

NT Buffalo Industry Council

Northern Territory

Buffalo Industry Code of Practice

Version 1.2

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Glossary

Act: Legislation passed by the Parliament. An Act can only be amended by another Act. Acts set out the broad legal/policy principles of the issues for which laws are deemed to be required by society. See also Regulations

Animal Welfare: The physical and psychological well-being of non-human animals

Biosecurity: The management of economic, environmental and broader community risks, of weeds, pests and diseases entering, emerging, establishing or spreading within a region

Bull: An uncastrated male buffalo

Calves: Buffalo of either sex from time of birth to weaning

Consignor: The person or business (usually the seller) who delivers a consignment to a carrier for transporting to a consignee (usually the buyer). The consignor is responsible for mustering, assembling, handling and preparation, selection of buffalo that are 'fit to load', provision of feed and water, holding periods, waybills and NLIS tags

Control measures: The activities undertaken to eliminate or minimise risk

Cow: An adult female buffalo used for breeding or as a source of milk or meat

Crossbreeding: The mating of animals of different breeds, e.g. a swamp buffalo with a riverine buffalo

Cull: Removal of unwanted animals from the herd due to age, infertility, temperament, inferior quality or another reason

Curfew: The time when the buffalo do not have access to water

Disease: The presence of a pathogenic agent in a host and/or the clinical manifestation of infection that has had an impact or poses a likely threat of an impact (including micro-organisms, infectious agents and parasites)

Endemic diseases: A disease which is known to occur – usually commonly within Australia. coccidiosis, botulism. Some endemic diseases are notifiable, e.g. cattle tick in tick free areas, melioidosis, Johne's Disease

Exotic diseases: Notifiable diseases originating outside Australia and which are not known to be present in Australia, e.g. FMD (foot and mouth disease)

Exporters Supply Chain Assurance System (ESCAS): A set of regulatory conditions placed on exporters, which requires exporters to have commercial arrangements with supply chain partners to provide humane treatment and handling of livestock from arrival in the importing country up to the point of slaughter

Feedlot: A consignment facility where buffalo are fed in stalls or pens to produce meat for the commercial trade

Feral: Animals introduced to Australia which escaped or were released over time and became undomesticated

Fire abatement: The use of bush fire management by land managers to gain income through the carbon credits market

Guidelines: Best practice for industry but not regulated. See also **Standards**

Heifer: A young female buffalo

Hypoglycaemia: The condition where an animal is not able to cope due to low blood sugar. It may also have high lactic acid due to being overworked

Hyperthermia: The condition where an animal is not able to cope due to severe heat and a rise in body temperature

Hypothermia: The condition where an animal is not able to cope due to cold and reduced body temperature

Johne's Disease: A contagious, chronic and sometimes fatal infection that primarily affects the small intestine of ruminants. Also called paratuberculosis

National Livestock Identification System (NLIS): NLIS is based on Radio Frequency Identification devices (tags) applied to mustered animals and uploading of RFID data to the NLIS database

Notifiable Diseases: Those diseases listed under the Livestock Act, mainly for the purposes of the Emergency Animal Disease Response Agreement (EADRA). Most diseases are not present in Australia, but some occur sporadically

PIC: Property Identification Code. A PIC is a unique eight-character number assigned by the Territory government to properties with livestock. This property registration system allows for the tracing of livestock to assist with disease and chemical residue management and works in conjunction with the NLIS

Prostaglandin: Hormone used to synchronize ovulation cycles in cows

Regulations: Subordinate or subsidiary legislation that requires publishing in the *Government Gazette* to become legal. These are the guidelines that dictate how the provisions of an **Act** are applied. Regulations and schedules to Acts can only be amended by a notice published in the *Government Gazette*

Standards: The difference between a **standard** and a **regulation** lies in compliance. While conformity with **standards** is usually voluntary (unless they have been gazetted and so made mandatory), technical **regulations** are mandatory by nature and backed by law

Statute: Another term for an **Act** of Parliament

Statutory: Means that something is required, permitted, or enacted by **Statute/Act**

The Code: Means this voluntary Industry Code of Practice, titled the NT Buffalo Industry Code of Practice

Transporter: The person or transport business responsible for rostering, scheduling, managing driver fatigue risk, loading and unloading including final inspection as 'fit for intended journey', loading density, and spelling periods during journey

Waybill: An NT Government record of livestock movement from the property of origin to the destination property where livestock are delivered. Separate waybills must be issued for each leg of the journey where livestock are spelled between the property of origin and destination

Introduction

This Code of Practice (the Code) has been prepared by the NT Buffalo Industry Council Inc.¹ (NTBIC), an organisation representing the interests of its members who are involved in all aspects of the buffalo livestock industry.

This Code is presented as a practical handbook to inform buffalo livestock industry stakeholders along the supply chain of their obligations under Commonwealth and Territory law and associated standards. It references industry standards set by leaders in Australian livestock industries. The Code assures buffalo buyers at each point in the supply chain that suppliers, handlers and transporters are aware of their obligations to ensure optimum outcomes in terms of animal welfare, biosecurity and fire and weed management.

Additionally, the Code forms part of the NT buffalo industry's self-regulation process. In this context it is intended to promote public safety, industry productivity and efficiency, and encourage innovative, safe and collaborative business practices.

Although the Code is not intended for audit and compliance the knowledge provided will be of assistance for these purposes.

The Code is divided into Parts A and B.

Part A covers Legislation and Standards and places the Code in the context of those Commonwealth (Section 1) and NT (Section 2) laws that have most relevance to the NT buffalo livestock industry. Included in Part A (Section 3) is also reference to the Standards established by the National Livestock Production Assurance Program.

Part B covers Responsibilities and Protocols and is divided into three sections.

The first section describes how stakeholders must mitigate risks with regards to spreading weeds. This issue of weeds is of great importance to all land managers and landowners with whom musterers and transporters must work in partnership. The objective is to build and maintain good collaborative relationships between those in the buffalo industry and the landholders and owners of

¹ The NTBIC website at www.ntbuffalo.com contains up to date information on the NT buffalo livestock industry and supplementary information for this Code.

the buffalo. The mechanism to maintain these good relationships is through mutually agreed weed management plans and protocols.

The second section deals with bushfire management and describes how communication and collaboration can work to the mutual benefit of musterers and landowners and managers. Fire management is a vital component of how musterers work and how landowners manage their land and earn very significant income through carbon abatement programs.

The third section forms the main part of this Code and is devoted to issues of animal welfare and biosecurity. Biosecurity management has established formalities and procedures that industry participants must familiarise themselves with. These formalities and procedures are referred to and summarised in this Code.

Animal welfare on the other hand is a more subjective issue. Individuals who work with buffalo have their own idea of what constitutes animal welfare and what animal handling practices are acceptable. Nevertheless, the fact is that animal industries also require permission from society to carry on with their businesses, and so it is in the best interests for industry participants to adhere to the animal welfare ethics and standards that society expects. This Code sets out what the various laws say about what is acceptable and what is legal. It also draws on sources who have intimate and extensive knowledge of NT buffalo to inform all along the buffalo supply chain of what is best practice with regards to buffalo welfare. It is imperative that all people who work with buffalo ensure optimum outcomes in terms of buffalo welfare.

Part A. Legislation and standards

1. Commonwealth legislation

Aboriginal Land Rights Act

Most NT buffalo inhabit Aboriginal freehold lands which are administered under the relevant Land Councils operating under this Act. The Land Councils are responsible for confirming that the correct group of traditional landowners has given permission for any commercial use of their lands. The process of acquiring access to Aboriginal freehold land to muster buffalo for commercial gain is defined under Section 19 of the Act and is administered by the relevant Land Council.

Acts regulating export of buffalo

The Commonwealth regulates all buffalo exports from Australia under two Acts:

- The Australian Meat and Livestock Industry Act 1997 regulates **buffalo export licencing**
- The Export Control Act 1982 regulates **preparation of buffalo for export**

These Acts are regulated through *the Australian standards for the export of livestock (version 2.3)* (ASEL)². The Acts stipulate that compliance with ASEL is a condition of licensing and consignments.

Those involved in any aspect of supplying NT buffalo for export must adhere to these ASEL standards and to the relevant NT regulations.

The ASEL Standards are:

- Standard 1 Sourcing and on-farm preparation of livestock
- Standard 2 Land transport of livestock
- Standard 3 Management of livestock in registered premises
- Standard 4 Vessel preparation and loading
- Standard 5 Onboard management of livestock
- Standard 6 Air transport of livestock.

² For standards specific to buffalo see [Australian Standards for the Export of Buffalo \(Version 2.3\) 2011](#).

ASEL Standard 1 and Standard 2 are of most relevance to those involved in mustering, farming, transporting and handling buffalo in the NT.

Standard 3 relates to registered premises. The process of registration of premises mandates compiling an “Operations Manual”³ which will not be duplicated in this document. However, Standard 3 includes highly relevant and important criteria that will cause rejection of buffalo for export.

Standard 4, 5 and 6 are not relevant for the purposes of this document.

Commonwealth levies and excises on buffalo

The Commonwealth extracts various charges from primary producers, including the following incurred by buffalo producers:

Live buffalo export levy

The buffalo levy was introduced in 1977 and is administered under the Primary Industries (Customs) Charges Act 1999.⁴ Producers of buffalo that are exported must pay this levy.

- The current levy is \$4.60 per head
- AgriFutures Australia⁵ is responsible for the expenditure of the buffalo charge
- The Act stipulates that R&D must be undertaken in consultation with an organisation that represents the producers who are paying the levy.⁶

Buffalo slaughter levy

The buffalo slaughter levy was introduced in 1978. Owners of buffalo slaughtered *at an abattoir for human consumption* must pay the buffalo slaughter levy, which is currently \$9.60 per head and comprised of two charges:

- The National Residue Survey (NRS) levy which is administered under the relevant Act⁷

³ Department of Agriculture and Water Resources, “Premises Registered by the Department.”

⁴ Primary Industries (Customs) Charges Act 1999.

⁵ Previously the Rural Industries Research and Development Corporation

⁶ Detailed information is available at the website: Department of Agriculture and Water Resources, “Levies.”

⁷ National Residue Survey (Excise) Levy Act 1998.

- The rate for buffalo is currently \$5 per head⁸
- The NRS is responsible for expenditure of this money
- The Research and Development levy that is administered under the Primary Industries (Excise) Levies Act 1999⁹
 - The rate for buffalo is \$4.60 per head¹⁰
 - AgriFutures Australia is responsible for the expenditure of the buffalo charge
 - The Act stipulates that R&D must be undertaken in consultation with a representative body that represents producers paying the levy.¹¹

2. Northern Territory Acts, regulations and standards

Parks and Wildlife Conservation Act

Under this Act the release of wild buffalo **back into the wild** after they are mustered is an offence¹². Approved Animal Management Plans, detailing actions to humanely manage animals released back to unfenced/uncontrolled land, including Indigenous owned lands, after initial mustering must be in place prior to commencement of mustering.

Weeds Management Act

The purpose of this Act¹³ is:

- a) to prevent the spread of weeds within, into and out of the Territory and to ensure that the management of weeds is an integral component of land management
- b) to ensure there is community consultation in the creation of weed management plans
- c) to ensure community responsibility in implementing weed management plans.

⁸ Primary Industries Levies and Charges (National Residue Survey Levies) Regulations 1998, Part 13, Division 2.

⁹ Primary Industries (Excise) Levies Act 1999.

¹⁰ Schedule 2, Section 2. Primary Industries (Excise) Levies Act 1999.

¹¹For detailed information see Department of Agriculture and Water Resources, "Levies."

¹² Territory Parks and Wildlife Conservation Act, pts. IV, Division 8.

¹³ Northern Territory Government, Weed Management Act.

Of particular relevance to this Code, Section 9 of the Act states that: *A person must not, except in accordance with a permit:*

- a) bring a declared weed or take part in, or be responsible for, bringing a declared weed into the Territory*
- b) propagate or scatter a declared weed*
- c) sell or offer to sell a declared weed or anything that contains or carries a declared weed*
- d) hire any equipment, device or thing that contains or carries a declared weed or potential weed*
- e) purchase or offer to purchase a declared weed or anything that contains or carries a declared weed*
- f) store, grow or use a declared weed or anything that contains or carries a declared weed*
- g) transport or carry on his or her person a declared weed or anything that contains or carries a declared weed.*

Many statutory weed management plans are covered by this Act and relate to specific weeds as well as to specific regions. People involved in movement of stock and vehicles must familiarise themselves with those management plans that relate to the regions where they are working.

Bushfires Management Act

The Bushfires Management Act, introduced in November 2016, provides the legislative framework for the mitigation, management and suppression of bushfires in the Territory.¹⁴

Bushfires NT¹⁵ supports landowners and the community by coordinating fire management plans, supporting volunteer brigades and landowners, coordinating major bushfire response, and providing advice for rural and remote area residents and communities.

¹⁴ Northern Territory Government, "Bushfires Management Act."

¹⁵ Northern Territory Government, "Bushfire Information and Management."

Certain areas in the Northern Territory have been declared fire protection zones, which means fires can't be lit in those areas without a permit at any time of year.

The Territory's fire protection zones are:¹⁶

- all of the Vernon region - essentially the greater Darwin and Batchelor/Coomalie areas
- the area within 50km radius of the Katherine post office
- the area within 50km radius of the Tennant Creek post office
- the area within 50km radius of the Alice Springs Airport.

Fire danger periods can be declared for either the whole or part of the Territory for a specific period. Any area specified under a declaration of fire danger period is known as a fire danger area. During a fire danger period, all landowners within a fire danger area must have a permit to burn.

A fire ban may be declared for either the whole or part of the Territory for up to 24 hours when fire conditions are very dangerous. Bans are announced on local radio and by roadside signs in built-up areas. All permits to burn are void during a fire ban period.

Crown Lands Act

Under this Act¹⁷ the NT Government owns buffalo on NT Crown Lands:

- any person intending to utilise these buffalo must negotiate their purchase from the NT Government
- any mustering activity must be authorised by the Minister
- any grazing of buffalo on Crown land must be under licence¹⁸.

¹⁶ For maps of these areas refer to Northern Territory Government, "Bushfires Management Act."

¹⁷ Crown Lands Act, pts. 8, Section 99.

¹⁸ Ibid., pts. 8, Section 101.

Animal Welfare Act¹⁹

The objectives²⁰ of this Act are:

- a) to ensure that animals are treated humanely
- b) to prevent cruelty to animals
- c) to promote community awareness about the welfare of animals.

The Act mandates that “a person in charge of an animal owes a duty of care to it.”²¹

Livestock Act

Anyone who works with buffalo must have knowledge of this Act and its Regulations which address biosecurity, animal disease, animal welfare, property identification, individual animal identification (NLIS) and livestock transport.

Under the Act buffalo - *Bubalus bubalis*²²- are classed as livestock.

In the Northern Territory, the “*Australian Standards and Guidelines for the Welfare of Animals— Land Transport of Livestock*”²³ **has been mandated** under this Act since January 2013. These Standards apply to the major commercial livestock industries in Australia, including buffalo. By adhering to these Standards buffalo handlers will comply with the Livestock Act and Regulations. Any person interacting with buffalo at any point along the supply chain , including drivers, transport companies, owners, agents and livestock handlers at farming enterprises, depots, saleyards, feedlots and livestock-processing plants should be familiar with the Standards and Guidelines presented in *Australian Standards and Guidelines for the Welfare of Animals— Land Transport of Livestock*.²⁴

The chain of responsibility for livestock welfare in transport begins with the owner or their agent and extends to the final receiver of the livestock.

¹⁹ Northern Territory Government, Animal Welfare Act.

²⁰ Northern Territory Government, pts. 1, Section 3.

²¹ Ibid., pt. 2, Division 1, (8).

²² Northern Territory Government, Livestock Act, pts. 1, Section 4.

²³ Animal Health Australia, “[Land Transport of Livestock Standards and Guidelines Version 1.1.](#)”

²⁴ These Standards include specific standards for various livestock including in Section B2 for buffalo.

Meat Industries Act

This Act²⁵ and its regulations²⁶ control, through licencing and other means, relevant activities of individuals and businesses involved in the slaughter and sale of animal meat. The objectives of the Act are to:

- ensure that meat produced for human consumption is wholesome
- ensure that meat produced for pet food or bait meat is not substituted for meat produced for human consumption
- ensure the humane slaughter of animals for human consumption, pet meat and bait meat
- foster export and domestic markets for meat for human consumption, pet meat and bait meat.

This Act does not apply to situations where buffalo are killed for home use²⁷. It only applies where the meat is sold. For the purposes of this Code, responsible practice dictates that suppliers of buffalo need to assure themselves that if a buyer is intending to slaughter the buffalo for sale, regardless of the end use of the meat, that buyer must hold the relevant current licence for the intended activity.

3. The Livestock Production Assurance Program²⁸

The Livestock Production Assurance (LPA) Program is the Australian red-meat livestock industry's voluntary, on-farm assurance program covering food safety, animal welfare and biosecurity. Through the National Vendor Declaration (NVD)²⁹ process, it provides evidence of livestock history and on-farm practices when transferring livestock through the value chain. At the time of compiling this Code, buffalo meat was not a part of the LPA system. NT buffalo producers may choose to opt in at some future time.

²⁵ Northern Territory Government, "Meat Industries Act."

²⁶ Northern Territory Government, "Meat Industries Regulations."

²⁷ Northern Territory Government, "Meat Industry."

²⁸ Meat & Livestock Australia, "About the Livestock Production Assurance Program."

²⁹ Meat & Livestock Australia, "LPA National Vendor Declaration."

In his [Agnote](#)³⁰ on buffalo intended for the meat trade, Lemcke provides a comprehensive summation of factors that are relevant to producers who wish to build their reputation as suppliers of quality buffalo. Lemcke makes the point that meat quality is a function of four factors:

- Age of the animal – connective tissue toughness increases with age
- Chiller cold-shortening of muscle fibres
- The ultimate pH of meat
- Growth profile and animal condition at slaughter.

Lemcke emphasises that any induced stress when handling or transporting buffalo has a negative impact on meat quality. The strong and loud message for all who are involved in the supply chain is to understand that it is in their best interests to know what causes stress in buffalo and to actively work to minimise that stress at all stages.

³⁰ Lemcke, "[Water Buffalo Handling: Property to Abattoir, Part 1. General Principles.](#)"

Part B. Responsibilities and protocols

1. Preventing weed spread

Responsibilities

Any person working in the bush should be aware of their potential to spread weeds. The dispersal of weeds has a costly impact on the environment and on communities in the NT. In fact, weed management authorities and Indigenous ranger groups associate past practices of buffalo industry participants with the spread of Mimosa between Top End river catchments. Historically, little or no regard was given to avoid the dispersal of weeds. This has left Indigenous land managers in the Phelp, Liverpool, Goyder, Blyth and Tomkinson floodplains with a major weed management problem and some reservations about dealing with those who wish to develop the buffalo industry on their country.

The relationship between landowners and buffalo musterers and transporters is positively enhanced by everyone collaborating constructively to prepare weed management plans and actively working to prevent weed spread. Indigenous rangers, managers of Indigenous Protected Areas and other land care groups, as well as pastoral lease holders and managers of crown land, all have their own weed management plans, so it is essential to consult with them about weed control.

The NT Government has mandated numerous weed management plans that all buffalo industry participants must have knowledge of when developing their own plans. The following economically and environmentally hazardous weed species are of specific relevance to the buffalo industry and are subject to statutory (meaning that they are backed by NT law) management plans³¹:

- Gamba grass
- Grader grass
- Mimosa
- Prickly acacia

³¹ NT Department of Environment and Natural Resources, "[Weed Management Plans.](#)"

Also considered by land managers in Arnhem Land to be of special significance are:

- Olive hymenachne³²
- Salvinia³³

The NT Government has published Regional Weed Management Plans. Of interest to the buffalo industry are the Darwin³⁴ and Katherine³⁵ Regions Weed Management Plans. Those in charge of each stage of the buffalo supply chain are obliged to keep up to date with these plans.

Those stakeholders either mustering, farming or transporting buffalo in the bush should have their own weed management plan, ideally developed in consultation with the NT Weed Management Branch and, most importantly, the manager of the land on which activity will take place. Staff - musterers and drivers in particular - should be familiar with the weed management plan and be aware of their responsibilities. Managers and workers should also have knowledge about weed identification³⁶.

Methods

The required actions of a weed management plan centre on three main themes:

- Consultation with existing land managers who will have their own weed management plans
- Operators must act to prevent the spread of weeds
- If weeds are in an area, record their location and alert the NT Weed Management Branch, and the land manager if the weeds are outside an area where an infestation has already been recorded in the relevant Regional Management Plans.

³² Northern Territory Government, "Olive Hymenachne."

³³ Northern Territory Government, "Salvinia."

³⁴ Weed Management Branch, "[Darwin Regional Weed Management Plan.](#)"

³⁵ Weed Management Branch, "[Katherine Regional Weed Management Plan.](#)"

³⁶ For information on how to identify weeds, refer to Australian Government, "[Identifying Weeds.](#)" Also refer to Department of Environment and Natural Resources, "[Weed Management Technical Notes.](#)"

The NT Weeds Management Branch has prepared guidelines for preventing weed spread^{37 38}. The following points should be considered for inclusion in a weed management plan.

Communication with land managers:

- Communicate with land managers about the most up-to-date weed information before commencing work
- In consultation with land managers, map locations and densities of declared weeds through a dedicated survey and send to Weed Management Branch
- Work in collaboration with relevant government agencies and land holders, particularly those who have adjoining, overlapping or adjacent corridors.

Knowledge about weeds:

- Operations staff should be able to identify declared weeds relevant to the region. Consult the relevant regional Weed Management Plan³⁹
- Inspect vehicle tracks and vehicle clean-down areas after the first rains for signs of germinating weeds
- Aim to control weeds before they establish
- Establish a monitoring program within the management plan so control and weed spread can be evaluated
- Adhere to relevant Statutory Weed Management Plans
- Prioritise all Class A weed species⁴⁰ for eradication and report locations to Weed Management Branch

³⁷ NT Department of Environment and Natural Resources, "Weed Management Plans." ment Branch, "[Preventing Weed Spread.](#)"

³⁸ Department of Environment and Natural Resources, "[Weed Management Technical Notes.](#)"

³⁹ Refer to the "Darwin Regional Weed Management Plan." or to the "Katherine Regional Weed Management Plan."

⁴⁰ See Department of Environment and Natural Resources, "[Declared Weeds in the NT.](#)" for which weeds are declared Class A

Preventing weed spread: vehicle management

- Establish a vehicle clean-down area in an accessible, flat area that does not run into a waterway. *Record the location of the clean down area*
- Clean machinery, vehicles and equipment before moving between sites or across property lines
- Clean and inspect equipment for weed seeds prior to commencement of works
- Where weeds cannot be avoided, clean vehicles before moving to weed free areas
- Clean trucks after delivering stock
- Avoid driving through weeds
- Minimise disturbance to existing land surface and native vegetation
- Do not import or export contaminated materials including sand, gravel, rock and fill.

Preventing weed spread: stock and pasture management

- Do not deliberately sow or plant any declared weeds for improved pasture. This is illegal
- Cutting/mowing weeds for use as fodder in an offence under the Weeds Management Act⁴¹
- Apply an integrated approach to weed management including stock exclusion through fencing
- Isolate stock mustered from infested areas into quarantine paddocks for at least seven days prior to transporting off station
- Monitor quarantine paddocks to detect any newly establishing weeds early
- Keep roads, tracks, laneways, stock routes and holding yards clean of weeds
- Don't buy, sell or move contaminated hay, fodder or manure
- Seek advice from the Department of Primary Industry and Fisheries before introducing new pasture, hay or fodder species
- Do not bale declared weeds
- Do not deliberately cut or mow an infested area for hay production or sale, or transport contaminated hay
- Cover loads when transporting hay

⁴¹ Northern Territory Government, Weed Management Act, Part 7, 31.

- Buy only weed free hay
- Feed hay in holding paddocks that can be easily accessed throughout the year to monitor and control weeds
- Be suspicious of any unfamiliar plants that germinate in the areas where hay has been introduced and seek advice with identification
- Develop a clean hay certification process. Involve industry bodies in the process
- Install buffers to infested/clean areas to prevent weed spread.

Summary

The relationship between the landowners and the musterers and transporters is crucial for this industry. The matter of weeds is highly significant for Indigenous landowners and managers and this significance cannot be overstated. Weed management plans that are developed together by land managers, musterers and transporters provide the means for sustainable partnerships between these key stakeholders in the NT buffalo industry.

2. Fire

Responsibilities

Fire is a cost-effective management tool used by musterers to clear undergrowth and so facilitate safer and more efficient mustering. It is also used to manage forage for buffalo – following a burn the bush will regenerate with nutritious green shoots that musterers utilize to assist with herd management. Musterers must, however, prioritise NT bushfire laws⁴² and keep up to date with the fire risks, warnings and bans in the area where they are working⁴³. Of specific importance in the context of mustering operations is the obligation of musterers to obtain a permit for aerial burning operations.⁴⁴

⁴² A brief summary of the most relevant points of the legislation can be found at Department of Environment and Natural Resources, “Bushfires Management Act Info Sheet.”

⁴³ Contact Bushfires NT for up to date information at - [Northern Territory Government, “Bushfire Information and Management.”](#)

⁴⁴ Refer to Section 82 of the [Bushfires Management Act](#)

It is of the utmost importance that musterers also collaborate with the landowners who have vital commercial⁴⁵ as well as cultural interests in how and when their country is burnt. If the country is burnt outside of certain periods, this can result in large losses of income from fire/carbon abatement programs for the landowners⁴⁶. If the burning planned by musterers coincides with the plans of the land managers, then all can benefit from the collaborative fire and buffalo management efforts.

Minimising fire risk.

Apart from burns planned jointly with the land managers, musterers and transporters must minimise risks from accidentally starting bushfires. To this end, people working in the bush must:

- Minimise fire risks by placing combustible materials within cleared areas
- Provide all possible assistance to the land holder if required in the event of an out of control bush fire
- Immediately repair any fences or gates that have been damaged while managing a bush fire
- Keep engines in good working order and ensure the exhaust is designed to prevent sparks, flames or burning material
- Do not use grinding, welding or cutting equipment in such a position that it is likely to result in igniting bush or other flammable material unless an appropriate fire extinguishing device is readily available and in good working order
- Do not intentionally light a fire in the open air within a Fire Ban Area. The one exception is if the fire is lit for cooking or boiling water, and:
 - a any flammable material must be removed within 4 m of that fire
 - b the fire must never be left unattended
 - c the fire must be extinguished without delay when no longer being used for cooking.

⁴⁵ Much of the country where musterers operate is managed under stringent carbon abatement programs - Carbon Market Institute, "Project Registry | Australia's Carbon Marketplace."

⁴⁶ At the time of writing this code, burning that takes place after 31st July will incur a cost to landowners/managers who are using their country for commercial carbon farming.

3. Animal Welfare and Biosecurity

Who bears responsibility for animal welfare?

A person in charge is responsible and must ensure compliance to animal welfare standards as mandated in the *Australian Standards and Guidelines for the Welfare of Animals— Land Transport of Livestock*⁴⁷ and *the Australian standards for the export of livestock (version 2.3)*.⁴⁸

The person in charge of the stock as well as the consignor carry responsibility for buffalo welfare from the time that mustering commences. The person in charge may be the manager of the mustering operation, the property owner, head stockman, yard manager or a driver. Anyone who interacts with buffalo carries some responsibility and has a duty of care for the animals. The person in charge must ensure that all those who interact with buffalo at any point along the supply chain are aware of their duty of care and their responsibilities under Commonwealth and Territory laws. Familiarisation with the principles and practices of low stress stock handling of buffalo is recognised as industry best practice.

There is a 'chain of responsibility' for those managing buffalo welfare. In some parts, the responsibility for buffalo welfare is clearly shared, for example, during mustering between the consignor and the musterers. This means that direct responsibility exists even when earlier decisions by an individual affect the welfare of buffalo later when the buffalo has moved along the supply chain and into the direct area of responsibility of another person. For example, fish muscle syndrome that is discovered on slaughter of an animal can be traced back to non-compliance by a responsible person within the supply chain.

Hyperthermia and dehydration

Hyperthermia and dehydration management are key components of buffalo husbandry. Buffalo are more susceptible to hyperthermia (heat stress) than cattle due to physiological differences in body

⁴⁷ Animal Health Australia, "Land Transport of Livestock Standards and Guidelines Version 1.1."

⁴⁸ Australian Government Department of Agriculture, Fisheries and Forestry, *Australian Standards for the Export of Livestock (Version 2.3) 2011*.

temperature control. Heat loss for buffalo is mostly by panting whereas cattle lose much of their body heat by sweating through their skin⁴⁹.

Hyperthermia and its management

Throughout this code there are references to heat stress/hyperthermia. It is critical that buffalo handlers, managers and transporters are fully aware of factors that lead to heat stress. This is of particular relevance in the hot, humid months after September when heat and humidity (measured as the Temperature Humidity Index⁵⁰) can combine to provide conditions that can be deadly for buffalo. If buffalo are being mustered or worked in some way, extra heat is being generated by the animal due to the activity being imposed on them. Buffalo breathing rates of more than 75 BPM in **stationary** animals indicates heat stress and water spray or sprinklers for 15 minutes per hour should be used to manage the animal's heat load. The best way to assist buffalo in distress from overheating is to spray them with water.

Dehydration and its management

Managers must take all precautions against buffalo becoming dehydrated⁵¹. The protocols outlined in this Code are intended to reduce stress, hyperthermia and dehydration. Managers must recognise the symptoms of dehydration which are:

- increased reddening of the hide along the brisket and belly, and between the legs (Difficult in crossbred and riverine buffalo because of blacker hide all over)
- tonguing (the tongue hangs out of the mouth)
- panting (greatly increased respiration rate)
- sunken eyes (in extreme cases) and skin which when pinched, takes a long time to retract
- stiff or awkward gait
- very high rectal temperatures (noticeable when carrying out pregnancy diagnosis)

⁴⁹ Meat & Livestock Australia, "Management of Australian Water Buffalo in SE Asian Cattle Feedlots. (Supplementary to Manual for South-East Asian Cattle Feedlots, MLA)."

⁵⁰ For more information on the Temperature Humidity Index see: Dairy Forecast Service, "Revisiting the THI."

⁵¹ This summary of dehydration and its management are taken from: [Lemcke, "Water Buffalo Handling: Property to Abattoir, Part 3. Transportation to the Abattoir."](#)

Taking the time and paying proper attention to feeding and watering buffalo before transport will greatly improve their heat tolerance and endurance.

When severely dehydrated buffalo are provided with water they will tend to drink too much and engorge themselves. This can have serious consequences and can even cause mortalities. The addition of electrolytes to the water will reduce these risks in severely dehydrated stock.

Buffalo mustered from coastal fringe areas are likely used to drinking salty water. They will often refuse to drink fresh water when yarded and will become dehydrated. Adding electrolytes to the drinking water will overcome this. Gradually reduce salt over a period to allow the stock to become used to fresh water.

Mustering

General considerations

When mustering on land other than their own, musterers must have prior permission from the landowner to carry out such activity and must comply with Commonwealth and Territory law.

Musterers must ensure that the land on which they are operating has a current Property Identification Code (PIC)⁵². The PIC is a biosecurity tool and forms an essential part of the National Livestock Identification System (NLIS).

Work health and safety concerns are paramount in any buffalo management operation. The following characteristics and their associated risks should be noted:

- Buffalo are large animals weighing up to 1000 kg when fully grown at 5–7 years
- They have dangerous, life-threatening horns
- If upset or stressed, caution is required as buffalo are more likely to engage in fight than flight
- They are fast over a short distance, quite agile and extremely accurate with their horns
- Depending on temperature they have reasonable stamina and can cover long distances at a reasonable pace

⁵² For details refer to: Northern Territory Government, “Get a Property Identification Code.”

- Normal stock fence construction will not deter buffalo and should not be considered as a suitable safety barrier when working with buffalo.

People working with buffalo must be trained in their tasks and be competent so that the risk of injury or death to themselves and to others is minimised. They must be familiar with the standards and guidelines in the *Australian Standards and Guidelines for the Welfare of Animals- Land Transport of Livestock* and be competent in buffalo handling skills that minimise stress in buffalo.

Tasks and guidelines for musterers

The following are practical guidelines⁵³ for musterers to ensure compliance with the *Australian Standards and Guidelines for the Welfare of Animals- Land Transport of Livestock* and with Commonwealth and Territory laws and regulations.

- A person involved in any part of the livestock transport process must be competent to perform their required task, or must be supervised by a competent person
- Buffalo should be mustered or assembled in the cooler parts of the day, especially if the temperature exceeds 32 degrees Celsius.
 - a Chasing animals during very hot weather causes hyperthermia and can result in morbidity and mortality
 - b Animals mustered by helicopter are particularly at risk if the pilot is unfamiliar with buffalo behaviour
 - c Under these conditions, animals should be moved as steadily as possible
 - d Animals should not be pushed and should be spelled from time to time under trees or in water holes.
- Buffalo have a strong following instinct and a 'flight zone' that must be understood and used for efficient buffalo handling⁵⁴

⁵³ For detailed information refer to the following sources: Lemcke, *The Australian Water Buffalo Manual*; Lemcke, "[Water Buffalo Handling: Property to Abattoir Part 2. On Farm Considerations.](#)"

⁵⁴ For more information refer to [Lemcke, The Australian Water Buffalo Manual.](#)

- After mustering in hot or humid weather, buffalo should be cooled using a hose system and given access to clean drinking water (after a period of settling down: see “buffalo stress syndrome” below)
- Buffalo that suffer heat stress must be sprayed with water at the first reasonable opportunity
- The following methods are acceptable for capturing buffalo:
 - a Normal mustering using vehicles, including all-terrain vehicles
 - b Mustering by helicopter
 - c Use of a bull-catching vehicle fitted with a 'bionic arm' to catch selected animals
 - d Use of head-ropes to securely truss an animal to a tree or other object for up to an hour prior to collection, with proper care and management
 - e Where vehicles are used to guide animals into yards, holding facilities or transport vehicles, use of unpadded bull bars to physically force animals is acceptable by trained personnel.
- Consider passive trapping or self-mustering methods which dramatically reduce stress.
- The following methods are unacceptable for capturing and restraining buffalo and must not be done:
 - a Deliberately chasing to exhaustion
 - b Restraining by mutilation, including hamstringing and/or knee stringing
 - c Injuring animals by intentional impact from motor vehicles
 - d Rolling animals and restraining by tying legs together.
- Musterers must be aware of the following conditions brought about by poor handling of buffalo and must avoid any activity that brings on these conditions.
 - a Overheating: signs of overheating in buffalo:
 - i Increased reddening of the hide on the brisket, under the belly and between the legs
 - ii The tongue hanging from the mouth
 - iii Panting
 - iv Bloodshot eyes
 - v Skin that is hot to touch.
 - b Buffalo Stress Syndrome

- i Prolonged overheating can result in brain damage in the animal
 - ii Buffalo will often engorge themselves on water when overheated
 - iii This can lead to a death-like state and paralysis like that seen in Botulism.
 - c Fish Muscle
 - i A result of significant stress prior to slaughter
 - ii No evidence of fish muscle will be seen until the animals are slaughtered and being boned
 - iii Affected meat is then condemned for aesthetic reasons.
 - d Hypoglycaemia
 - i Buffalo transported for an extended period without feed can become hypoglycaemic.
 - e Capture myopathy
 - i Capture myopathy occurs after excessive or prolonged exertion, causing high levels of lactic acid in muscle resulting in muscle necrosis and fish muscle
 - ii Capture myopathy is associated with severe pain.
- Captured buffalo must not be released back into unfenced land except where there is a defined Animal Management Plan in place.⁵⁵

Yarding and handling

General considerations

Buffalo for export must meet Australian and importing country health, welfare and commercial requirements. The disease-free status of NT buffalo needs to be carefully monitored to ensure access to overseas markets. The buyer/agent may request specific preparation of animals, including husbandry and animal health tests and treatments.

⁵⁵ Northern Territory Government, Territory Parks and Wildlife Conservation Act, Part IV, Division 8, 67A.

Tasks and guidelines for handling buffalo in yards.

- Where buffalo have been mustered by helicopter, suitable feed, water and rest must be allocated for **at least** 24 hours before commencement of any curfews related to the transport task
- Following capture, if drafting occurs at the trap yards then buffalo should be separated into groups and kept with animals of the same size to minimise the effects of size differences and aggressiveness.
 - a Depending on safety considerations, buffalo may be transported to processing yards prior to drafting
 - b Double handling to achieve this segregation should be avoided if possible
 - c Severely injured or distressed buffalo should be humanely destroyed and removed from the holding facility immediately.
- Report any unexpected deaths, abnormal behaviour and unusual disease symptoms in buffalo to the regional Veterinary Officer of the Emergency Animal Disease Watch Hotline on 1800 675 888 or to a private Vet.
- Experienced handlers say that buffalo appear to learn quicker than cattle and have a better memory. They are better managed in smaller groups and respond best to quiet and gentle handling. The use of excess pressure (i.e. getting too close) is the greatest cause of bad handling with buffalo
- Holding yards should be sited under shade if buffalo are to be held in areas where ambient temperatures are high for long periods. If no natural shade is available, then artificial shade such as hessian or shade cloth should be used
- Yard work should be scheduled for cooler parts of the day (early morning or late afternoon) followed by a spray of water over the animals to cool them down if required
- Sheds, pens, yards, lanes, ramps and other areas where buffalo congregate should be constructed and maintained to minimise stress, injury and disease
- Such areas should be designed and constructed to minimise dust and noise
- Yard design should avoid sudden changes in level, poor lighting, narrow passages and awkward or 90° turns
- Buffalo should spend as little time as possible confined on surfaces that can predispose them to lameness, especially in wet conditions when the horn of the hoof is softened

- Keep older bulls separate from younger bulls in pens and handling yards
- Allow plenty of room for yarded buffalo to move around and avoid putting too much pressure on individual animals
- When moving through a yard enable buffalo to see the way out
- Facilities should permit adequate restraint of buffalo that require inspection or treatment
- Races and crushes should be constructed to permit efficient handling of buffalo without unnecessary danger to animals or handlers
- Head restraint facilities should be constructed to allow quick release and to avoid the risk of choking
- Buffalo must not be driven to the point of collapse
- Electric jiggers must not be used on genital, anal or facial areas; or on buffalo under three months old; or on buffalo that are unable to move away, or excessively on an animal⁵⁶
- Training in the use of electric jiggers with buffalo is required prior to use
- The use of sticks/jiggers for the handling and moving of buffalo should be limited to an absolute minimum necessary to complete the task
- The use of patience and reward in handling buffalo are the greatest principles
- Buffalo can be trained to walk unassisted through a race just by having hay in the yard at the end of the race
- Dogs must not be used with buffalo
- Devices to encourage movement should be made of cane, leather or plastic pipe
- Deliberate breaking of an animal's tail to cause it to move is totally unacceptable
- Water must be easily accessible, and buffalo should be able to drink with normal posture
- Buffalo should be monitored to determine whether they are drinking as expected and, if they are not drinking, action should be taken to encourage water intake. Actions may include:

⁵⁶ [Department of Primary Industry and Resources, "Buffalo Biosecurity Manual," 10.](#)

- a ensuring buffalo can access the water facilities (e.g. through stocking density, trough size and space)
- b checking observable water quality (e.g. by flushing water lines, keeping troughs clean).

Assessing fitness for transport

General considerations

The buffalo consignor and the transport carrier are responsible for ensuring that buffalo are fit for the intended journey.

Guidelines for assessing fitness

- An animal must not be transported if it is⁵⁷:
 - a unable to walk on its own by bearing weight on all legs
 - b severely emaciated
 - c visibly dehydrated
 - d showing visible signs of severe injury or distress
 - e suffering from conditions that are likely to cause increased pain or distress during transport
 - f blind in both eyes
 - g buffalo known to be in the last four weeks of pregnancy must only be transported under veterinary advice, unless the journey is less than four hours duration
 - h buffalo with freshly broken bones must be humanely destroyed at the first reasonable opportunity.
- A person in charge must make appropriate arrangements for the care, treatment or humane destruction of the animal at the first reasonable opportunity if an animal is assessed to be not fit for the intended journey before loading.

⁵⁷ For a practical general guide refer to [Meat and Livestock Australia, Is It Fit to Load?](#)

Dehorning

Dehorning or tipping is not a requirement under the *Australian Standards and Guidelines for the Welfare of Animals— Land Transport of Livestock*. Nevertheless, there are benefits of dehorning that include less bruising in yards, trucks and at meatworks. Buffalo destined for export must also comply with the ASEL requirements as set out in the relevant Export Advisory Notice⁵⁸. These requirements stipulate that:

- animals with horn length less than the spread of the ears (termed “short horns”) are suitable for export
- animals with horn lengths between the spread of the ears and 5 cm outside the spread of the ears are “long horns” and a Long Horn Management Plan⁵⁹ must be submitted by the licensed exporter exporting the livestock
- animals with horn lengths that exceed the 5 cm extension will not be fit for export.

The processes involved in dehorning are discussed in detail by Lemcke⁶⁰. As far as this Code is concerned, dehorning must be carried out humanely and with minimal stress to the animal.

Dehorning wounds must be healed before the buffalo are ready for transport or are delivered to the buyer. Buyers will specify whether they want the animals with horns or not. Methods for dehorning buffalo of different ages are described in the Lemcke publication⁶¹.

The following are general considerations:

- A person dehorning buffalo must have the relevant knowledge, experience and skills, or be under the direct supervision of a person who has the relevant knowledge, experience and skills.
- Those inexperienced in dehorning procedures should seek prior advice to ensure an effective and humane job

⁵⁸ [Department of Agriculture and Water Resources, *The Export of Cattle or Buffalo with Long Horns \(Revised\)*](#).

⁵⁹ Refer to [Department of Agriculture and Water Resources](#) for a description of the requirements for this management plan.

⁶⁰ Lemcke, “[Water Buffalo Handling: Property to Abattoir Part 2. On Farm Considerations.](#)”

⁶¹ Lemcke, 5–7.

- Dehorning should not be done when animals are stressed or in very hot weather
- It is recommended that no more than half the length of the horn be cut off when dehorning adult buffalo
- Cauterising the main blood vessels with a hot iron is highly recommended
- Antiseptic spray should be applied to the open wounds
- Consider the use of pain relief medication.⁶²

Preparation for transport

General Considerations

Only buffalo fit to travel must be presented for loading.

A pre-transport spell period after handling is recommended with a minimum acceptable spell period being four hours of undisturbed access to water with space to lie down and rest.

Where the journey will take more than 24 hours, provision of suitable feed, water and rest for at least 12 hours close to the loading facility, before commencement of any curfews, is recommended.

The maximum permitted time off water for adult buffalo is 36 hours and this must be followed by a 24-hour spell.

Tasks and guidelines for consignor

- Each animal must be identified prior to movement, by an approved NLIS device
- Branding is not mandatory for buffalo⁶³
- The person moving the buffalo must complete a Waybill for each buffalo movement⁶⁴
- Completion of a Waybill requires:
 - a the name of the buffalo owner
 - b the name, address and property identification code (PIC) of the property of origin of the buffalo
 - c the name of the new owner

⁶² The NT Chief Veterinary Officer considers that this will be mandated for cattle over 12 months of age (cattle welfare standards) and that buffalo can be expected to be subject to the same pain relief requirements.

⁶³ Northern Territory Government, "[NLIS for Buffalo in the NT.](#)"

⁶⁴ Northern Territory Government, "[NT Waybills.](#)"

- d the name, address and PIC of the destination property for the buffalo
 - e the type and number of animals
 - f whether stock have NLIS devices.
 - Authority to move buffalo from declared cattle tick infected zones must be obtained from an NT Government authorised inspector and can be in the form of
 - a an endorsed Waybill
 - b Health Certificate and Waybill
 - c a Movement Permit for a Declared Area.
 - The Territory’s four specific cattle tick zones are: the Parkhurst zone, the infected zone, the control zone and the free zone⁶⁵.
 - a Movement of stock from the Parkhurst zone to or through any of the other zones requires clean inspection by authorised inspector and treatment of the stock, or
 - b movement of stock from the infected zone to or through the control zone or the free zone requires clean inspection by authorised inspector and treatment of the stock.
 - Before loading buffalo, the consignor should notify the driver of any concerns about the fitness of buffalo to be transported. Any special requirements for a buffalo consignment should be agreed between the consignor of the buffalo and the driver
 - Records should be maintained for any buffalo that are transported under special circumstances
 - Report any unexpected deaths, abnormal behaviour and unusual disease symptoms in buffalo to your regional Veterinary Officer of the Emergency Animal Disease Watch Hotline on 1800 675 888
 - The consignor must supply the driver with 24-hour contact details of the receiving premises.
-

⁶⁵ For detailed information refer to [Northern Territory Government, “Cattle Tick Control.”](#)

Moving buffalo into the NT from other Australian jurisdictions

The following information and documentation are required when transporting buffalo from other areas of Australia into the NT:

- NT Health Certificate and Waybill
- Johne's Disease clearance⁶⁶
- Cattle tick clearance
- NT PIC – destination property
- NLIS device for each animal

Moving buffalo from the NT to other jurisdictions within Australia

Requirements for entry of buffalo from the NT into other States/Territories are different for each jurisdiction and it is incumbent on the consignor, in consultation with the transport operator, to ensure that the requirements for buffalo movement are complete⁶⁷.

Hypothermia during transport

Depending on the time of year, provisions must be made to reduce exposure to extreme weather events and low temperatures. Minimum temperatures in the range of 7 to 8 degrees Celsius are considered extreme and risk mitigation strategies must be included in the journey management plan.

Buffalo intended for export from Australia.

General Considerations

Any person along the extended supply chain working with buffalo intended for export must operate in compliance with the standards and guidelines mandated in the *Australian Standards for the*

⁶⁶ Department of Primary Industry and Resources, "Johne's Disease - Livestock Movement Requirements."

⁶⁷ See the following requirements for each state: for Victoria: Department of Economic Development, "Interstate Livestock Movements."; for NSW: NSW DPI, "Livestock Movements."; for Qld: Agriculture and Fisheries, "Livestock Entry Requirements for Queensland."; for SA: Department of Primary Industries and Regions, "Moving Cattle to South Australia from Interstate."; for WA: Agriculture and Food, "Importing Livestock into Western Australia."; And for Tas: Dept of Primary Industries, Parks, Water and the Environment, "Animals That Can Be Imported with Entry Requirements."

Export of Livestock (version 2.3) and in *Australian Standards and Guidelines for the Welfare of Animals— Land Transport of Livestock*.

The *Export Control Act 1982* states that buffalo for export by sea must be assembled at Department of Agriculture and Water Resources-registered premises for preparation for export⁶⁸. Such premises must have an approved quality assurance plan that establishes procedures to comply with ASEL standards.

Criteria for rejection of buffalo for export

ASEL includes strict criteria for rejection of buffalo for export. Buffalo found with any of the signs shown in Table 1 must be rejected from the proposed export consignment.

Any other condition that could be defined as an infectious or contagious disease or that would mean the animal's health or welfare would decline or that the animal would suffer significant distress during transport, also requires the animal's rejection from export.⁶⁹

Buffalo sourced for export must be inspected on-site and any animal showing signs consistent with the rejection criteria shown in Table 1 or any other condition that could cause the animal's health and welfare to decline during transport or export preparation must not be prepared for export.⁷⁰

Table 1 Rejection criteria for export of buffalo⁷¹

Category	Rejection criteria
General requirements	Fail to meet requirements of protocol/import permit, such as sex, type, breed, tag number Lactating animals including with young at foot (but this does not apply to buffalo being exported by air) Pregnancy status not confirmed as appropriate for journey
Systemic conditions	Emaciated or overfat, anorexic, uncoordinated, collapsed, weak unwell, lethargic, dehydrated, ill-thrift
Gastrointestinal system	Dysentery or profuse diarrhea, bloat
Nervous system	Nervous symptoms (head tilt, circling, incoordination) Abnormal or aggressive behaviour/intractable or violent

⁶⁸ Department of Agriculture and Water Resources, "Premises Registered by the Department."

⁶⁹ For lists of buffalo diseases see [Department of Primary Industry and Resources, "Buffalo Biosecurity Manual,"](#) Pages 17-21. and [The Australian Water Buffalo Manual, 84–90.](#)

⁷⁰ For a lists of Buffalo diseases see "Buffalo Biosecurity Manual." and *The Australian Water Buffalo Manual*.

⁷¹ *Australian Standards for the Export of Livestock (Version 2.3)* 2011, P 65.

External/skin	Generalised papillomatosis or generalised ringworm, dermatophilosis, generalised and extensive buffalo fly lesions generalised skin disease Visible external parasites, significant lacerations, discharging wounds or abscesses, cutaneous myiasis (flystrike), blood/discharge from reproductive tract (vulva/prepuce)
Head	Blindness in one or both eyes, cancer eye, keratoconjunctivitis (pink eye), excessive salivation, nasal discharge, coughing, respiratory distress — difficulty breathing, untipped sharp horns Buffalo: horns longer than the spread of the ears, except in approved NOI and CRMP, horns causing damage to head or eyes
Other	Mobs with unusual mortalities over the whole period of pre-export isolation, large disparities in size or age (redraft animals in this case).

Buffalo must not be sourced for export if they are in an emaciated or overfat body condition. That is, buffalo must be from condition scores 2 to 6 (inclusive) on a scale of 1 to 7.⁷²

Sourcing buffalo for export as slaughter, feeder and dairy animals

Buffalo sourced for export as slaughter, feeder and dairy animals:

- must have been weaned at least 14 days before sourcing for export
- must have been determined not to be pregnant, through one of the following criteria:
 - a They have been pregnancy tested during the 30-day period before export and certified in writing as not detectably pregnant by the registered veterinarian or competent pregnancy tester⁷³ who pregnancy tested the buffalo
 - b They are accompanied by a vendor declaration that certifies that they have been spayed using the Willis dropped ovary technique not less than 30 days before export

⁷² ASEL notes that “*body condition scores for buffalo are under development*”, however for buffalo condition scores, see Appendix C of *The Australian Water Buffalo Manual*.

⁷³ A **competent pregnancy tester**, for a pregnancy test conducted in the Northern Territory is a person accredited by the relevant agency of the Northern Territory to conduct pregnancy tests

- c They are accompanied by a vendor declaration that certifies that they have been spayed not less than 280 days before export.

Sourcing buffalo for export as breeding animals

Buffalo must only be sourced for export for breeding if they:

- have been weaned at least 14 days before sourcing for export
- have been pregnancy tested within the 30-day period before export and certified in writing as no more than 220 days pregnant at the scheduled date of departure. The certification must be provided by a veterinarian who is an accredited tester and who pregnancy tested the buffalo. For journeys of less than 10 days a declaration must be made in writing by a local veterinarian who can attest to demonstrable current experience, and who pregnancy tested the buffalo.

Exporting horned buffalo

All buffalo must only be sourced for export:⁷⁴

- if the horns are no longer than the spread of the ears and are blunt
- if de-horned, wounds are healed.

Otherwise, horned buffalo must only be sourced for export with the approval of the relevant Australian Government agency.

Buffalo with horns greater than the ASEL requirements, are called 'long horns' and exporters are required to submit a long horn management plan on a case-by-case basis.⁷⁵

Vaccines, veterinary medicines and agricultural chemicals

A record of all vaccines, veterinary medicines and agricultural chemicals used to vaccinate or treat buffalo sourced for export must be kept for at least two years after the date of export.

⁷⁴ For more details on dehorning, see "Buffalo Biosecurity Manual," Page 11.

⁷⁵ For detailed information see "Dehorning" on page 24 of this document

Prostaglandin

Female buffalo must not be treated with a prostaglandin drug within seven days of export, and not during the 60-day period before export unless they have been pregnancy tested immediately before prostaglandin treatment and declared to be in the first trimester of pregnancy or not detectably pregnant.

Health certificate and export permit

A licenced livestock exporter must apply to the Department of Agriculture and Water Resources (DAWR) for each export consignment. DAWR must be satisfied that:

- *the Australian Standards for the Export of Livestock (version 2.3)* and
- *Australian Standards and Guidelines for the Welfare of Animals— Land Transport of Livestock*; and
- importing country requirements

have been met before issuing a health certificate and export permit.

Loading, transport and unloading⁷⁶

General Considerations.

Land transport is planned and undertaken on a competently operated and suitable vehicle, with buffalo being handled throughout the process in a manner that prevents injury and minimises stress.

Land transport must be undertaken in accordance with a travel plan that accounts for the standards and guidelines in *Australian Standards and Guidelines for the Welfare of Animals— Land Transport of Livestock* and, where animals are intended for export, in *the Australian Standards for the Export of Livestock (version 2.3)*.

Land transport of buffalo for export must also meet any importing country requirements for the land transport phase in the export chain.⁷⁷ These requirements will be available from the exporter.

⁷⁶ For a comprehensive review on loading and unloading buffalo in trucks see [Lemcke, “Water Buffalo Handling: Property to Abattoir, Part 3. Transportation to the Abattoir.”](#) And see also [Is it fit to load?](#)

⁷⁷ See Northern Territory Government, “Exporting Livestock from the NT.”

Journey management plans should be flexible when determining timing and length of stops and spells in transit, to achieve the best possible welfare outcomes.

All reasonable steps should be taken to minimise the effects of climatic extremes, especially for buffalo being transported from warmer areas to cooler areas.

In cooler weather, buffalo should be protected from cold stress. Transport vehicles should contain enclosed fronts or be able to be enclosed for shelter against wind chill, for buffalo that are not adapted to the cold, or when transporting buffalo less than six months old.

The timing and quality of spells for buffalo that are to be transported on multiple, consecutive journeys should be carefully considered to maximise fitness for travel.

If a journey is broken by unloading for short periods, such as occurs at a saleyard or enroute to a buffalo processing establishment, care should be taken that buffalo are not deprived of feed and water beyond the limits specified.

For buffalo intended for export, the documentation relating to each consignment must be kept for at least two years after the date of export.

Loading densities.

Loading densities should not exceed those shown in Table 2.⁷⁸

Table 2 Loading densities for buffalo of different sizes⁷⁹

Mean live weight (kg)	Minimum floor area (m ² /head)	Number of head per 12.5 m x 2.4 m deck
200	0.69	43
250	0.77–0.79	38
300	0.86–0.89	34
350	0.98–1.01	30
400	1.05–1.09	28
450	1.13–1.18	26
500	1.23–1.28	24
550	1.34–1.40	22
600	1.47–1.55	20
650	1.63–1.73	18–17

⁷⁸ "Land Transport of Livestock Standards and Guidelines Version 1.1," P 49.

⁷⁹ Loading density targets provided above are based on animals with blunt horns that are no longer than the spread of ears. Additional space is required for untrimmed horns.

Water

The transport operator should be advised of the duration that buffalo were deprived of water (and, for unweaned buffalo, liquid feed), from the previous owner or person responsible.

There is **no permissible time off water** before transport for buffalo. If animals become agitated during loading or unloading or are held on stationary transport for an extended period, regular spraying with water is the best way to reduce stress levels.

Providing water is a key determinant of buffalo welfare during transport. Water provision times and spell periods are defined in Table 3.⁸⁰

Table 3 Mandated maximum time periods off water for buffalo.

Class	Max time off water hrs	Min spell duration hrs
Buffalo over 6 months old	36	24
Buffalo 1–6 months old	24	12
Buffalo known to be more than 7 months pregnant excluding the last 4 weeks	24	12
Lactating buffalo with calves at foot	24	12

- If the maximum permitted time off water is reached, the person in charge must provide the buffalo with a spell (water, food, shade, space to lie down and rest)
- If buffalo over six months old have been off water for 36 hours, the person in charge must ensure the buffalo have a spell for 24 hours before starting another journey
- If cows known to be more than seven months pregnant (excluding the last four weeks of pregnancy), lactating cows, calves and young buffalo have been off water for 24 hours, the person in charge must ensure the buffalo have a spell for 12 hours before starting another journey
- The person in charge must manage time off water to minimise risk to the welfare of the buffalo according to:

⁸⁰ "Land Transport of Livestock Standards and Guidelines Version 1.1," P 47.

- a the increased risk to buffalo welfare of longer journeys close to the permitted maximum time off water
 - b the assessment of whether the buffalo are fit for the remainder of the intended journey
 - c the predicted climatic conditions, especially humidity, heat or cold; and
 - d the class of buffalo, especially if weak, pregnant, recently having given birth, lactating or immature
 - e the road conditions
 - f the nature of the intended journey.
- If no records are provided indicating the last time the buffalo had access to water, then buffalo at a buffalo handling facility (saleyard, spelling facility or staging point) must be provided with reasonable access to water by the person in charge within the maximum time off water as shown in Table 3
 - If the time buffalo were deprived of water is unknown at the time of loading, or if it differs across the consignment, this should be noted on the documentation
 - Buffalo should be monitored carefully when reintroducing them to water following transport. Dehydrated buffalo may gorge themselves when reintroduced to water, with adverse effects on their welfare⁸¹
 - Buffalo should be fed and watered as soon as possible after unloading.

Tasks and responsibilities of individuals involved in loading and unloading⁸²

- Buffalo should be loaded and unloaded from the transport vehicle in a calm and quiet manner to ensure that stress and injuries are minimised
- Buffalo should be handled in a manner that minimises stress. Buffalo with no room to move should not be forced, prodded, pushed or excessively handled. Where excessive handling effort occurs, facility design should be examined. Excessive yelling, noise making and sudden movements should be avoided

⁸¹ For details refer to [Page 16](#), Hyperthermia and dehydration

⁸² For details refer to Lemcke, "Water Buffalo Handling: Property to Abattoir, Part 3. Transportation to the Abattoir."

- Stock handlers should ensure that bystanders or items that may cause buffalo to balk do not impede the smooth loading and unloading of buffalo. Avoidable distractions should be minimised
- Electric prodders should be used only under supervision of trained personnel
- Electric prodders must not be used on genital, anal or facial areas; or on buffalo under three months old; or on buffalo that are unable to move away; or excessively on animals
- Ramp slopes for adult buffalo should be a maximum of 20 degrees and with a slide gate to prevent reversal
- If animals become agitated during transport, loading or unloading, or are held stationary on the vehicle for an extended time, they should be sprayed with water for cooling and to reduce stress levels
- Aggressive bulls should be segregated or restrained by a head rope (or both)
- Additional welfare considerations should be made for buffalo over six months old after 24 hours off water and for calves, lactating cows and cows in the third trimester of pregnancy after 12 hours off water. These extra considerations should include:
 - a that the buffalo are considered fit for the remainder of the intended journey
 - b adverse weather conditions are not prevailing or predicted
 - c additional spell times during the journey
 - d a longer spell time at the end of the journey
 - e the recent management of the buffalo before first loading.
- Handling and transporting female buffalo in the last half of pregnancy should be avoided, unless the animals are under management of a buffalo breeder protocol
- Buffalo in the third trimester of pregnancy should not be deprived of water for more than 12 hours and should be provided with water, food, space to lie down and rest for 12 hours before starting another journey
- Buffalo more than nine months pregnant should be transported under the following provisions:
 - a Water-deprivation time should not exceed eight hours
 - b Feed and water should be provided immediately before loading and upon unloading
 - c Additional space should be provided on the vehicle

- d Different classes of buffalo should be segregated
- During particularly hot weather, buffalo should be transported at night
- Frequent cooling down with a water spray, or transport in the cooler times of the day, or overnight is appropriate in hot and humid weather
- At unloading, buffalo become the responsibility of the person designated with responsibility for the buffalo at the receiving premises. That person must be notified of any aspect of the journey that might affect the future welfare of the buffalo
- When buffalo are transported at night to reduce heat stress and humidity, the persons in charge must ensure receivers are available outside regular hours to receive the animals and avoid unloading delays.

Driver tasks

The transport operator/driver must:

- be familiar with *Australian Standards and Guidelines for the Welfare of Animals— Land Transport of Livestock*
- have the relevant contact details of owners or agents and customers at the origin and the destination. It is important that the driver can contact the operator of the receiving premises at any time to ensure the premises is prepared for the arrival of the consignment
- have a journey management plan – which is mandatory where buffalo are intended for export. The journey management plan must address:
 - a loading densities and penning requirements
 - b duration of the journey, including rest periods for driver and buffalo
 - c inspection of buffalo immediately prior to loading to ensure they are fit for the journey
 - d the feed and water requirements and curfew times; determination of these must incorporate total times that animals have been off feed and water
 - e the expected weather conditions before and during transport
 - f the route and the types of roads traversed

- g contingency plans for managing transport breakdown, accidents, escapes, deaths, downers and injuries.

It is the driver's specific responsibility to:

- inspect the stock crates prior to loading to ensure hinges, latches and internal surfaces are safe and free of anything that may cause damage to the livestock
- ensure that the loading ramp and the vehicle are properly aligned when loading and unloading and that any gap between the ramp and the vehicle is sufficiently narrow to minimise the likelihood of injury to buffalo
- inspect the livestock crate immediately before departure to ensure that all doors are closed and secured
- report any unexpected deaths, abnormal behaviour and unusual disease symptoms in buffalo to the regional Veterinary Officer of the Emergency Animal Disease Watch Hotline on 1800 675 888
- check buffalo to ensure that they are evenly distributed and remain fit to travel (as per density plan, *table 2*):
 - a immediately before departure
 - b within 30–60 minutes of commencement of the journey
 - c at least every 2–3 hours as road conditions warrant
 - d immediately before departure after any stop.
- ensure that the management, care or humane destruction of any buffalo that are judged as weak, ill or injured during the journey is appropriate
- inform the buffalo consignor and receiver of any problem encountered during the journey in relation to the welfare of the buffalo, including where buffalo may not have met the specified fitness requirements for loading
- ensure that buffalo that suffer heat stress during the transport process are cooled at the first reasonable opportunity by water spray
- hose buffalo as much as possible during the transport process, e.g. every 300 km after loading, as well as before unloading
- leave buffalo on the vehicle during rest or watering stops, and parked under shade, where possible, when conditions are hot.

- at watering stops, monitor buffalo to determine whether they are drinking as expected, and if they are not drinking, action should be taken to encourage water intake.
- make every reasonable effort to minimise the delay. If unexpected delays occur and ensure that water is provided within the times specified in *Table 3 Mandated maximum time periods off water for buffalo*
- drive in a manner that minimises impact on the welfare of the buffalo, including appropriate driving techniques for the road conditions, managing buffalo during weather that may predispose them to heat or cold stress, and considering rest-stops and the nature of the journey
- use smooth driving techniques, without sudden turns or stops, to minimise excessive movements of buffalo and to prevent injuries, bruising, slipping and falling of buffalo
- inspect buffalo as soon as practical after any unusual or difficult road or weather conditions
- In the event of any road accident involving the transport vehicle, all buffalo should at the first opportunity be:
 - a assessed, in the standing position if possible
 - b removed for treatment, or
 - c humanely destroyed at the accident site.
- have contingency plans for situations including:
 - a breakdown or mechanical failure
 - b delays and lengthened journeys where this will affect arrangements for feeding and watering
 - c adverse weather — specifically, climatic conditions that predispose buffalo to heat or cold stress
 - d poor road conditions
 - e illness or injury
 - f other issues specific to the journey or buffalo being transported.
- when on dirt roads, inspect buffalo hourly for the first three hours. Special attention should be paid to animals on the last trailer
- provide or seek assistance at the first reasonable opportunity upon identifying a distressed or injured animal at an inspection

- additional checks should be made as necessary to ensure the welfare of the consignment if a problem with the buffalo is identified during transit, even when the problem is rectified – and drivers should notify ahead for assistance if necessary
- have contingency arrangements in place for humane destruction. Such arrangements may include one or more of the following:
 - a People competent in humane destruction are available
 - b Equipment for humane destruction is maintained and operational
 - c Instructions on the recommended procedures for humane destruction are in the vehicle for reference
 - d Contact details of competent persons that may assist in humane destruction are available
 - e Contingency arrangements are in place at locations along the journey or at the destination for assistance with humane destruction
 - f Suitable holding and handling yards enroute are known in case of unforeseen circumstances arising and where an emergency unloading is needed.
- record and communicate to the person(s) responsible when there are inappropriate holding, loading or unloading facilities at the property of origin or destination, so that corrective action can be taken
- obtain 24-hour contact details of owners or agents and customers at the source and destination for assistance as required
- notify and transfer the responsibility for the buffalo to the responsible person at the destination on unloading, including after-hours arrangements for receiving buffalo
- inspect the receival yard immediately before unloading, to ensure that there is free access and enough space for the buffalo intended to be unloaded
- identify weak, ill or injured buffalo to the person receiving the buffalo
- following the journey, driver feedback on buffalo welfare should be provided to the consignor.

Receiving transported buffalo

General Considerations

The person at the destination is responsible for the buffalo from the point of unloading and notification of buffalo being received. Persons at destination responsible for receiving the buffalo may include owners, operators and staff of properties, feedlots, saleyards, depots and buffalo-processing plants. There is also a responsibility for buffalo welfare that extends to company management at the destination.

Responsibilities for the person receiving the buffalo.

- provide drivers, transport companies, agents, pick-up crews and carriers with contact details of relevant personnel at the destination, including personnel to be available out of hours, should a problem arise during the transport journey or assistance be needed on arrival
- communicate with the transport company or driver and providing effective instructions on the practices and arrangements for unloading and managing buffalo if arriving out of hours
- handle and manage buffalo in accordance with the provisions specified in *Australian Standards and Guidelines for the Welfare of Animals— Land Transport of Livestock*.
- hose buffalo before unloading, if necessary
- provide water, feed and other requirements during holding as required
- do not provide any feeds or supplements that might contain Rumensin® (monensin) as it can cause toxicity and death
- provide suitable unloading or loading and holding facilities that do not predispose buffalo to injury
- inform the transport company, driver and buffalo consignor of any adverse impacts on buffalo welfare from the journey that are first observed after arrival
- ensure that any buffalo that are weak, ill or injured at unloading are identified, managed, treated or humanely destroyed at the first opportunity
- remove dead stock from the vehicle
- humanely destroy any buffalo that cannot walk from the vehicle ('downers') while still on the vehicle, where practical. Alternatively, facilities, equipment and sufficient

personnel should be available for the humane unloading of these buffalo and their humane destruction at the first opportunity

- have facilities available for handling and disposing of dead buffalo.

Humane destruction

Recommended methods of humane destruction include:

- for adult buffalo — firearms
- for buffalo calves — firearms or captive bolts.

The preferred method for humane destruction of buffalo is a firearm in the frontal position. Powerful 0.30-calibre centre fire cartridges with hard projectiles are recommended for larger animals and bulls, and not captive bolts. For calves, a rifle should deliver the muzzle energy of at least a standard 0.22-long rifle cartridge. For young buffalo, 0.22 magnum cartridges may be suitable⁸³.

Operators should consider the angle of impact, because buffalo tend to lift their nose when looking directly at the shooter. Horns in adults make the temporal aim point impractical.⁸⁴

⁸³ See Buffalo Biosecurity Manual, 2016

⁸⁴ For details refer to Lemcke, *The Australian Water Buffalo Manual*.

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