found to be running a temperature (>40°C). Lesions were confined to the face and did not extend to the ears or eyes. The skin around the cheeks, nose and lips showed multiple small crusted scabs. Beneath the skin multiple swellings, differing in size and firmness were palpable. Needle aspiration of the lumps failed to retrieve any visible content. However a few lumps had ruptured and were oozing a sticky, waxy pus, the viscosity approximately equivalent to cream cheese. Material was collected in a sterile container as well as PBSG for laboratory testing.

Testing came back negative for Foot and Mouth Disease, Vesicular Stomatitis virus and Orf virus.

Culture of samples showed *Trueperella pyogenes*. *Trueperella pyogenes* has previously been known as *Arcanobacterium pyogenes, Actinomyces pyogenes* and *Corynebacterium pyogenes*.

Trueperella pyogenes is a normally found on the skin and mucous membranes of sheep. It can however act as an opportunistic pathogen and is known to cause abscesses, mastitis, metritis and pneumonia in stock.

Figure 1: Swollen and scabby face of an affected sheep. Photo supplied by producer.

In this case it was thought that the muzzle might have become scratched by bushes as the sheep were chasing a green pick. This scratch could have allowed entry of the bacteria, causing the infection.

Similar lesions have since also been reported on a different property in the district.

For further information contact Linda Searle, District Veterinarian, Murray Local Land Services, Deniliquin, on (03) 5881 9919.

Importation protocol surveillance on track to demonstrate freedom from Pacific Oyster Mortality Syndrome

Oyster production in NSW is dominated by cultivation of the native Sydney Rock Oyster (*Saccostrea glomerata*), valued at $53.6M in 2018-2019[1]. However, there is also production of Pacific Oyster (*Crassostrea gigas*) as a diversification option, valued at $1.1M in 2018-2019[1]. Pacific Oysters are susceptible to Pacific Oyster Mortality Syndrome (POMS) caused by Ostreid Herpes Virus microvariant-1 (OsHV-1 µvar), which can cause acute mortality during the warmer months of the year. In NSW OsHV-1 has been detected in Georges River, Parramatta River, Hawkesbury River and Brisbane Waters but is not known to be present in NSW South Coast estuaries. Viral replication and clinical disease in POMS affected NSW oyster estuaries requires sustained water temperatures above 21°C[2] and juvenile three to six month old stock are most susceptible to infection.

The NSW industry has a strong preference to source juvenile Pacific Oysters (spat) produced in Tasmanian hatcheries. In 2016 POMS was detected in Tasmania necessitating a prohibition of imports into POMS free estuaries in NSW, resulting in significant business impacts for some producers. As part of the recovery from POMS, Tasmanian hatcheries implemented biosecurity measures to enable them to function as disease free compartments in areas otherwise endemic for POMS. In 2018 NSW DPI permitted importation of Pacific Oyster spat from a Tasmanian hatchery to the Clyde and Shoalhaven rivers under a translocation protocol, to help address a shortfall in available spat in those estuaries. A condition of this translocation approval was for estuaries receiving associated spat to be subject to temporary outward movement restrictions for all cultivated oyster species and oyster cultivation equipment. This measure is to minimise risk of potential translocation of POMS and to allow proof-of-freedom surveillance to be completed, to verify the efficacy of the translocation protocol.

On 2 and 3 March 2020, NSW DPI worked with oyster growers in these estuaries to undertake the first phase of a two-year targeted proof-of-freedom surveillance program. Water quality data[3] from real-time sensors deployed in each estuary as part of the 2017-2020 Food Agility CRC project was monitored to ensure sustained water temperatures of 21°C had been reached before sampling (*Figures 1 and 2*). 180 oysters from the most recently imported batch were collected from each estuary (to ensure 160 suitable samples could be analysed to

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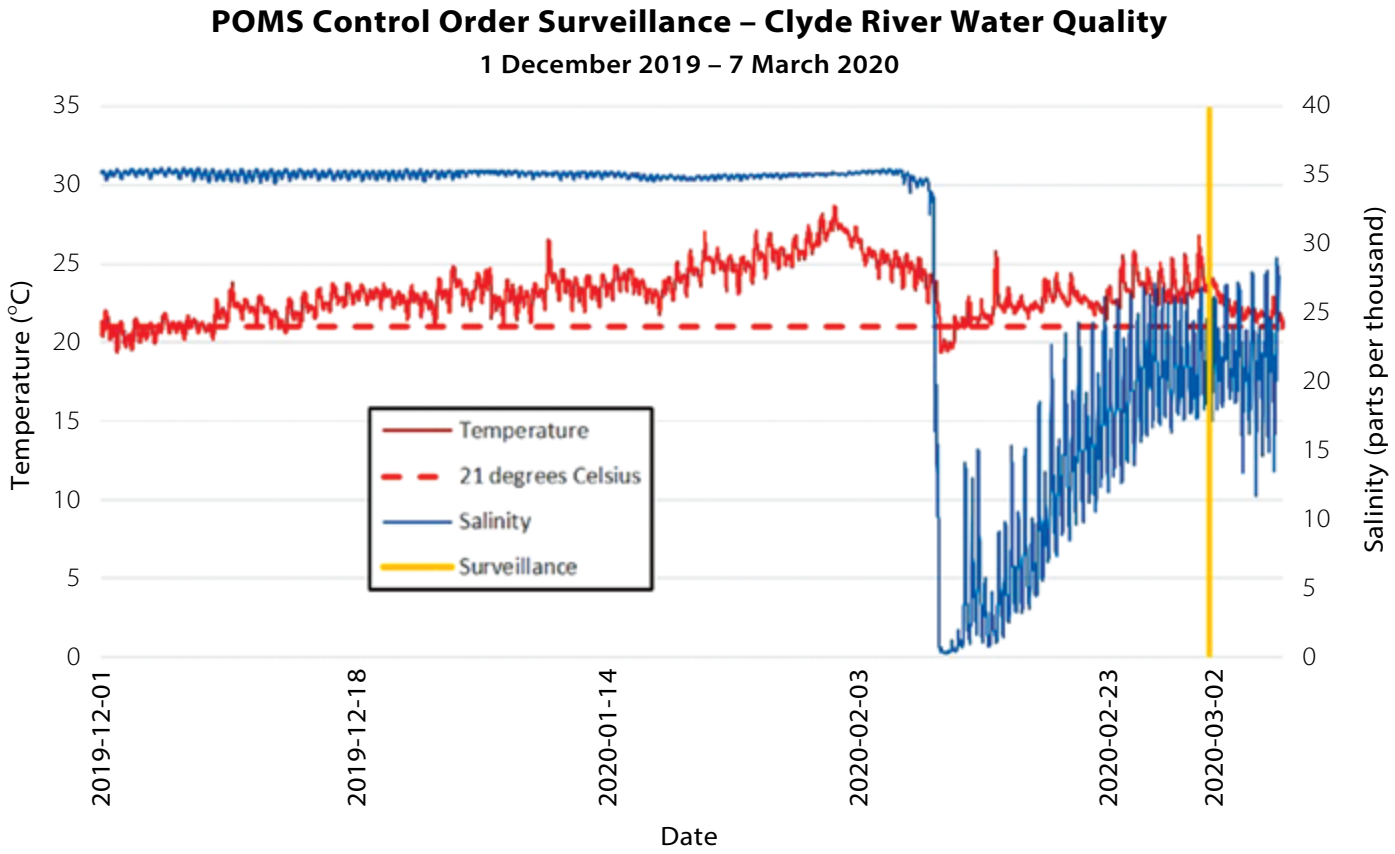

Figure 1: Water quality in the Clyde River. Image by B. Rampano & J.Go.

1 NSW Department of Primary Industries Aquaculture Production Report 2018-2019

2 de Kantzow et al 2016

3 Data source: Oyster industry transformation - Building sustainability and profitability in the Australian Oyster Industry

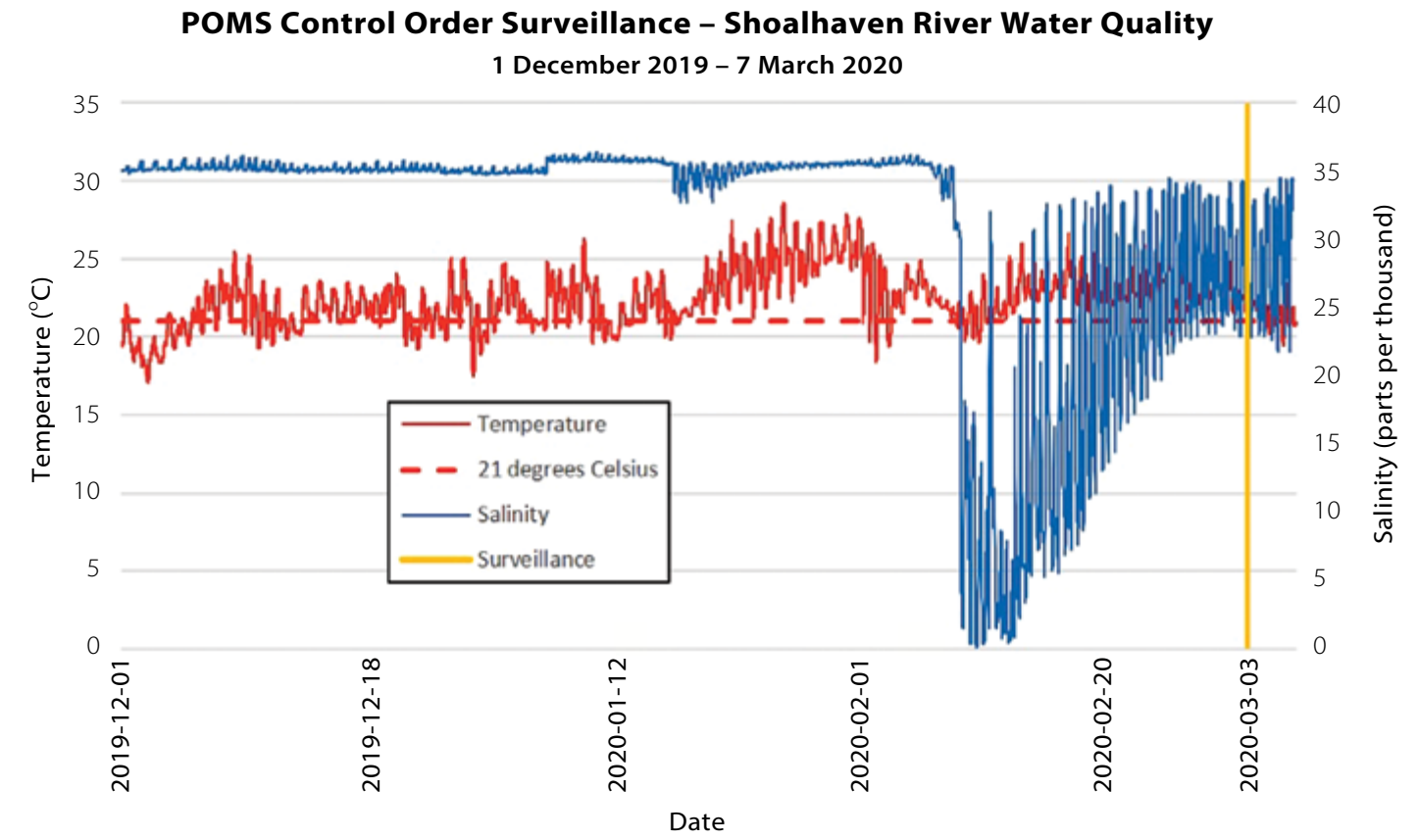

Figure 2: Water quality in the Shoalhaven River. Image by B. Rampano & J.Go.

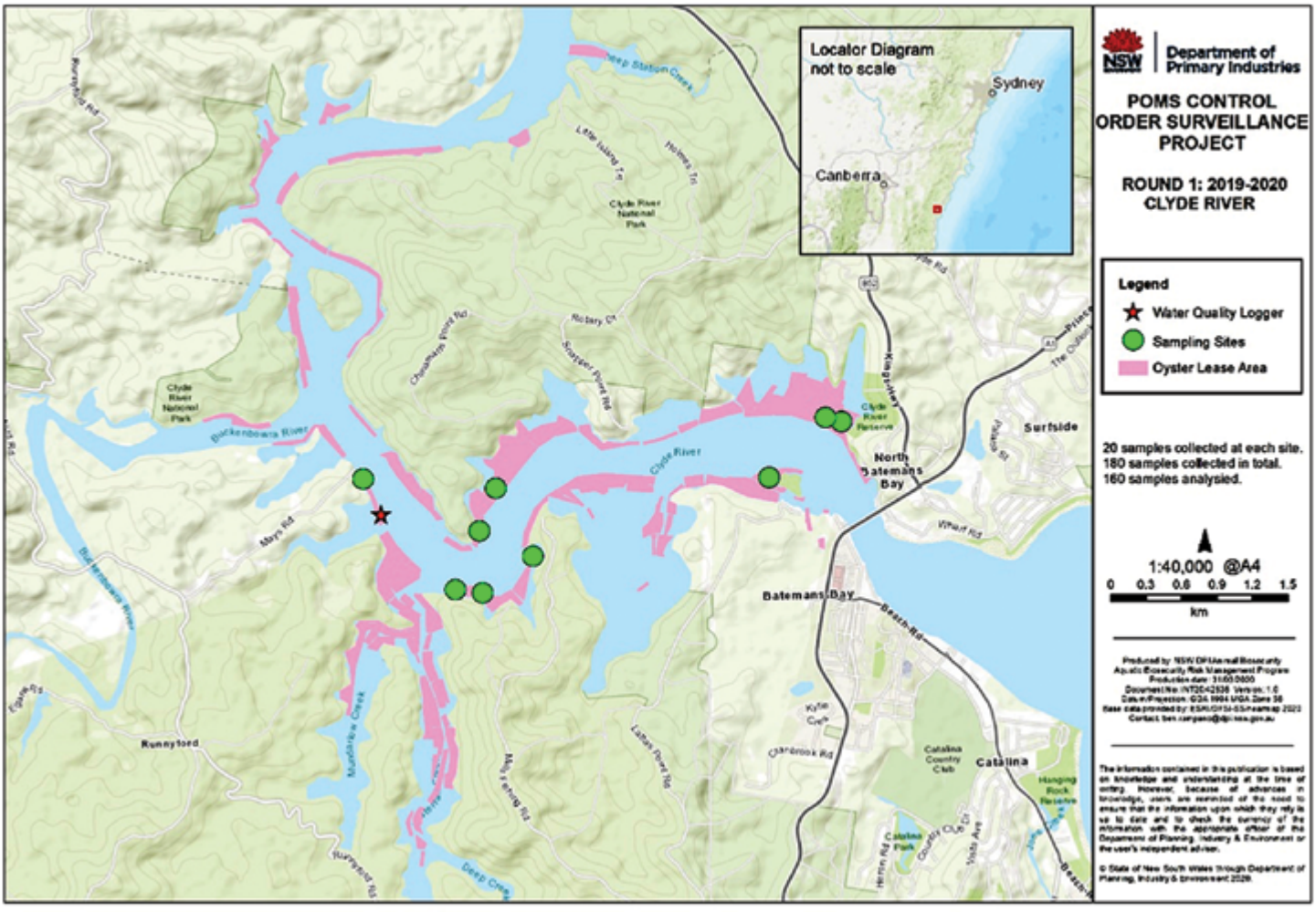

Figure 3: Sample sites for the Clyde River. Image by B. Rampano & J. Go.

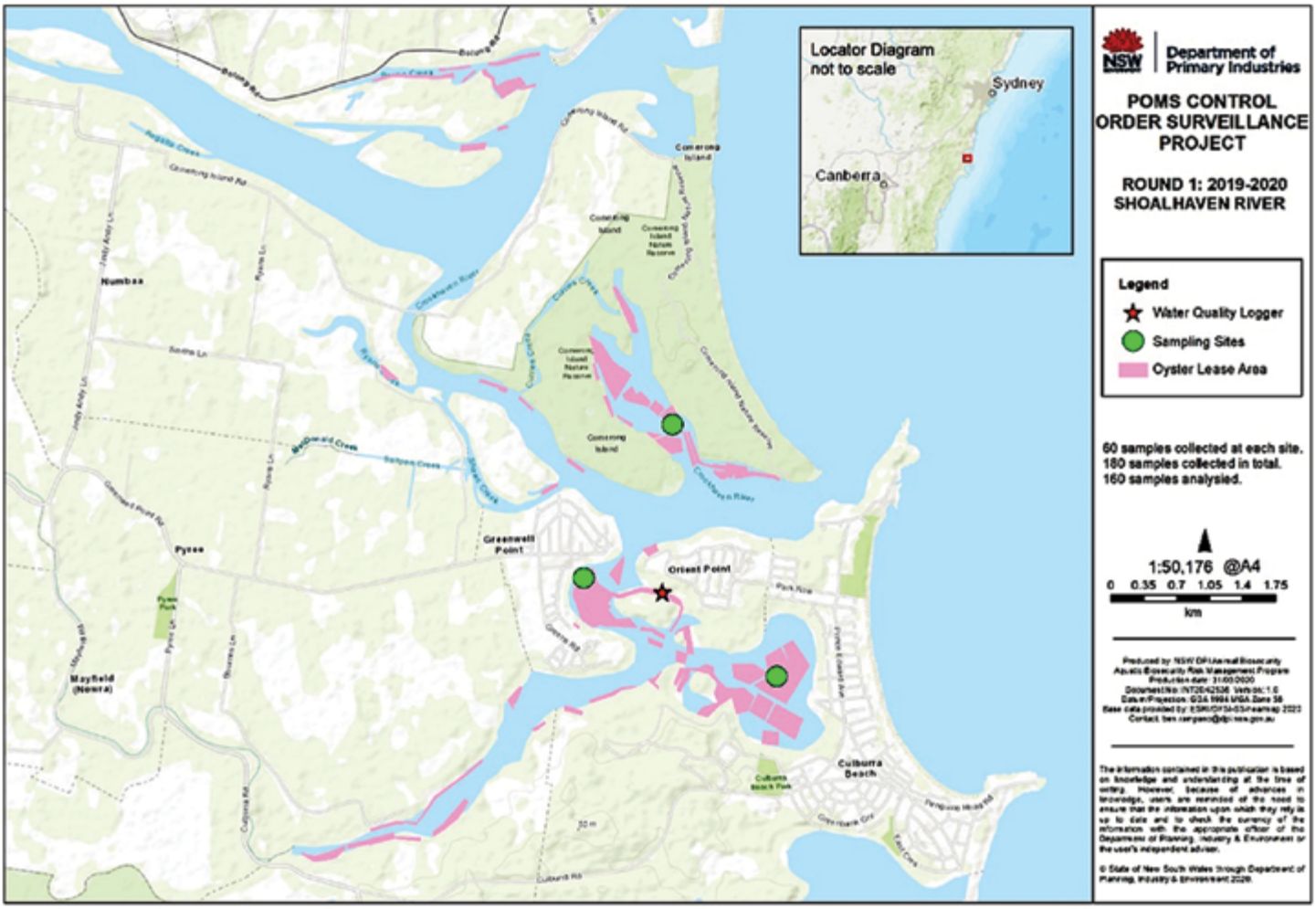

Figure 4: Sample sites for the Shoalhaven River. Image by B. Rampano & J.Go.

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provide 95% confidence of detecting OsHV-1 µvar at 2% prevalence each batch). Oysters were sampled from nine sites in the Clyde River (*Figure 3*) and three sites in the Shoalhaven River (*Figure 4*). Samples were tested by real time polymerase chain reaction[4] and there was no evidence of OsHV-1 µvar in any of the samples tested.

A final round of surveillance is expected this coming 2020-2021 summer season, providing three seasons in which OsHV-1 µvar levels may have been increased should it have been introduced since implementation of the protocol. Results will inform consideration of removing the temporary movement restrictions.

For further information contact Ben Rampano, Aquatic Biosecurity Policy & Project Officer, NSW DPI Aquatic Biosecurity, Nelson Bay, on ((02) 4916 3907 or Jeffrey Go, Senior Veterinary Aquatic Policy & Project Officer, NSW DPI Aquatic Biosecurity, Narellan, on (02) 4640 6310.

4 Analysis completed at the NSW DPI Elizabeth Macarthur Agricultural Institute Virology Laboratory

Getting information on animal diseases

This surveillance report can convey only a very limited amount of information about the occurrence and distribution of livestock diseases in New South Wales.

For statewide information, contact the Department of Primary Industries Biosecurity and Food Safety unit on 1800 684 244.

If you would like more specific information about diseases occurring in your part of the state, contact your Local Land Services District Veterinarian or the Department of Primary Industries Senior Veterinary Officer for your region, or go to: *www.lls.nsw.gov.au*

For more information on national disease status, check the National Animal Health Information System (NAHIS) via the internet at: *www.animalhealthaustralia.com.au*

This is a report under the Animal Disease Surveillance Operational Plan, Project 8, 'Reporting for Animal Disease Status in NSW'.

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Copies of NSW Animal Health Surveillance reports are available on the internet at:

www.dpi.nsw.gov.au/about-us/publications/animal-health-surveillance

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Information contributed by staff of NSW Department of Primary Industries and Local Land Service

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