

NEW SOUTH WALES ANIMAL HEALTH SURVEILLANCE

Information contributed by staff of the Livestock Health and Pest Authorities and the Department of Primary Industries

Surveillance in the field

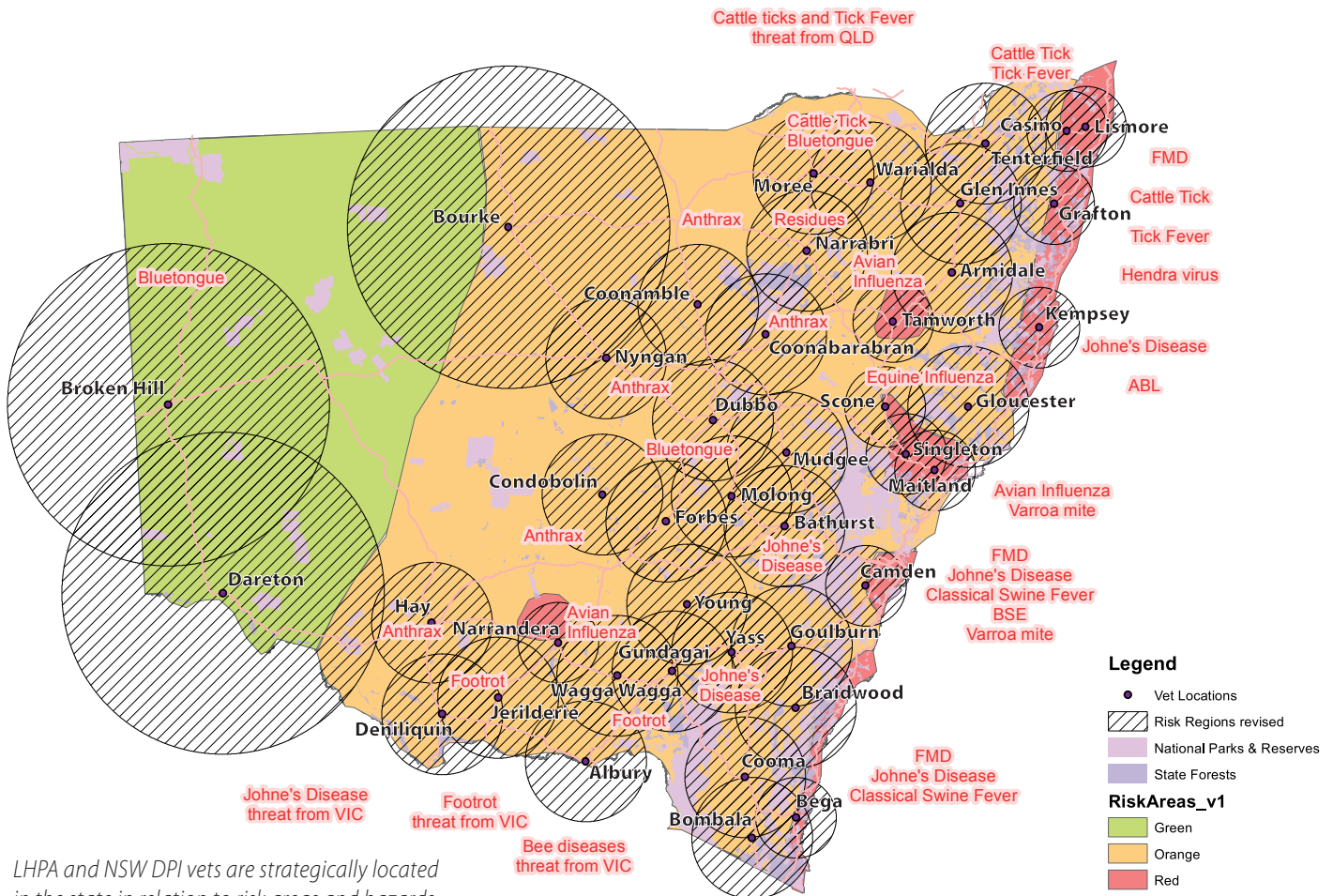
During the last quarter, more than 420 field veterinary investigations were conducted by official vets employed in the NSW animal health system. The investigations were related to sudden deaths or high sickness rates—mainly in sheep and cattle—due to what may have been notifiable diseases. These vets also had about 540 other contacts

with producers and private vets via phone or email, as well as via the examination of diagnostic veterinary laboratory reports. The map below explains why our state's government vets are located where they are.

**For further information contact
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Biosecurity Surveillance and
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LHPA and NSW DPI vets are strategically located in the state in relation to risk areas and hazards.

Oyster mortalities in Port Stephens

NSW Department of Primary Industries (NSW DPI) investigated reports of mortalities in oysters in Port Stephens during the quarter.

The mortalities have been reported predominantly in Pacific oysters (diploid and triploid, all ages, hatchery and wild-caught) and (to a much lesser extent) in Sydney rock oysters.

Losses have been very high and uniform over multiple leases in some areas of Port Stephens, but patchy in others. Sydney rock oysters on, or immediately next to, affected Pacific oyster leases are usually unaffected.

NSW DPI's laboratory at the Elizabeth Macarthur Agricultural Institute (EMAI) has received 18 submissions. Tests have included histopathology, PCR (polymerase chain reaction) tests, bacteriology and electron microscopy.

The laboratory findings from all tests to date show no evidence of disease consistent with a known infectious agent; the problem is therefore likely to be environmental.

The major laboratory findings, in summary, are:

- All samples submitted tested negative at the Australian Animal Health Laboratory (AAHL) at Geelong and at EMAI for the virus that causes Pacific oyster mortality syndrome. They also tested negative at AAHL for other exotic infectious agents.
- Histopathology showed a diffuse inflammation affecting many tissues, with or without ulceration affecting the gut or external surfaces.
- The general observation was that the oysters were in good condition before death.
- NSW DPI's analysis of water quality and algal monitoring data for the period when the deaths occurred showed that although the conditions might have been stressful at times (including high air temperatures and reduced salinity), no single environmental factor explained the losses observed.

A NSW DPI internal expert panel is continuing to monitor and investigate the situation and is collaborating with external experts as required.

**For further information contact
Melissa Walker, Strategy Leader
Aquatic Biosecurity, NSW DPI,
on (02) 4916 3911.**



*The larger Pacific oysters (top) have been affected by the deaths, but not Sydney rock oysters (bottom).
Photo NSW DPI Image Library*

Encephalomyocarditis in pigs: FMD excluded

A piggery on the North Coast reported the sudden deaths of thirteen 12-week old pigs in a group of 60. The weaner pigs were being reared in 'all-in all-out' pens. All the deaths had been in one pen and within 36 hours. The pigs had been in this pen for 2 to 3 weeks.

The remaining live pigs in the pen were examined. Mild lameness was observed in two of them, but otherwise they appeared well. There were rodent faeces around the edge of the pen.

Post mortems on three of the pigs revealed that all of them had multifocal white lesions 2 to 15 millimetres in diameter in their hearts. There were no vesicular (blister-like) lesions in the mouth or on the feet. The tonsils looked normal, and there were no petechial (tiny) or large haemorrhages.

From the history and the post mortem findings our tentative diagnosis was EMC (porcine encephalomyocarditis),

which is caused by a virus. We submitted samples to the laboratory to confirm the diagnosis and exclude foot-and-mouth disease (FMD) and other conditions.

Histopathology of heart tissues collected from the pigs revealed a severe, extensive eosinophil-rich non-suppurative myocarditis. There was extensive multifocal myocardial mineralisation with patchy minor haemorrhage and necrosis. Encephalomyocarditis virus was isolated from two of the heart samples.

Serum and heart tissue samples were negative for FMD by 3ABC- ELISA testing for FMD antibodies and by a multiplex PCR assay for antigen.

Heart tissues were negative for Bungowannah virus on real-time PCR testing. Glutathione peroxidase assay of a serum sample showed that serum selenium levels were in the normal range; we therefore excluded white muscle disease as the cause of the deaths.

The pigs had probably eaten dead rats that had fallen into the pen. We

advised the owner to implement a more comprehensive rodent control program.

For further information contact Matt Ball, Senior District Veterinarian North Coast LHPA, on (02) 6621 2317.

Strangles notifications in NSW

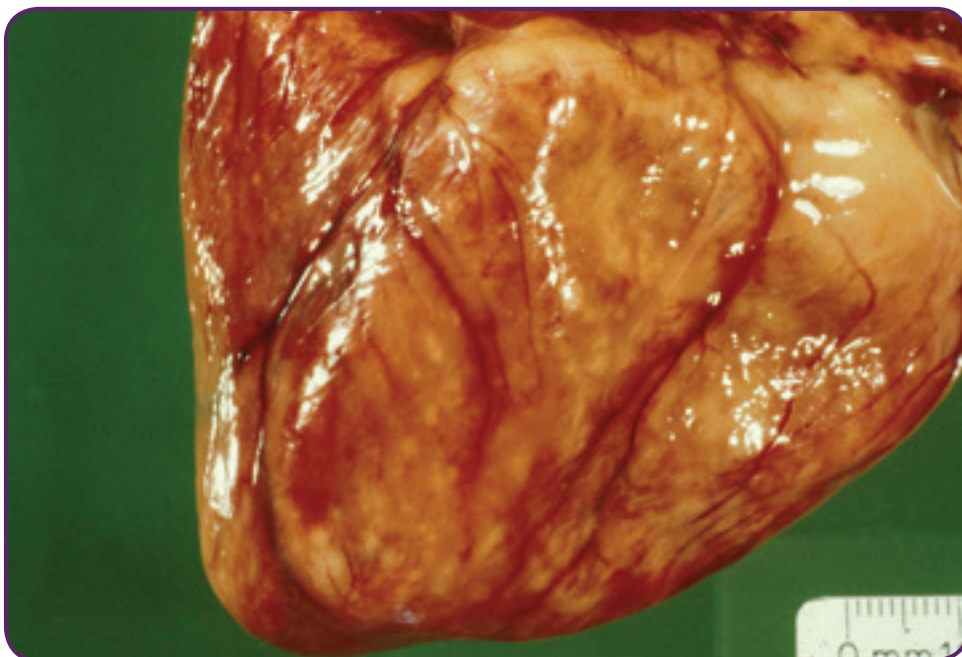
There has been increased media and public interest in the infectious horse disease 'strangles' in NSW over the past quarter. Strangles is notifiable in NSW, but no regulatory action is taken on properties where cases are reported. Records are kept, however, to help produce health certificates for horses that are exported to countries that require certification that strangles is not present.

Consideration is being given to removing strangles from the notifiable diseases list.

Most reported cases follow on from laboratory confirmation after the usual clinical signs of fever, purulent nasal discharge, swelling and abscesses of the lymph nodes around the neck have been detected.

A number of vets have reported cases of 'bastard strangles' this year. In these cases the *Streptococcus* bacteria that cause the disease localise in lymph nodes other than those in the neck, particularly in the abdomen and chest. These cases are often fatal and can follow apparent recovery from the initial signs.

Good biosecurity is vital to stop strangles spreading within and between farms. Horses with obvious or suspected disease should be kept in isolation from other horses. They should be handled and fed last, and handlers should use either disposable clothing or clothing that can be washed and disinfected. Any equipment and feed bins used with the horses should always be washed in disinfectant.



Myocarditis in a pig. Lesions like this were seen in the pig hearts. Photo P Windsor, O.L.I.V.E.R., University of Sydney



Strangles abscess swelling in a retropharyngeal lymph node. Photo D Love, O.L.I.V.E.R., University of Sydney.

Many of the outbreaks reported this year were in unvaccinated horses. Strangles vaccines have been available for many years and are recommended for horses that come in contact with other horses at events or studs. However, immunity is not long lasting and cases sometimes occur in vaccinated horses.

For further information contact Paul Freeman, Senior Veterinary Officer, Wollongbar, on (02) 6626 1214.

Abattoir monitoring of *Cysticercus bovis*

Surveillance for *Cysticercus bovis* will be enhanced following a NSW DPI risk assessment of sewage treatment works supplying treated wastewater to grazing cattle. Eggs of *Taenia saginata*, the human tapeworm, are transmitted in human faeces entering the sewerage system. They then pass to cattle grazing on land receiving treated wastewater. Carcasses are examined during abattoir inspection and are condemned if *C. bovis* cysts are present. *Cysticercus bovis* cysts (beef measles) develop in the muscles of cattle and are detected during inspection of the heart and head.

Humans contract the parasite by eating infected uncooked meat. *Taenia saginata* can survive in human intestines for 20 years and reaches lengths of 5 to 10 metres. Each day one million eggs can be released in the faeces, posing a threat to grazing cattle if the cattle come into contact with inadequately treated wastewater.

In NSW, cattle are permitted to graze on land where treated wastewater is supplied, provided that the water has been treated adequately to remove helminths (parasitic worms). The effluent is treated at sewage treatment plants by being lagooned for more than 25 days or by being sand filtered. Under NSW Environment Protection Authority guidelines, cattle may graze on land where Grade B stabilised biosolids have been dispersed, provided that withholding periods and soil-incorporation guidelines are strictly followed.

NSW DPI is auditing all of the licensed sewage treatment works in NSW to assess the risk of *C. bovis* transmission on the basis of the levels of treatment the effluent receives. Any property that receives wastewater that has not been



Cysticercus bovis cysts in heart muscle. Photo courtesy Iowa State University

treated adequately to remove helminths will be considered to be at high risk, and a high risk status will be recorded on its PIC (Property Identification Code). Cattle grazing on properties classed as high risk will receive a 'CB' status; when stock from these properties are sent to the abattoir for processing the carcasses will be subject to increased scrutiny.

The prevalence of *C. bovis* infection in Australia is considered low. However, treated wastewater from sewage treatment works, water from leaking septic tanks or supplementary feed contaminated with *T. saginata* eggs are all considered potential sources of infection. Minimal risk inspection procedures will apply to cattle grazing on low-risk land, i.e. land receiving wastewater that has been treated adequately to remove helminths. This will eliminate the need to inspect the chewing muscles of these animals, thus saving on time, resources and carcass wastage.

Cysticercus bovis is a notifiable disease under the *Stock Diseases Act 1923*. Suspect lesions detected at the abattoir will be sent for histopathological examination and PCR testing. Once NSW DPI is notified

that *C. bovis* has been detected at the abattoir, a CBMP (*C. bovis* Management Plan) will be developed by the district veterinarian and the property owner.

During NSW DPI's audit of sewage treatment works, risk assessment will be applied to both treated wastewater and biosolids, as both present a potential risk to grazing cattle in contact with them. More thorough inspections of high-risk cattle at abattoirs will ensure that the risk of *C. bovis* entering the food chain is minimised.

For further information contact Graham Bailey, Senior Veterinary Officer, NSW DPI Orange, on 02 6391 3455.

Surveillance for *Lawsonia* in horses

Equine proliferative enteropathy (EPE) occurs mainly in weanling foals aged 4 to 7 months. EPE causes diarrhoea, weight loss, fever, colic and peripheral oedema, but it can be treated with antibiotics. Diagnosis relies on the detection of hypoproteinaemia (low protein levels in the blood), thickening of the intestinal mucosa (detected by ultrasound), and detection of the causative agent,

Lawsonia intracellularis, in the faeces or of *L. intracellularis* antibodies in the serum. Antibody titres in clinically affected horses persist for many months, and the titre is correlated with the disease severity.

Lawsonia intracellularis infection was recently detected in an 18-year-old horse with diarrhoea and significant weight loss. This reminds us that it is not just foals that are affected by EPE. Infection is transmitted mainly by the ingestion of contaminated faeces in feed, water or bedding material; this has been confirmed by experimental infection studies. Frequent mixing of foals and mares may be a risk factor for with EPE. Other external sources of *L. intracellularis* infection may include wild pigs, deer, dogs, rodents and rabbits, all of which may be in contact with weanling horses or mares.

For further information contact Alison Collins, Research Scientist, EMAI Menangle, on (02) 4640 6306.

Bracken fern poisoning in heifers

In May, a mob of 22 heifers on the North Coast began losing weight and salivating excessively, with various degrees of lameness, over a 7-day period. The demeanour of three of the heifers also changed dramatically, and they became listless and lethargic. These heifers also had fever, increased heart and respiratory rates, and enlarged submandibular and pre-femoral lymph nodes. One had pale mucous membranes.

The heifers' diet consisted of copra meal, mineral mix and poor quality native pasture. Recently the heifers had grazed a freshly slashed paddock that contained abundant young shoots of bracken fern. There was also red lantana on the property.

Haematology revealed profound thrombocytopenia (a low blood platelet count), leucopaenia (a low white blood cell count) and mild anaemia in all three heifers. Post mortem revealed extensive internal haemorrhaging, ranging in size from petechiae (tiny blood spots) to very large haemorrhages throughout all tissues. All of the body cavities contained large volumes of fluid consisting of blood mixed with serum.

In this case, eating bracken fern had caused a syndrome known as acute haemorrhagic disease several weeks earlier. The loss of white blood cells was a consequence of bone marrow suppression. The lameness and enlarged lymph nodes were probably due to secondary infection caused by the very low white blood cell count. Bracken fern contains ptaquiloside, which can cause both cancers and acute haemorrhagic syndrome in cattle.

Treatment involved stopping the cattle from getting access to the bracken fern. The owner was advised that the rhizomes are the most toxic part of the plant, closely followed by the new, young, unfurled growth. For this reason, slashing or burning of bracken fern should not be followed by grazing. Pasture improvement incorporating the use of herbicides to reduce infestation levels is also a strategy that could be used to reduce stock exposure to bracken fern.

For further information contact Ainslie Lund, District Veterinarian North Coast LHPA, on (02) 6642 3699.

Surveillance during an emergency disease outbreak: What do you call all the premises?

A common problem in the early phases of an emergency response is allocating a correct status to each premises.

Animal Health Australia, through its Technical Review Group, has issued a guidance document to make this easier. See <http://www.animalhealthaustralia.com.au/programs/emergency-animal-disease-preparedness/ausvetplan/guidance-documents/>.

A particular property (or premises) must fit clearly into only one premises classification at a given time. The classifications and their abbreviations are (in alphabetical order):

- at-risk premises (ARP): used for premises in the RA (Restricted Area)
- dangerous contact premises (DCP)
- dangerous contact processing facility (DCPF)
- infected premises (IP)
- premises of relevance (POR): used for premises in the CA (Control Area)
- resolved premises (RP)
- suspect premises (SP)
- trace premises (TP)
- unknown status premises (UP)
- zero susceptible species premises (ZP).

In addition to these premises definitions, the following 'qualifiers' may be used to describe the outcome of a recent investigation, epidemiological risk assessment or other activity on a premises:

- assessed negative (AN)
- vaccinated (VN).

For example, an at-risk premises that has been determined by the relevant authority as being 'assessed negative' should be recorded as 'ARP-AN'.

Qualifiers cannot be a premises status in themselves (i.e. you cannot call a premises 1 VN to indicate that premises no. 1 has been vaccinated; instead, you may call it, for example, 1 ARP-VN. Qualifiers can be much more flexible and can be modified to fit the disease response; for example, 33 ARP-VN2

indicates that at premises no. 33 two vaccinations were given.

For further information contact Juliet Corish, Manager Strategy and Standards, NSW DPI, on (02) 6391 3239.

Green cestrum (*Cestrum parqui*) poisoning of cattle at Narrabri

Sudden death of about 15 of 80 heifers from green cestrum poisoning occurred in April 2013 at a farm 30 kilometres north-east of Narrabri. The heifers were between 12 and 18 months old and had been transported to Narrabri from Burren Junction about 3 weeks before the incident.

They were grazing a small (about 40 hectares) native pasture paddock with a creek running through it. Feed availability declined steadily after introduction of the heifers owing to a combination of dry conditions and heavy grazing pressure. Deaths were first noticed after 18 days.

The native pasture was mostly grazed out, except for unpalatable species such as wiregrass and Coolatai grass. Heavily grazed green cestrum plants were easily identified along the banks of the dry creek bed by their berries and flowers. They were the obvious cause of death.

Green cestrum was introduced to Australia as a garden plant and is now a naturalised and common weed in south-east Queensland and north-east New South Wales. The plant contains a carboxyatractyloside toxin that causes liver necrosis. Generally, green cestrum is eaten only when other feed is scarce.

Eradication of green cestrum requires ongoing chemical control to remove it from sites such as this one.

For further information contact Libby Guest, District Veterinarian, Narrabri-Walgett North West LHPA, on (02) 6792 2533.



Green cestrum caused major losses in a mob of heifers near Narrabri. Photo NSW DPI Image Library

***Brucella suis* infection in a dog**

A 2.5-year-old desexed pointer/greyhound/bull terrier-cross female dog was admitted to an inner Sydney veterinary clinic with a 2-year history of back pain and neurological deficits in the rear legs. The dog was a family pet that had been re-homed from a Sydney pound at age 6 months and had lived almost exclusively in the eastern suburbs of Sydney. Infection of the spinal vertebrae and their discs was diagnosed, and the dog was transferred to a specialist surgical hospital for treatment. Infective material from the operation site was cultured at the University of Sydney and Westmead hospital, where, highly unusually, *Brucella suis* infection was confirmed.

Dogs—especially those used for hunting pigs—can become infected with *Brucella suis* by exposure to secretions from an infected pig, especially by exposure to birth fluids or by eating infected pig meat. The dog in this case could have been infected by exposure to infected pig material before it was impounded, but more likely it was infected across the placenta before it was born. The initial

infection would have spread via the blood and become localised in a number of sites of the body, including in the intervertebral discs.

All people and dogs in contact with this dog were potentially at risk of infection and were assessed by public health or veterinary officers. They were offered baseline blood testing and preventive treatment.

A total of 30 dogs that had had long-term direct contact with the infected dog at a daily boarding facility were tested. No evidence of infection or exposure to *Brucella suis* was detected.

This case emphasises the importance of biosecurity procedures, including the use of personal protective equipment in all veterinary practices, whether small animal, mixed or large animal. Any procedure that involves direct contact with secretions from an animal, especially if they are in aerosol form, could potentially transfer a zoonotic infection.

For further information contact Diane Ryan, Senior Veterinary Officer NSW DPI, on (02) 4640 6378.

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. If you would like more specific information about diseases occurring in your part of the state, contact your local Livestock Health and Pest Authorities District Veterinarian or Departmental Regional Veterinary Officer.

For statewide information, contact the Department of Primary Industries Animal and Plant Biosecurity Branch in Orange on (02) 6391 3237 or fax (02) 6361 9976.

For more information on national disease status, check the National Animal Health Information System (NAHIS) via the internet at:
<http://www.animalhealthaustralia.com.au/status/nahis.cfm>

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:
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The information contained in this publication is based on knowledge and understanding at the time of writing (August 2013). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up-to-date and to check the currency of the information with the appropriate officer of Department of Primary Industries or the user's independent adviser.

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Department of
Primary Industries



LIVESTOCK HEALTH AND PEST AUTHORITIES

LHPA

Safeguarding Agriculture in NSW