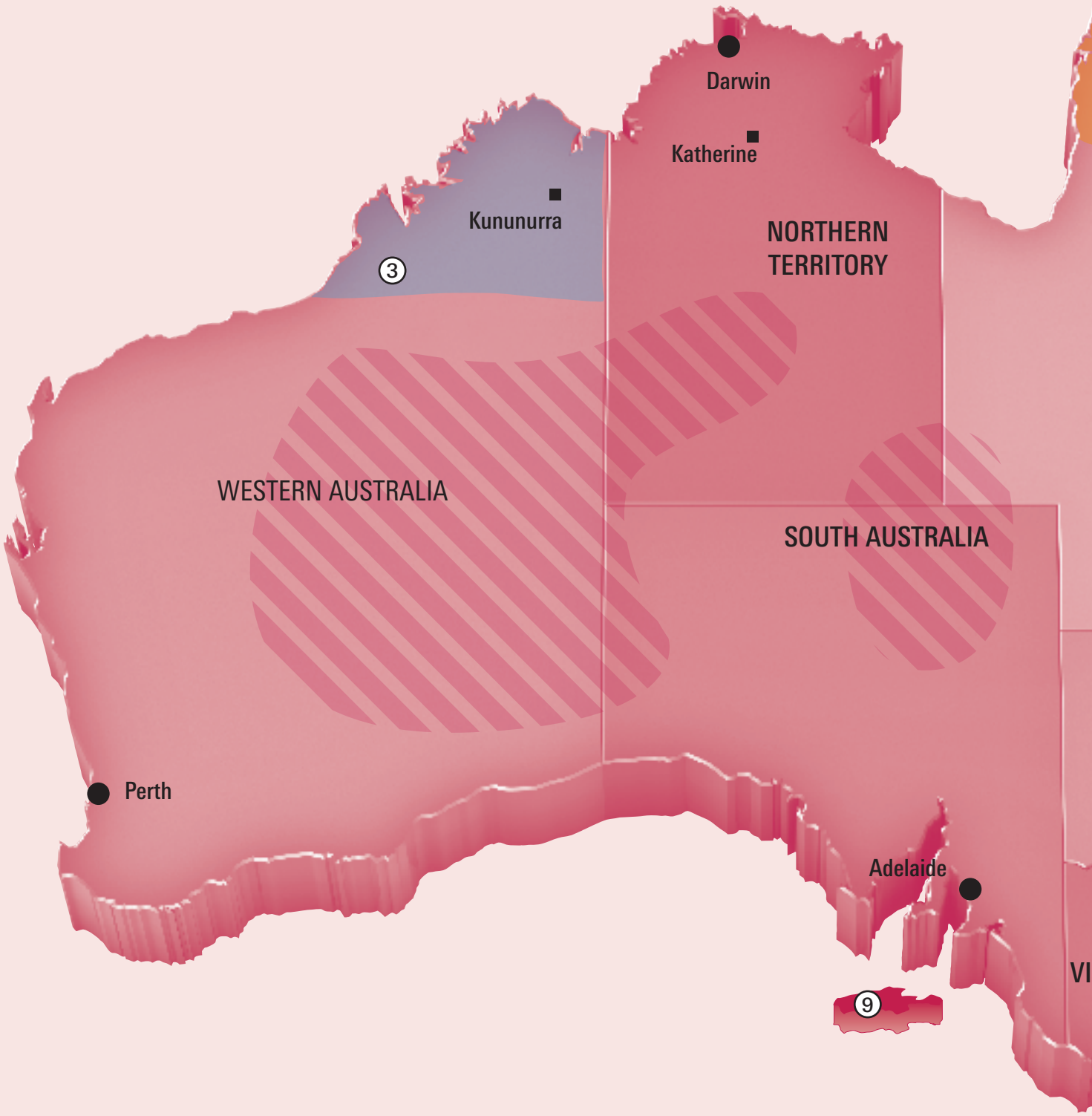


Desert region

1. Torres Strait
2. Cape York
3. Kimberley region
4. Sunshine Coast
5. Hunter Valley region
6. Lachlan district
7. Riverina district
8. Goulburn Valley
9. Kangaroo Island

2

TERRESTRIAL ANIMAL HEALTH

Australia has a long history of freedom from the major epidemic diseases of livestock. The geographical isolation of the continent provides a natural quarantine barrier, which is supported by sound quarantine policies and a history of successful disease eradication campaigns.

The spread of some endemic diseases in animals in Australia is limited by differences in climate and animal production enterprises across the country. Tick fever, for example, occurs only in parts of northern Australia where the climate is suitable for the tick vectors.

Animal diseases are managed by state and territory governments, often with the support of industry accreditation schemes. Chapter 1 describes the coordinating mechanisms that are in place to provide national consistency — for example, the Animal Health Committee. For some endemic diseases (e.g. Johne's disease), government and industry have agreed that a nationally coordinated program is necessary to reduce the risk of disease spread between regions and individual properties.

This chapter provides information about Australia's reporting system for animal diseases, the animal health status for all nationally significant terrestrial animal diseases, and control programs for endemic diseases of national significance in terrestrial animals.

2.1 National notifiable animal diseases

The national list of notifiable animal diseases[22] facilitates disease surveillance and control by ensuring that unusual incidents involving animal mortality or sickness, and diseases of public health significance, are reported. The list is regularly reviewed by the Animal Health Committee, and was under review during 2010. It takes into account key diseases on the list of diseases notifiable to the World Organisation for Animal Health (OIE),[23] and also includes endemic diseases of national significance.

The requirement to report a notifiable disease is contained in individual state and territory legislation. State and territory lists of notifiable diseases contain all the diseases on the national list, as well as others that are specific to a state or territory.

2.2 International reporting

Australia provides the OIE with information about OIE-listed diseases through reports every six months. Information on other diseases of interest to the OIE is reported through annual questionnaires. Tables 2.1 and 2.2 show Australia's status for both these categories in 2010.

Table 2.1 Australia's status for OIE-listed diseases of terrestrial animals, 2010

Disease	Status	Date of last occurrence and notes
Multiple-species diseases		
Anthrax	Present	Limited distribution
Aujeszky's disease	Free	Never occurred
Bluetongue	Viruses present	Restricted to specific northern areas of Australia; sentinel herd program
Brucellosis (*Brucella abortus*)	Free	Australia declared freedom in 1989
Brucellosis (*B. melitensis*)	Free	
Brucellosis (*B. suis*)	Occurred in free-range piggery in 2010	Rare occurrence in domestic pigs; maintained in feral pigs in northern Australia
Crimean Congo haemorrhagic fever	Free	Never occurred
Echinococcosis/hydatidosis	Present	
Epizootic haemorrhagic disease	Virus present	Disease has not been reported
Equine encephalomyelitis (eastern)	Free	Never occurred
Foot-and-mouth disease	Free	1872; officially recognised by the OIE as free without vaccination
Heartwater	Free	Never occurred
Japanese encephalitis	Serological evidence	Detected annually in Torres Strait, and on Cape York in 1998 and 2004
Leptospirosis	Present	
New World screw-worm fly (*Cochliomyia hominivorax*)	Free	Never occurred
Old World screw-worm fly (*Chrysomya bezziana*)	Free	Never occurred

22 www.daff.gov.au/animal-plant-health/pests-diseases-weeds/animal/notifiable

23 www.oie.int/index.php?id=169&L=0&htmfile=chapitre_1.1.2.htm#chapitre_1.1.2

Table 2.1 Australia's status for OIE-listed diseases of terrestrial animals, 2010 *(continued)*		
Disease	**Status**	**Date of last occurrence and notes**
Paratuberculosis	Present	National control/management programs
Q fever	Present	
Rabies	Free	1867
Rift Valley fever	Free	Never occurred
Rinderpest	Free	1923; officially recognised by the OIE as free
Surra (*Trypanosoma evansi*)	Free	Never occurred
Trichinellosis	Not reported	*Trichinella spiralis* not present; *T. pseudospiralis* present in wildlife
Tularaemia	Free	Never occurred
Vesicular stomatitis	Free	Never occurred
West Nile fever	Free	Never occurred
Cattle diseases		
Bovine anaplasmosis	Present	
Bovine babesiosis	Present	
Bovine genital campylobacteriosis	Present	
Bovine spongiform encephalopathy	Free	Never occurred; National Transmissible Spongiform Encephalopathy Freedom Assurance Program includes surveillance; official OIE 'negligible risk' status
Bovine tuberculosis	Free	Australia declared freedom in 1997; last case in any species reported in 2002
Bovine viral diarrhoea	Present	Bovine viral diarrhoea virus (BVDV)-1 — present; BVDV-2 — never occurred
Contagious bovine pleuropneumonia	Free	1967; Australia declared freedom in 1973; officially recognised by the OIE as free
Enzootic bovine leucosis	Present	Licensed dairy cattle herds monitored free of disease; Australia declared provisional freedom of the Australian dairy herd, 2010
Haemorrhagic septicaemia	Free	Never occurred; strains of *Pasteurella multocida* present, but not the 6b or 6e strains that cause haemorrhagic septicaemia
Infectious bovine rhinotracheitis/infectious pustular vulvovaginitis	Present	Bovine herpesvirus (BHV)-1.2b — present; BHV-1.1 and 1.2a — never occurred
Lumpy skin disease	Free	Never occurred
Theileriosis	Free	*Theileria parva* and *T. annulata* not present
Trichomonosis	Present	
Trypanosomosis (tsetse borne)	Free	Never occurred
Sheep and goat diseases		
Caprine arthritis–encephalitis	Present	Voluntary accreditation schemes exist
Contagious agalactia	Not reported	*Mycoplasma agalactiae* has been isolated, but Australian strains do not produce agalactia in sheep

Table 2.1 Australia's status for OIE-listed diseases of terrestrial animals, 2010 *(continued)*

Disease	Status	Date of last occurrence and notes
Contagious caprine pleuropneumonia	Free	Never occurred
Enzootic abortion of ewes (ovine chlamydiosis)	Not reported	Never occurred
Maedi–visna	Free	Never occurred
Nairobi sheep disease	Free	Never occurred
Ovine epididymitis (*Brucella ovis*)	Present	Voluntary accreditation schemes in all states
Peste des petits ruminants	Free	Never occurred
Salmonellosis (*Salmonella* Abortusovis)	Free	Never occurred; *Salmonella* Abortusovis was isolated in 1994 from two children, but surveillance has shown no evidence of infection in sheep
Scrapie	Free	1952
Sheep pox and goat pox	Free	Never occurred
Equine diseases		
African horse sickness	Free	Never occurred
Contagious equine metritis	Free	1980
Dourine	Free	Never occurred
Equine encephalomyelitis (western)	Free	Never occurred
Equine infectious anaemia	Present	Limited distribution/sporadic occurrence
Equine influenza	Free	Australia's first outbreak of equine influenza occurred between 24 August and 25 December 2007; Australia declared freedom according to OIE standards on 25 December 2008
Equine piroplasmosis	Free	1976
Equine rhinopneumonitis	Present	
Equine viral arteritis	Serological evidence	
Glanders	Free	1891
Venezuelan equine encephalomyelitis	Free	Never occurred
Swine diseases		
African swine fever	Free	Never occurred
Classical swine fever	Free	1962
Nipah virus encephalitis	Free	Never occurred
Porcine cysticercosis	Free	Never occurred
Porcine reproductive and respiratory syndrome	Free	Never occurred
Swine vesicular disease	Free	Never occurred
Transmissible gastroenteritis	Free	Never occurred

Table 2.1 Australia's status for OIE-listed diseases of terrestrial animals, 2010 *(continued)*		
Disease	**Status**	**Date of last occurrence and notes**
Avian diseases		
Avian chlamydiosis	Present	
Avian infectious bronchitis	Present	
Avian infectious laryngotracheitis	Present	
Avian mycoplasmosis (*Mycoplasma gallisepticum*)	Present	
Avian mycoplasmosis (*M. synoviae*)	Present	
Duck virus hepatitis	Free	Never occurred
Fowl cholera	Present	
Fowl typhoid	Free	1952
Highly pathogenic avian influenza	Free	1997
Infectious bursal disease (Gumboro disease)	Present	Infectious bursal disease occurs in a mild form; very virulent strains not present
Low pathogenic notifiable avian influenza (poultry)	Free	Not reported in commercial poultry
Marek's disease	Present	
Newcastle disease	Only lentogenic viruses present	Virulent Newcastle disease last occurred in 2002
Pullorum disease	Present	Not in commercial chickens
Turkey rhinotracheitis	Free	Never occurred
Lagomorph diseases		
Myxomatosis	Present	Used as a biological control agent for wild rabbits
Rabbit haemorrhagic disease	Present	Used as a biological control agent for wild rabbits
Bee diseases		
Acarapisosis of honey bees	Free	Never occurred
American foulbrood of honey bees	Present	
European foulbrood of honey bees	Present	
Small hive beetle	Present	Restricted distribution
Tropilaelaps infestation of honey bees	Free	Never occurred
Varroosis of honey bees	Free	*Varroa destructor* has never been reported in Australia
Other diseases		
Camel pox	Free	Never occurred
Leishmaniasis	Novel organism found	A new *Leishmania* species has been isolated from skin lesions in a group of captive red kangaroos; occasionally, cases of leishmaniasis are reported in imported dogs.

OIE = World Organisation for Animal Health

Table 2.2 Australia's status for other diseases of terrestrial animals that are reported to the OIE each year, 2010

Disease	Status	Date of last occurrence and notes
Actinomycosis	Present	
Avian encephalomyelitis	Present	
Avian leucosis	Present	
Avian salmonellosis (excluding fowl typhoid and pullorum disease)	Present	
Avian spirochaetosis	Present	
Blackleg	Present	
Botulism	Present	
Caseous lymphadenitis	Present	
Coccidiosis	Present	
Contagious ophthalmia	Present	
Contagious pustular dermatitis	Present	
Distomatosis (liver fluke)	Present	Restricted distribution
Enterotoxaemia	Present	
Equine coital exanthema	Present	
Filariosis	Present	
Footrot	Present	Restricted distribution
Infectious coryza	Present	
Intestinal *Salmonella* infections	Present	
Listeriosis	Present	
Melioidosis	Present	Restricted distribution
Nosemosis of bees	Present	
Salmonellosis (*Salmonella* Abortusequi)	Free	Never reported
Sheep mange	Free	1896
Strangles	Present	
Swine erysipelas	Present	
Toxoplasmosis	Present	
Ulcerative lymphangitis	Free	Never reported
Vibrionic dysentery	Present	
Warble fly infestation	Free	Never reported
Other clostridial infections	Present	
Other pasteurelloses	Present	

OIE = World Organisation for Animal Health

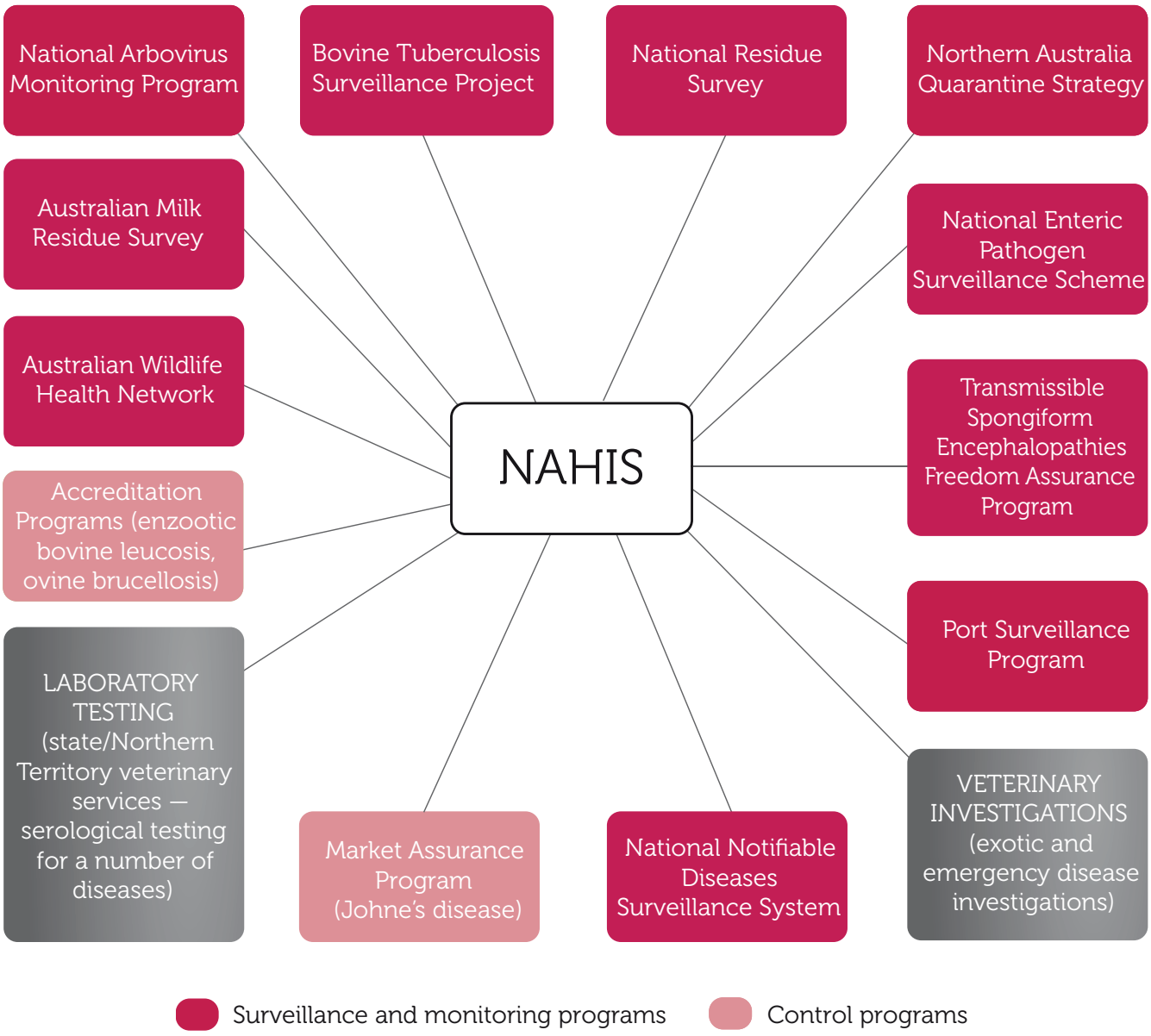


Figure 2.1 Sources of data in the National Animal Health Information System

2.3 National reporting system for animal diseases in Australia

Australia's National Animal Health Information System (NAHIS),[24] redeveloped and launched in January 2006, collates data from a wide range of government and nongovernment surveillance and monitoring programs to provide an overview of animal health in Australia. The information in NAHIS is essential for supporting trade in animal commodities and meeting Australia's international reporting obligations.

Figure 2.1 summarises the sources of data in NAHIS, including surveillance and monitoring programs, control programs, diagnostic laboratories and veterinary investigations.

In 2009, NAHIS was expanded to house data that are accessed by two other surveillance program applications — NAMPInfo (information system for the National Arbovirus Monitoring Program)[25] and EDIS (Endemic Disease Information System).[26] All applications managed by NAHIS use the same underlying database, but maintain separate and distinct web interfaces. NAHIS provides selected summaries of national animal health data and disease information sheets; NAMPInfo provides the official interactive bluetongue virus zone map; and EDIS has a searchable register of herds and flocks in the Australian Johne's disease Market Assurance Program.

NAHIS data are routinely reported, together with case reports of veterinary investigations, in the *Animal Health Surveillance Quarterly* newsletter, and are used by the

24 nahis.animalhealthaustralia.com.au

25 namp.animalhealthaustralia.com.au
26 edis.animalhealthaustralia.com.au

Australian Government in reports to the OIE, the Food and Agriculture Organization of the United Nations and the World Health Organization. Current disease surveillance reports and publications are available on the NAHIS page of the Animal Health Australia website.[27]

2.4 Endemic diseases of national significance

This section describes the status of, and programs for, endemic animal diseases of national significance in 2010.

2.4.1 American foulbrood

American foulbrood (AFB) is a brood disease of honey bees caused by the spore-forming bacterium *Paenibacillus larvae* subsp. *larvae* (formerly *Bacillus larvae*). The disease attacks bee larvae, eventually killing the affected hive. It is particularly difficult to treat because the bacteria form spores that are resistant to heat, drying and chemicals. The recommended treatment for AFB-infected hives is to depopulate the hives; burn or bury the dead bees; then burn, bury or irradiate the hive material.

AFB is nationally notifiable and subject to control programs in several states. It is endemic in New South Wales, Queensland, South Australia (except for Kangaroo Island, which remains free), Tasmania, Victoria and Western Australia. It has not been reported in the Northern Territory.

New South Wales

In New South Wales, from November 2009 to November 2010, 45 beekeepers (1.6% of those registered) had an officially recorded outbreak of AFB. (Some individual beekeepers may have had more than one reported outbreak.) These figures are almost the same as for the previous year. Fifteen of the 45 beekeepers had no previous recorded history of the disease. In the same period, 718 beehives were officially recorded as being infected (about half as many as in the previous year).

Queensland

During 2010, some areas of Queensland, including the Sunshine Coast, experienced an increase in AFB outbreaks. Sterilisation, control and management techniques are covered in monthly information sessions for beekeepers in various locations by Biosecurity Queensland apiary staff.

South Australia

AFB is present to varying degrees throughout South Australia, except for Kangaroo Island, which remains free from the disease. Detection of AFB is achieved predominantly through a combination of apiarist reporting, packer testing and active disease surveillance.

In December 2008, the Honeybee Industry Strategic Plan Implementation Committee launched beeSMART AFB, a voluntary program combining best-management practices with quality assurance and subsidised honey testing. The program is designed to assist apiarists to eradicate AFB from their operations, encourage the widespread adoption of best-management practices, reduce the prevalence of AFB throughout the state and enhance existing disease control measures. It is anticipated that industry uptake of the program will significantly reduce the prevalence of AFB.

Tasmania

In Tasmania, there is no government control program for AFB, but the Tasmanian apiary industry has established the Apiary Industry Disease Control Program for voluntarily registered beekeepers. Registration fees provide for the testing of honey samples for AFB. This assists in disease surveillance by encouraging broad participation by both commercial and recreational beekeepers.

The Tasmanian Department of Primary Industries, Parks, Water and Environment offers free inspection of hives and an advisory service to apiarists when positive hives are identified from honey samples. In 2010, 218 honey samples were submitted to the laboratory for testing, and 69 of these tested positive for AFB.

Victoria

The Victorian Department of Primary Industries manages an AFB Smart Program, an initiative to help beekeepers detect AFB early and control the disease. Since 2002, free honey culture tests have been offered to all registered beekeepers.

Western Australia

Beekeepers in Western Australia are required to register their beehives and report occurrences of AFB in their apiaries. Eradication action is also required, and failure to take action can lead to the imposition of quarantine measures and a requirement to follow a management plan. The Department of Agriculture and Food Western Australia provides a diagnostic service that allows beekeepers to monitor the AFB status of their apiaries

27 nahis.animalhealthaustralia.com.au

and allows the department to monitor infected apiaries. These measures support a quality assurance program, B-Qual, which has been adopted by the industry.

The percentage of infected apiaries in 2010 was similar to previous years. This may change as a result of drought conditions, as the number of feral bee populations harbouring the disease may decrease.

2.4.2 Anthrax

Anthrax is on the list of nationally notifiable diseases and is subject to compulsory government controls, including quarantine, disposal of carcases, and vaccination and tracing of at-risk animals and their products. Areas at risk of anthrax occurrence are well defined; they include the northern and north-eastern districts of Victoria and central New South Wales. In these areas, anthrax has a low prevalence and occurs only sporadically (Figure 2.2).

Anthrax has never been recorded in the Northern Territory. In Queensland, the most recent confirmed cases were in 2002 (six animals) and 1993 (one animal). South Australia's last recorded anthrax outbreak was in 1914, and Tasmania's was more than 76 years ago. The last case in Western Australia was an isolated case in 1994.

All suspect cases of anthrax are investigated and controlled according to an agreed jurisdictional program.

Figure 2.2 Areas of Australia where anthrax is known to occur sporadically; lighter colour indicates fewer occurrences

New South Wales

Three confirmed anthrax incidents occurred in New South Wales during 2010, all on properties in the known anthrax areas. Two incidents were on neighbouring properties in the Riverina in January; one of these was a recurrence following a report of anthrax in November 2009 (reported in *Animal Health in Australia 2009*). A total of 24 sheep (out of 1650) died in these two incidents in January. The other incident, also involving sheep, occurred in the central west district in November. It led to losses of 30 sheep (out of 800) and no cattle (out of 18).

All cases were managed according to the state government's anthrax policy. Carcases were burned, properties were placed in quarantine, at-risk stock were vaccinated, and all stock movements were traced. National authorities were notified of all movement and tracing results to manage the risk of product entering the export and domestic markets.

Victoria

A total of 103 laboratory accessions for anthrax exclusion, representing approximately 260 animals, were received by the Victorian Department of Primary Industries' laboratory at Attwood in 2010. Samples were principally from cattle. No cases of anthrax were detected. An 'animal-side' immunochromatographic test (ICT) has been used for the past several years in Victoria as a rapid anthrax-screening field test for investigating sudden, unexplained deaths in ruminant livestock. This test was approved during 2010 by the Subcommittee on Animal Health Laboratory Standards. The ICT kits are now being manufactured at the Department of Primary Industries' Attwood site and are being supplied for use in other states.

2.4.3 Caprine arthritis–encephalitis

Caprine retrovirus causes caprine arthritis–encephalitis (CAE), a multisystemic, inflammatory condition of goats. It is found in most countries in the world, including Australia, and has been reported in all Australian states and territories apart from the Northern Territory. CAE is not included in the list of nationally notifiable diseases in Australia. Although Australia has no regulatory control programs for CAE, there are some voluntary accreditation programs based on serological testing. Animals testing positive are removed from the herd.

In New South Wales, a voluntary control program is available to goat producers and currently includes 10 CAE-accredited herds. Clinical cases of CAE have been reported in seven dairy goat herds. In South Australia, where CAE is present, the Dairy Goat Society of South Australia has a voluntary market assurance scheme.

Queensland has had a voluntary control program for dairy goats since 1987. In December 2010, the program had 47 CAE-accredited herds.

CAE is a notifiable disease in Victoria; one clinical case was reported during 2010.

2.4.4 Cattle tick and tick fever

The cattle tick, *Rhipicephalus microplus* (previously *Boophilus microplus*), was introduced to Australia in the late 19th century. It spread steadily from Darwin over northern Australia, stabilising to its current distribution in northern and north-eastern coastal regions by about 1918. The distribution of cattle tick is determined largely by climatic factors — the tick needs high humidity and ambient temperatures of at least 15–20 °C for egg laying and hatching.

Cattle ticks mainly infest cattle but may occasionally affect horses, sheep, deer and water buffalo. Tick infestations cause damage to hides, decreases in production, anaemia and death. Cattle tick can also transmit tick fever (bovine babesiosis or anaplasmosis), caused by *Babesia bigemina*, *B. bovis* or *Anaplasma marginale*. Babesiosis and anaplasmosis are nationally notifiable diseases in tick-free areas. Acaricide treatment (dipping, pour-on treatments or spraying) has been widely used for tick control in endemic areas. It is compulsory for cattle leaving defined tick areas in the Northern Territory, Queensland and Western Australia, and for cattle from known infested properties in New South Wales. Spread from endemic areas is also restricted by state-managed zoning policies. In addition, many producers in the tick endemic area have changed to *Bos indicus*-type cattle because of the greater resistance of these breeds to tick infestation.

No incursions of cattle ticks or cases of tick fever were reported in South Australia, Tasmania or Victoria during 2010.

New South Wales

Cattle tick generally occurs only in the far north-eastern corner of New South Wales. Industry & Investment NSW maintains a surveillance program at all far north–coast saleyards, where all cattle presented for sale are inspected. Cattle returning to a property from a sale are dipped by inspectors before their dispatch. Regular surveillance is also undertaken at north-coast abattoirs. Infested and at-risk properties are quarantined, and eradication programs and movement controls are implemented.

Since 1997, the average number of new cattle tick infestations each year in New South Wales has been 74 (range 37–110). In the 2010 season, 100 new infestations were detected in New South Wales, all in the far north–coast region.

Tick fever is a sporadic disease in New South Wales, with an average of one occurrence every two years, usually on the far north coast; the most recent outbreak was in March 2008. No cases of tick fever were reported in New South Wales during 2010.

Surveillance cameras at seven sites along the New South Wales – Queensland border monitor livestock movements into New South Wales from the tick-infested area of Queensland. Led and tractable livestock may be treated at the Kirra border crossing before they enter New South Wales from tick-infested areas of Queensland. Other stock originating from tick-infested areas are treated at official clearing facilities on the Queensland tick line before entering New South Wales.

Northern Territory

Three cattle tick areas are gazetted under Northern Territory legislation. The cattle tick occurs only in the northern tropical and subtropical regions; the southern half of the Northern Territory is a cattle tick–free zone. A buffer zone, known as the control zone, separates the infested and free areas. Infested cattle were detected during 2009 on several properties that were previously free from ticks, and an active surveillance program was implemented in the control zone and northern free zone to determine the extent of the spread of ticks. During 2010, surveillance showed no further spread, and regulatory activities were implemented to manage the movement of cattle onto and off these newly infested properties. Two properties from the free area were added to the control zone to broaden the buffer.

Tick fever is not commonly diagnosed in the Northern Territory, although the organisms responsible for babesiosis and anaplasmosis are present. Tick fever is seen mainly in cattle that have had little or no previous exposure to ticks.

Parkhurst-strain ticks, which are resistant to synthetic pyrethroids that are often used as acaricides, are present on several properties in the Darwin region. Resistant ticks were found on further properties during a surveillance activity in 2010, all in the same locality. Movement controls and dipping with a different acaricide are used to reduce the risk of further spread of these ticks.

Queensland

Queensland regulates the movement of stock to control cattle ticks through the declaration of three zones: infected, free and control (Figure 2.3). The control zone is used as a buffer between the free and infected zones in parts of Queensland to minimise the risk of incursions, and owners of stock are encouraged to take measures to eradicate or prevent the spread of cattle tick. Stock moving from an infected zone, or from restricted properties in either of the other zones, may be inspected or treated (or both) before movement.

For movements from the infected zone, Biosecurity Queensland has a system of approved third-party providers (TPPs) for inspecting and supervising treatment of stock at official clearing facilities. The TPPs currently operate at 16 clearing dips and 2 livestock inspection centres (spray stations). Biosecurity Queensland inspectors provide regulatory and advisory services on cattle tick control, eradication and management. They also provide inspection and treatment services for the restricted properties in the free and control zones, and in the 13 clearing facilities that have not progressed to the approved TPP system. Biosecurity Queensland provides laboratory services for the analysis of dip fluids, and for testing and identification of acaricide-resistant strains of cattle ticks.

At the end of June 2010, when the cattle tick season in the state ended, Queensland had 60 infected properties in the free zone and 109 infected properties in the control zone that were under movement restrictions and treatment.

Live vaccines produced by Biosecurity Queensland's Tick Fever Centre are used to control babesiosis and anaplasmosis. During 2010, the centre sold 650 225 doses of trivalent vaccine (95% chilled and 5% frozen). Sales have dropped significantly in the past two years compared with previous years. Vaccine sales are affected by climatic conditions and the viability of the beef industry. Much of Queensland was subject to flooding in 2010, and other areas were affected by dry conditions at various times during the year.

Western Australia

The cattle tick–infested area in Western Australia includes the Kimberley in the north; the southern boundary is generally along the line of 20 degrees south. Cattle moving from the tick-infested area to the tick-free area of the state are inspected and treated for ticks. There are no regulatory control measures for ticks within the tick-infested area, and almost no strategic treatment for ticks or vaccination for tick fever.

The last two detections of cattle tick in the tick-free area occurred in 1979 and 2001, and the cattle ticks were eradicated successfully. There have been no detections of acaricide-resistant ticks in Western Australia.

2.4.5 Enzootic bovine leucosis

Enzootic bovine leucosis (EBL) is a nationally notifiable disease that occurs rarely in Australia.

All states have carried out testing of their dairy herds for many years. In 2008, building on the state-based programs, the Australian Dairy Industry Council and animal health authorities implemented the National EBL Eradication Program.

Provisional freedom from EBL in Australia's dairy herd was recently achieved in 2010. All licensed dairy herds in Australia have been tested, either individually or through herd bulk milk samples, according to the requirements in the Standard Definitions and Rules for Control and Eradication of Enzootic Bovine Leucosis in Dairy Cattle (version 2.0, February 2009).

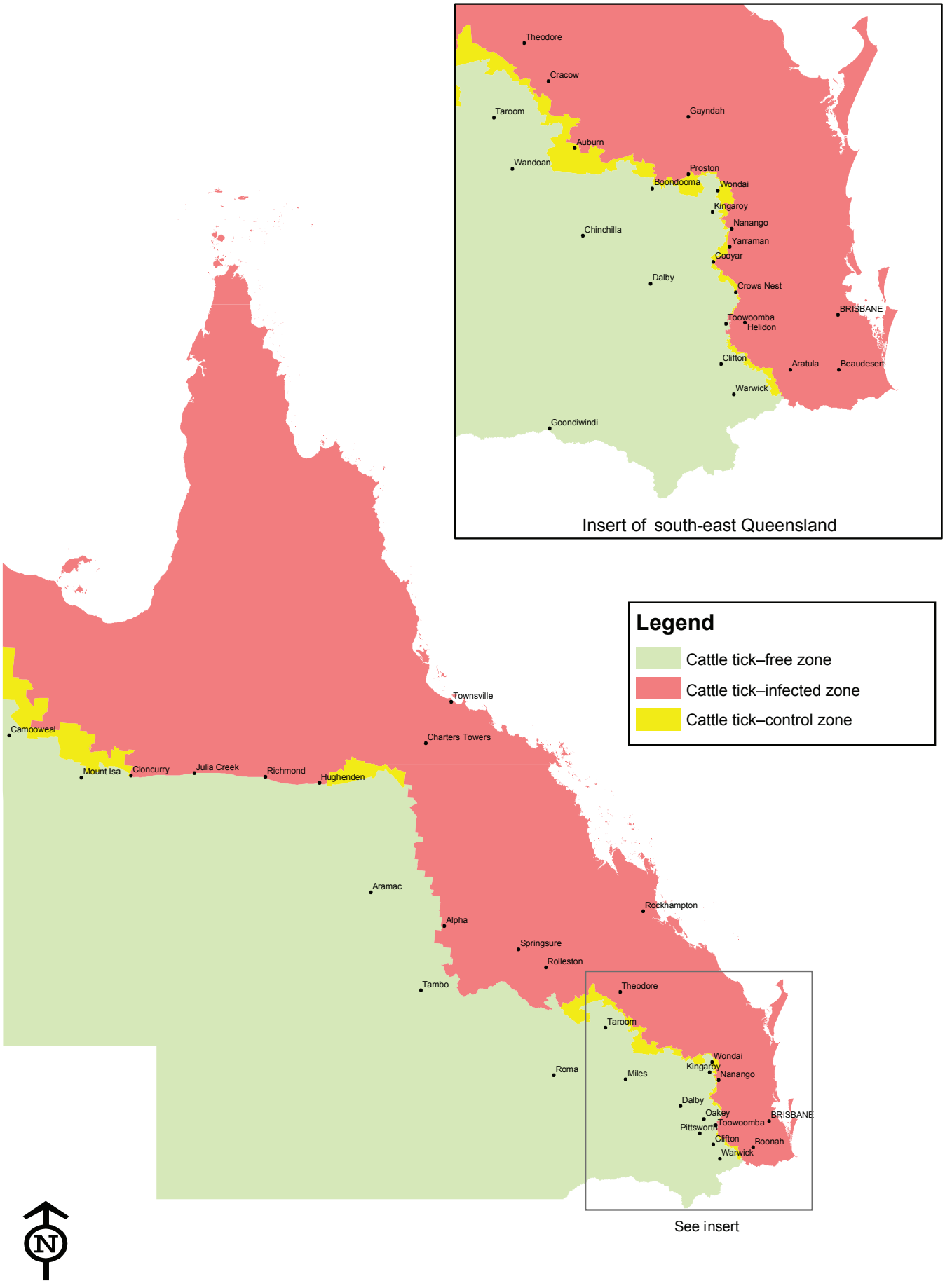
Declaration of unconditional freedom from EBL in the Australian dairy herd is expected in 2013, following a further three years of annual bulk milk testing.

At the end of December 2010, more than 99.8% of dairy herds in Australia had 'monitored free' status for EBL. Maintenance of the status of the Australian dairy herd will require ongoing strict controls on the introduction of beef cattle, as EBL is still present at a very low prevalence in sectors of the Australian beef herd.

2.4.6 Equine herpesvirus 1

Equine herpesvirus 1 (EHV-1) is a respiratory pathogen of horses that occasionally causes abortion and, rarely, neurological disease. The abortigenic and neurological strains are on the list of nationally notifiable diseases. EHV-1 abortions are generally sporadic, but outbreaks do occur. EHV-1 neurological disease is an emerging disease of increased prevalence overseas, and new cases have been diagnosed recently in Australia.

Herpesvirus infection can be diagnosed by detection of intranuclear inclusion bodies during examination of tissue samples under a microscope; however, definitive diagnosis of EHV-1 infection, in cases of either abortion or neurological disease, can only be accomplished by detection of the virus by polymerase chain reaction (PCR) or virus isolation. Virus detection and categorisation are essential, as there are nine EHVs. There is also evidence that EHV-1 neurological disease may be associated with a nucleotide substitution in the polymerase gene of the



Source: Primary Industries and Fisheries, Queensland

Figure 2.3 Queensland cattle tick zones as at 7 December 2005

virus. Without virus isolates for DNA (deoxyribonucleic acid) sequence analysis, the prevalence of this mutation in Australian isolates will remain unknown.

During 2010, no cases of EHV-1 abortion or neurological disease were reported in South Australia, Queensland or Western Australia.

New South Wales

Two isolated cases of EHV-1 abortion occurred in New South Wales in August 2010, one at Blandford in the Hunter Valley and one at Googong, near Queanbeyan. Each case involved a single mare. The diagnoses were confirmed by positive PCR on pooled foetal tissue.

Northern Territory

During 2010, EHV-1 was included as a differential diagnosis in four incidents — one abortion investigation, one with neurological signs and two with a syndrome of ill-thrift and weight loss. One sample returned a doubtful positive serological test result, but it was not strong enough to implicate EHV-1 as the cause of the illness. All other results were negative.

Tasmania

In 2010, EHV-1 was confirmed by serological tests and PCR on a breeding property, where eight mares were affected by abortion and/or neurological signs. Clinical signs occurred 30 days after introduced mares were mixed with resident mares. Despite the neurological signs, all virus isolates appeared to be of the non-neuropathogenic type. EHV-1 was excluded from one other case of neurological disease in a foal on a different property.

Victoria

During 2010, three cases of equine abortion suspected to be caused by EHV-1 infection were investigated. The presence of EHV-1 in aborted material collected from one of these cases, in which one mare in a group of 30 had aborted, was confirmed by PCR. The other two investigations were negative for EHV-1.

2.4.7 European foulbrood

European foulbrood (EFB) is a disease of bee larvae caused by the bacterium *Melissococcus* (formerly *Streptococcus*) *pluton*. The disease is usually acquired only by larvae less than 48 hours old, and they generally die at four to five days of age, particularly in early spring when the colonies are growing rapidly. Colonies infected with EFB release a characteristic odour, and infected larvae die and turn brown during the coiled stage, giving a peppered appearance to the brood. Because of the young age at which larvae are affected, cells with diseased larvae are usually unsealed. The disease causes high levels of mortality, and reduces the longevity of queens.

EFB occurs in many regions around the world. It was first reported in Australia in 1977 and is now found in all the eastern mainland states and Tasmania. Western Australia remains free from the disease and maintains stringent control measures to minimise the risk of its introduction. The Northern Territory has a small beekeeping industry that is thought to be free from EFB; disease freedom is supported by isolation from affected states, well-informed beekeepers and health import regulations.

2.4.8 Infectious bovine rhinotracheitis

Infectious bovine rhinotracheitis (IBR) is caused by bovine herpesvirus-1 (BHV-1), which also causes infectious pustular vulvovaginitis, infectious balanoposthitis and several other clinical syndromes. BHV-1 occurs in all cattle-raising countries except for several European countries that have eradicated the virus.

Three subtypes of BHV-1 are recognised worldwide: BHV-1.1, BHV-1.2a and BHV-1.2b. All subtypes may cause IBR, infectious pustular vulvovaginitis or infectious balanoposthitis, but subtypes 1.1 and 1.2a are more virulent than subtype 1.2b. Subtypes 1.1 and 1.2a can cause severe respiratory disease and several other syndromes, including abortion. These subtypes are present in North America, Europe and many other parts of the world.

A large-scale research project involving typing of 120 Australian bovine isolates of BHV-1 demonstrated that Australia is free from the more virulent subtypes (1.1 and 1.2a), and only the benign BHV-1.2b is present. The absence of virulent subtypes and a predominance of pasture-based grazing in Australia means that disease due to IBR is rare. Transmission risks are lower under pasture-based systems than in husbandry situations such as housing of cattle, where cattle are in close contact.

2.4.9 Johne's disease

The livestock industries, governments and the veterinary profession collaboratively manage the Australian National Johne's Disease Control Program. The program aims to reduce the impact of both the infection and the measures taken to control it. In partnership with

governments, each affected industry has implemented strategies that suit its particular needs and disease situation.

No Johne's disease incursions were detected in northern Australia in 2010. Western Australia's Free Zone retained its status for bovine Johne's disease (BJD) and Queensland, the Northern Territory and northern South Australia's protected zones maintained controls on introductions to manage the risk of entry of BJD. Regulatory programs operate in the north, but in southern Australia the emphasis is on management of the disease by producers, especially in the south-eastern dairy and sheep industries, where Johne's disease is endemic.

Beef cattle

The northern and western beef industry is apparently free from Johne's disease, which is also uncommon in beef herds in south-eastern Australia. To help protect this situation, producers whose herds have had little or no contact with dairy cattle are encouraged to make a written declaration that the breeding cattle they are selling meet the criteria to be classified as low risk ('Beef Only').

Although the disease is uncommon, the impacts can be serious for individual infected herds. The National BJD Financial and Non Financial Assistance Package helps owners of infected herds to eliminate Johne's disease, thus contributing to the low prevalence of BJD in the industry. Since the scheme started in 2004, it has assisted 200 producers. The current number of known infected beef herds is approximately 70.

Dairy cattle

In south-eastern Australia, the dairy industry promotes hygienic calf rearing to help reduce the incidence of Johne's disease in replacement heifers. Buyers seeking Johne's disease assurance are also encouraged to ask the seller for a written declaration of the National Dairy BJD Assurance Score for the cattle. A score of 10 indicates a very high level of confidence that the cattle are not infected. New South Wales and South Australia require sellers to declare the dairy score when selling dairy cattle.

Sheep

A risk-based approach has been adopted by the sheep industries. Producers are encouraged to ask for a signed National Sheep Health Statement when buying sheep, which enables them to assess the risk for ovine Johne's disease (OJD) through the score declared under the Assurance Based Credit (ABC) risk assessment system, which also covers other conditions. The health statement has facilitated sheep trading across Australia and can help producers manage their own farm biosecurity.

The sheep industry continued working with Animal Health Australia and the meat processing industry to support abattoir surveillance at several sites across southern Australia. In the 2009–10 financial year, approximately 577 consignments, comprising 1 202 260 adult sheep, were inspected for evidence of OJD. The data from this project are used each year to assess the regional flock prevalence of OJD. In parts of south-eastern Australia, the estimated prevalence of OJD and its impact on infected flocks has continued to rise. Extension in 2010 aimed to have more producers taking greater care to protect their flocks, especially when buying sheep, and vaccinating flocks that are at risk of being infected. Abattoir surveillance also provides feedback to farmers on the occurrence of OJD in their own flocks, which can be used to calculate the ABC score of the sheep. Finally, abattoir surveillance provides data on the detection of other significant endemic disease conditions to sheep owners and the broader sheepmeat industry.

Goats

The goat industry has established a risk-based trading approach that uses a National Goat Health Statement with a nationally agreed risk ranking system. This owner declaration includes a risk rating for Johne's disease and provides herd information on other conditions that can easily spread from herd to herd with movements of goats. A component of the strategy is a National Kid Rearing Plan to help protect young goats from infections such as Johne's disease and CAE.

2.4.10 Mastitis

Low milk cell counts are internationally regarded as a key measure of udder health and milk quality. The Countdown Downunder program (Countdown) was launched in 1998 to improve mastitis control on Australian dairy farms and to 'keep the count down'. Better udder health increases dairy farm profitability and helps satisfy the domestic and export market demand for high-quality dairy produce.

The goals of Countdown are cell counts below 250 000 cells/millilitre (mL) for 90% of the milk supply and below 400 000 cells/mL for the remainder. Achieving these goals over the past decade has been complicated by drought, feed shortages and, more recently, reduction

of the payment incentive for producing premium milk. Nevertheless, progress is continuing towards the cell-count goals, as shown in Table 2.3.

Table 2.3 Progress towards the industry cell-count goals

	Percentage of vats[a]		
Cell count of vats	**Goal**	**2000**	**2009**
Below 400 000 cells/mL	100	90.7	94.2
Below 250 000 cells/mL	90	64.2	66.4

mL = millilitre
a No data are available for 2010 at time of printing

The average bulk milk cell count of Australian dairy herds, calculated using the method recommended by the International Dairy Federation, was 214 000 cells/mL for the 2009 calendar year.

The principles of Countdown are:

- clear, consistent, industry-agreed messages for mastitis control
- promoting the mastitis control messages through advisers to the dairy industry
- promoting a whole-of-farm, team approach to mastitis control.

In 2010, the Countdown Farm Guidelines were updated and made available online to farmers and advisers.[28]

A web-based service allows farmers across Australia to generate a Mastitis Focus report for their herds. The reports include data collected on the farm and in herd testing to track changes in cell counts over time and therefore highlight management problems — for example, in clinical case management, the calving system or dry cow management. Focus reports will be a key element of Countdown in the future. The aim is for farmers and advisers to incorporate problem solving in management planning.

The sustainability of mastitis control is assisted by a training course designed through Countdown and provided by the National Centre for Dairy Education Australia. The course, Countdown Downunder — Cups On/Cups Off, is intended for anyone who milks cows. It is delivered by trainers who are technically proficient in mastitis control. Course graduates receive a formal qualification (RTE2112A Milk livestock).

28 www.dairyaustralia.com.au/Farm/Mastitis-and-milk-quality

2.4.11 Newcastle disease

Australia has been free from outbreaks of virulent Newcastle disease (ND) since 2002, when two outbreaks of virulent ND in Victoria and New South Wales were eradicated as prescribed in the Australian Veterinary Emergency Plan (AUSVETPLAN) disease strategy for ND. Subsequently, the National ND Management Plan was developed, and a steering committee was formed to oversee further development and implementation of the plan. The ND Management Plan Steering Committee includes representatives from the commercial chicken sector, the Australian Government, most state governments and the CSIRO Australian Animal Health Laboratory. Several experts on poultry vaccination and poultry disease are also members. Animal Health Australia manages the plan and chairs the committee.

The current ND Management Plan will operate for 2008–12. The goal is to suppress viruses that are precursors to virulent viruses, and minimise the risk of ND outbreaks by strategically applying and monitoring vaccination (using live V4 and inactivated vaccines) and applying biosecurity plans.

The primary objective of the vaccination program is to suppress precursor strains of ND virus with sequences similar to the virulent sequence that might result in the emergence of virulent ND virus. The management plan includes vaccination standard operating procedures (SOPs) for commercial domestic chickens in all states and territories. All chickens in commercial flocks larger than 500–1000 birds (depending on the jurisdiction) must be vaccinated; this applies to meat chickens, laying hens and chickens used for breeding purposes. In jurisdictions considered to be at low risk of an outbreak of ND, vaccination may be reduced; however, in flocks that opt for reduced vaccination, surveillance protocols as detailed in the management plan must be implemented. The 2008–12 plan is designed to lead to a risk-based exit strategy that may result in minimal or no vaccination in chicken flocks at the end of the management period (2012).

The steering committee will review its Surveillance Working Group's report into the current prevalence of progenitor, precursor or virulent ND viruses, as well as results from testing in Tasmania and Western Australia of nonvaccinated broilers (effectively sentinel birds), in early 2011.

During 2010, 1887 birds from 296 laboratory submissions were tested for Newcastle disease. Seven lentogenic V4 or V4-like viruses were identified, confirmed by PCR as being consistent with vaccine V4 virus. No virulent strains were found.

New South Wales

The national SOPs require flocks to meet adequate antibody titres within four weeks of completion of the vaccination course. Monitoring of vaccinated pullet flocks in New South Wales has found that 90% of the flocks meet these requirements. A survey of broilers originating from hatcheries vaccinating one-day-old chickens against ND by coarse spray, or from companies vaccinating at 7–14 days in the field via drinking water, found that the required titres were mostly achieved, regardless of the maternal antibodies of the donor flocks — overall, the technique was capable of delivering the titres required by the SOPs. During 2010, ND vaccine coverage was almost 100% of the state's known commercial chicken population. No precursor or virulent ND viruses were found during ongoing surveillance of both commercial flocks and nonvaccinated, noncommercial flocks.

Northern Territory

There are no longer any commercial poultry flocks in the Northern Territory. The last commercial egg producer from the Darwin region closed during 2007.

Queensland

In Queensland, all commercial operators of farms with 500 or more birds are required by law to vaccinate their poultry against ND. Vaccination is carried out as directed by the national SOPs for a medium-risk state, as agreed by the ND Management Plan Steering Committee, even though an ND risk assessment indicated that Queensland was a low-risk jurisdiction. This will be re-assessed once surveillance results from Tasmania and Western Australia (current low-risk states) have been assessed early in 2011, with the expectation that Queensland will then be able to follow the national SOPs for a low-risk state. Queensland has achieved a high level of vaccination in the commercial poultry sector. No virulent ND or precursor ND viruses have been detected — all detections of ND virus have been vaccine strain.

South Australia

In South Australia, it is mandatory for all birds in commercial poultry flocks, including breeder and genetic stock, to be vaccinated against ND. The vaccine is a restricted product that requires approval from the chief veterinary officer for use, and producers apply for purchase through a permit system.

Tasmania

In Tasmania, meat chickens are exempt from the requirement for vaccination of flocks with more than 1000 birds, provided that they comply with testing requirements. Meat chicken breeders are not included in this exemption. Vaccine is obtained from the supplier under licence from the chief veterinary officer and must be used according to the manufacturer's instructions and SOPs noted in the licence conditions.

Victoria

Owners of commercial poultry flocks with more than 1000 birds are required by law in Victoria to vaccinate against ND. In 2010, permits were issued for the purchase and use of approximately 146 million doses of ND vaccine.

Western Australia

In Western Australia, owners of 1000 or more chickens are required to apply for a permit to purchase ND vaccine, and must vaccinate their birds (except meat chickens), keep records, assist with inspections and undertake any testing required for auditing purposes. Targeted auditing of producer compliance is undertaken. Surveillance is compulsory for all poultry in Western Australia, including certain meat chicken flocks, certain batches of eggs, and day-old chicks imported from New South Wales and Victoria. Reporting and sample collection from any flock meeting the ND case definition are also compulsory.

2.4.12 Ovine brucellosis (*Brucella ovis*)

Ovine brucellosis, caused by *Brucella ovis*, is endemic in commercial sheep flocks in some states, but its prevalence is low. Ovine brucellosis is not on the list of nationally notifiable diseases. Accreditation schemes for stud flocks are well supported and are managed by state animal health authorities and breed societies. The numbers of accredited flocks at the end of December 2010 are shown in Table 2.4.

Table 2.4 Ovine brucellosis accredited-free flocks, 2010	
State	**Accredited free**
Australian Capital Territory	1
New South Wales	886
Queensland	74
South Australia	546
Tasmania	76
Victoria	510
Western Australia	196
Australia	**2289**

New South Wales

The New South Wales Ovine Brucellosis Accreditation Scheme has been operating since 1981, with some flocks maintaining continuous accreditation. The scheme requires the adoption of a biosecurity plan and a testing regime. Flocks are tested by accredited private veterinary practitioners either every year, every second year or every third year, depending on how long they have been in the scheme. The program is strongly supported by the New South Wales sheep industries and show societies. Accreditation is a requirement for entry to many major shows and sales. At 31 December 2010, the scheme covered 886 flocks, predominantly stud flocks.

Commercial flocks can participate in regional ovine brucellosis surveillance programs run by individual livestock health and pest authorities. These programs aim to detect localities where brucellosis may be a problem, so that government veterinarians can target these areas for advice on disease control and biosecurity in general. Farm visits for brucellosis screening contribute to general passive surveillance for New South Wales, focusing on the western districts, where there are fewer private veterinary practitioners to provide this service.

Northern Territory

The Northern Territory has no sheep industry.

Queensland

Queensland has a voluntary ovine brucellosis accreditation scheme for stud flocks, administered by Biosecurity Queensland on behalf of the state's sheep industry. In December 2010, there were 74 accredited flocks (19 merino/poll merino flocks and 55 flocks of other breeds). The low incidence of ovine brucellosis reported in the state's flocks did not change significantly during 2010.

South Australia

A voluntary ovine brucellosis accreditation scheme operates in South Australia. There are currently 422 accredited producers and 546 accredited flocks. No change occurred in 2010 in the low incidence of ovine brucellosis reported in South Australia's flocks.

Tasmania

The Department of Primary Industries, Parks, Water and Environment, in conjunction with veterinary practitioners and industry, has developed a voluntary ovine brucellosis accreditation scheme to control the disease in Tasmanian flocks. Accredited private veterinary practitioners test the flocks, and the department keeps the records. Ovine brucellosis has not been confirmed in any sheep in Tasmania since 1988. There are currently 76 accredited ovine brucellosis–free flocks. No reactors were detected during the year in Tasmania.

Victoria

Ovine brucellosis is present at low levels in Victorian sheep flocks. During 2010, infection was detected in 22 flocks after fertility issues were noted during testing for flock accreditation.

An Ovine Brucellosis Accreditation Scheme is administered by the Department of Primary Industries. This voluntary scheme provides assurance that rams are free from ovine brucellosis, which is required for sales, interstate movement, overseas export and attendance at shows. The scheme is based on property risk assessment, regular testing, adherence to best-practice flock management and investigation of suspect cases. Both department staff and private veterinary practitioners are involved in implementing the program across Victoria. At 31 December 2010, 510 flocks were accredited as being free from ovine brucellosis.

The department also supports the operation of the Mallee Ovine Brucellosis Control Area. Ovine brucellosis was historically of particular significance and high prevalence in the Mallee region (north-west Victoria) due to a lack of suitable fencing and a lower focus on sheep management in wheat and sheep enterprises. Voluntary schemes had been unsuccessful. Since 1996, government and industry have implemented a compulsory, systematic program of control in the Mallee, and a dramatic decline in the prevalence of ovine brucellosis across the region has been recorded. No surveillance testing for this control program was undertaken during 2010.

Western Australia

A voluntary ovine brucellosis accreditation scheme is available to ram breeders in Western Australia. In October 2010, there were 197 accredited flocks in the scheme. During 2010, one flock had its accreditation cancelled following the detection of infected rams.

2.4.13 Ovine footrot

Ovine footrot, caused by *Dichelobacter nodosus* infection, has been present in Australia for many years and was probably introduced in the early days of the Australian sheep industry. Virulent ovine footrot causes significant economic loss in southern Australia. Ovine footrot is not on the list of nationally notifiable diseases.

Several states have eradication or control programs. New South Wales has implemented the NSW Footrot Strategic Plan for the past 20 years, and the state was declared a protected area for footrot in August 2009.[29] The prevalence of virulent footrot in New South Wales was 0.1% of flocks at 30 June 2010. South Australia and Western Australia also operate control programs. In Western Australia, less than 1% of flocks are infected with virulent footrot. Tasmania and Victoria do not routinely quarantine for footrot, although legislation is available to do so if required.

Footrot is not regarded as a significant problem in Queensland, and no clinical cases were reported in 2010. There are no commercial sheep flocks in the Northern Territory.

2.4.14 Small hive beetle

The small hive beetle (SHB) (*Aethina tumida*) invades honey bee hives and may cause serious economic concern to some producers and processors, especially under hot and humid conditions. SHB is on the list of nationally notifiable diseases. Eradication from Australia has not been attempted; the agreed management strategies aim to reduce the impact of SHB on productivity, slow its spread and minimise damage in infested apiaries.

Government apiary officers provide advice and guidance to the honey bee industry. Researchers are investigating the potential use of chemicals to minimise SHB's impact on beeswax and honey.

29 Virulent footrot program in New South Wales, *Animal Health Surveillance Quarterly* 14(3):3.

New South Wales

SHB was first detected in New South Wales in 2002. It is well established along the coast and is periodically moved inland by commercial beekeepers, although it does not appear to be persisting in inland areas. The beetle has a significant impact on hive management; it has caused significant losses of honey bee colonies and is a major pest in honey extraction sheds. No regulatory action is taken in New South Wales, although reported cases of SHB are recorded for interstate movement of bee hives and export certification of live bees.

Northern Territory

A survey of registered beekeepers in the Northern Territory in 2010 confirmed the absence of SHB. Import controls to restrict entry of the pest are in place.

Queensland

SHB is now endemic in most coastal regional parts of Queensland, and is present in other, drier areas as a result of beekeepers moving their apiaries to access seasonal flora. The prevalence is increasing in the northern part of the state each season, and increases after rain in warmer months of the year. SHB is identified as a major pest species. A trap trial was undertaken in February 2009, and Biosecurity Queensland is providing beekeepers with information on the most efficient trapping methods. Scientific research is continuing on fungal control, as well as yeast identification and its relationship to the SHB lifecycle.

A survey of the costs to beekeepers of SHB, conducted by Biosecurity Queensland in 2008–09 (with 1339 respondents), estimated a loss of $2 million. The impact of the loss of pollination services to the agricultural and horticultural industries was not calculated. A decline in numbers of honey bees could have important consequences for food production.

South Australia

To date, there is no evidence of SHB in South Australia. To assist in keeping the state free from SHB, hives, package bees, used hive equipment, beeswax, bee-collected pollen, propolis, used appliances, queen cells, queens and escorts, and any other bee products are prohibited entry into South Australia unless accompanied by both written permission from the South Australian Chief Inspector of Stock and a completed health certificate declaring freedom from all stages of SHB. Before countersigning any health certificate, state departments are encouraged to request evidence that beekeepers have undertaken significant inspections to confirm absence of SHB.

Tasmania

There is no evidence of SHB in Tasmania. Apiarists are encouraged to inspect their hives regularly and to submit suspect insects to the state laboratory for identification. Entry into Tasmania of used beekeeping equipment, packaged bees and unmelted beeswax is prohibited. Queen bees, queen cells and escorts may be imported but must be in SHB-proof containers and accompanied by a completed health certificate declaring freedom from SHB.

Victoria

SHB was first detected in apiaries in north-western Victoria and the Goulburn Valley (in the north-east) in 2005. Subsequent detections have been in north-western Victoria, suburban Melbourne and central Victoria. The occurrence of SHB continues to be monitored.

Western Australia

In September 2007, SHB was detected in Western Australia at Kununurra. Surveillance, monitoring and tracing have contained the beetle within the Kununurra area. Zoning under legislation has identified an infested area and a free area of the state. Targeted surveillance was carried out in 2005 and 2006, and none of the samples collected confirmed the presence of SHB. Import controls to restrict entry of SHB are in place.

2.4.15 Swine brucellosis

Swine brucellosis resulting from infection with *Brucella suis* causes sterility and abortion in sows and orchitis in boars. Other livestock species may be infected by the organism but do not show clinical signs. The disease is a zoonosis, so humans can also be infected.

Swine brucellosis is on the list of nationally notifiable diseases. In 2010, no cases of *B. suis* infection were reported from New South Wales, Victoria, Western Australia, South Australia or Tasmania. The latter three states have specific import controls for breeding pigs from areas where *B. suis* is known to occur.

Northern Territory

A limited survey of feral pigs in the Katherine region during 2007 did not detect the presence of swine brucellosis. Ongoing opportunistic sampling of feral pigs from the northern floodplains has not detected any clinical signs or serological evidence of brucellosis.

Queensland

B. suis is confined to some populations of feral pigs in Queensland and was detected in a free-range piggery in Queensland in the last quarter of 2010.

The *B. suis* Accredited Herd Scheme is administered by Biosecurity Queensland on behalf of the industry and currently has 11 member herds. The scheme aims to ensure piggery freedom from *B. suis* and to provide a secure source of disease-free breeding stock for pig producers.

South Australia

To protect the disease-free status of farmed pigs in South Australia, movement controls are maintained for domestic pigs originating from states where *B. suis* can occasionally be detected in feral populations. In 2010, no cases of *B. suis* infection were reported in South Australia.