DEPARTMENT OF
PRIMARY INDUSTRIES

# Code of Practice for the Husbandry of Captive Emus

(Revision 1)

Victoria
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Code of Practice for the Husbandry of Captive Emus (Revision 1)
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# Code of Practice for the Husbandry of Captive Emus

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# PREFACE

The Prevention of Cruelty to Animals Act 1986 came into force on 20 May 1986 and is administered by the Department of Primary Industries. The Act has the purpose of protecting animals, encouraging the considerate treatment of animals and improving the level of community awareness about the prevention of cruelty to animals. It establishes fundamental obligations relating to the care of animals in general terms. Details of these obligations are found in Codes of Practice made under the provisions of the Act. These Codes set out minimum standards and recommendations relating to important aspects of the care of animals. It is recommended that all those who care for animals become familiar with the relevant Codes.

This 'Code of Practice for the Husbandry of Captive Emus (Revision 1)' has been prepared by the Bureau of Animal Welfare, Department of Primary Industries, in consultation with people who have expertise in husbandry of emus, animal welfare and veterinary science. It was issued by a notice published in the Government Gazette on 19 July 2007.

# 1 INTRODUCTION

1.1 This Code is intended as a guide for all people responsible for the welfare and husbandry of emus that are bred and/or reared in captivity.

1.2 The Code is based on the knowledge and technology available at the time of publication and may need to be varied in the future. The emu industry is evolving rapidly and it is inevitable that stock handlers will encounter circumstances with emus that are not currently covered by this Code. When this occurs it is essential that commonsense prevail and that previous experience with stock be utilised to the fullest, to ensure the welfare of the birds.

1.3 Emus are kept in situations that vary from extensive grazing to close confinement and housing. Whatever the form of husbandry, owners, managers and handlers of emus have a responsibility for the health, welfare and considerate treatment of the birds under their control.

1.4 The basic behavioural, anatomical and physiological needs of emus are considered in this document, irrespective of the degree of intensive husbandry practised, or the climatic conditions to which the emus are exposed.

1.5 The importance of competent stock sense in animal welfare cannot be over-emphasised.

1.6 The basic requirements for the well-being of emus are:

- appropriate and sufficient food and water to sustain health and vitality;
- sufficient area to maintain their well-being and in which to exhibit normal behaviour;
- protection from predation;
- protection from disease, including disease that can be exacerbated by management practices;
- protection from extremes of climate, particularly during certain phases of their lives; and
- protection from pain, distress, suffering and injury.

1.7 There is a considerable diversity of opinion on the maximum stocking density that is allowable for different classes of emus. The densities outlined in this Code are conservative, but are based on the experience gained from farming emus under a variety of conditions.

1.8 Emus have been studied in natural conditions for many years, but have been managed in confined conditions only for the last 15-20 years; consequently this Code should be reviewed at least every three years until a better understanding is gained of the needs of captive-bred emus.

1.9 Emus are protected in Victoria in accordance with the Wildlife Act 1975. People with the appropriate licence from the Department of Sustainability and Environment are permitted to keep, rear and sell native animals specified in the Wildlife Regulations 2002.

# 2 HOUSING

**Minimum standards**

2.1 Emus that are kept in yards or an extensive range must be provided with adequate shade and protection from the elements.

2.2 Where breeding pairs are housed under free-range conditions, the range must be inspected daily and all chicks removed from the range as they hatch.

2.3 Where breeding pens are utilised, wire netting (rabbit netting) to a height of 450 mm must be provided on all fences to prevent the chicks escaping or being injured by emus housed in adjacent pens.

2.4 From 5 to 12 weeks of age chicks housed together in groups must be provided with access to an outside run providing 5 $m^2$ per chick.

**Recommended practice**

2.5 All emus need to be protected from extremes of climate.

2.6 Persons intending to erect new housing and yards, or to modify housing that has been used for other species should seek advice from the Department responsible for agriculture and others with appropriate expert knowledge. Well-designed and constructed buildings and yards with adequate drainage can provide an ideal environment for rearing and breeding emus.

2.7 The type of housing and yard dimensions required by emus will vary with the geographic location of the emu farm, the age of the emus, the management practices to be employed and the stocking density. The stocking density should be reviewed regularly and adjusted, according to the age of the birds, the flock size, the house or paddock conditions, the behavioural needs of the birds and the likely occurrence of disease.

2.8 The following recommendations are to be used as a guide and will vary with different constructions for brood houses, constructions for chicken runs and for birds in open range. They will also be dependant on drainage, vegetation, tree cover, soil type and management.

**Chicks (0–12 weeks old)**

2.9 ***General***

Emu chicks may be reared extensively under natural conditions, or intensively in buildings in which acceptable levels of temperature, humidity, fresh air, light and hygiene can be achieved and maintained. Chicks require special attention until they lose their 'stripe' appearance, which usually occurs by 12 weeks of age.

2.10 ***Natural conditions***

Eggs may be incubated by the male under field conditions in either breeding pens or under open range conditions. The hen could attack her own chicks once they hatch. It is therefore recommended that either the hen be removed before the first chicks hatch, or the chicks be removed to a rearing shed.

2.11 ***Intensive rearing***

2.11.1 *Floors and other surfaces*

Floors and other surfaces should be designed, constructed and maintained so that they are non-slip, minimise the risk of injury and disease, and adequately support emu chicks so that they can stand and move freely. Deep litter floors should be checked frequently to ensure they are dry and friable. The litter should not be allowed to become caked, wet, or excessively dusty. Chicks should not be allowed to walk on bare concrete or wire floors.

2.11.2 *Space*

Stocking density should be reviewed periodically and adjusted, taking into account the age of chicks, flock size, temperature, ventilation, lighting, quality of housing and occurrence of disease. Chicks should have access to extensive runs at an early age, but due consideration should be given to the climatic conditions. Heating should be provided to give chicks a minimum temperature of 20°C and a mean temperature of 25°C in the first four weeks of life. Overheating can be dangerous to chicks. The temperature at floor level under a brooder to which they are confined should be 20–28°C. Chicks should be raised under gas or electric brooders that can provide a temperature range of 25°–32°C across the floor, to allow chicks to move to the most comfortable temperature.

Under these management and housing conditions, it is recommended that chicks be housed in groups of up to 50 for the first four weeks of life at a shed density of up to three chicks per $m^2$. Chicks should be given access to an outside run from two days of age. This run should be covered to protect chicks from predation until chicks are four weeks old. From 5 to 12 weeks of age, chicks can be housed together in groups of up to 200–400 at the same shed density, with access to an outside run.

2.11.3 *Lighting*

Where emus do not have access to daylight, they should be exposed to artificial light for at least eight hours per day. The effect of abnormally long periods of light (in excess of 16 hours) on the growth of chicks is uncertain, and may be detrimental. A 'blackout' training period each day is recommended from one day of age to prevent panic should lighting fail.

For the first few days after hatching, young chicks reared away from their father require a high light intensity of about 40 lux over the food and water, so they can learn to find it. That light intensity may then be reduced to a minimum of 20 lux once birds are eating and drinking.

2.11.4 *Ventilation*

Where chicks are reared intensively, fresh air is required at all times to prevent the accumulation of water vapour, heat, ammonia, hydrogen sulphide, carbon dioxide, carbon monoxide and dust particles. The presence of ammonia may be a problem where there is poor ventilation, and it is usually a reliable indicator of the build up of noxious gases. In enclosed buildings, ammonia levels should not be allowed to exceed 20 parts per million (ppm) of air, measured at bird level, without immediate corrective action being taken. (A level of 10–15 ppm of ammonia in the air can be detected by smell. An ammonia level of 25–35 ppm will cause eye and nasal irritation in humans). Ideally ammonia levels should be measured using an ammonia meter.

**Juvenile (blackhead) emus (12 weeks to 6 months old)**

2.12 Young emus require protection from the extremes of temperature, rain and wind. At this age, emus may be kept in groups of up to 250 and should be housed initially in sheds or other shelter, or outside with effective windbreaks.

2.13 The maximum density for emus at this age should be two per $m^2$. Those kept inside should be provided with an outside run of at least 40 $m^2$ per chick.

2.14 Older blackhead chicks should be reared entirely in open conditions, with effective windbreaks or other shelter. Stocking rates for birds in these conditions should vary from 175 per hectare for dry or bare conditions to 250 per hectare for lush or irrigated conditions.

**Yearling emus (6–18 months old)**

2.15 Yearlings should be housed in open conditions at stocking rates from 100 per hectare for dry or bare conditions to 175 per hectare for lush or irrigated conditions.

**Mature emus**

2.16 ***Free range***

Emus that have not previously been socialised together before 12 months of age should ideally not be housed together after that age. Where they must be grouped together they should be housed at stocking rates from 18 per hectare for dry or bare conditions to 24 per hectare for lush or irrigated conditions.

2.17 ***Breeding pairs***

Where emus are kept as breeding pairs under optimal conditions, each pair should be provided with a minimum pen size of 400 sq m. This area should be securely fenced. In low rainfall areas and where there is little vegetation, these dimensions should be increased; a pen size of 2500 sq m has been found to be satisfactory for a breeding pair.

# 3 EQUIPMENT

**Minimum standards**

3.1 All equipment to which emus have access must be designed and maintained to avoid injury or pain to the birds.

**Recommended practice**

3.2 Feeders and waterers should be checked for efficient operation every day. Feeders and waterers should be located well away from fence lines to avoid injury if conflicts occur while birds are eating or drinking or when they run along fences. Water should be kept cool during hot weather. Insulation or burial of pipes and regular flushing of troughs assist in keeping water cool.

3.3 Automated hatchery equipment should have adequate back-up systems, which should include an alarm system or generator in case of a power failure.

# 4 PROTECTION FROM PREDATORS AND HAZARDS

**Minimum standard**

4.1 Emus must be protected from predators and, where necessary, from each other.

**Recommended practice**

4.2 Electric fences can be used to discourage predators and are particularly useful in affording protection to young emus. Outside runs should be covered to protect chicks from predators until chicks are four weeks old.

4.3 Accommodation should be sited where it is safe from the effects of fires and floods.

4.4 Buildings in which birds are housed should incorporate sufficient exits to allow for emergency evacuation of the building.

4.5 Yards should be designed so emus can be evacuated readily in case of an emergency.

4.6 Fire-fighting equipment should be available. Fire hoses should be capable of delivering water of sufficient volume and pressure to effectively control a fire in any building or part of any building.

4.7 When planning new buildings, the use of construction materials with a high fire resistance should be considered. All electrical and fuel installations should be planned and fitted to minimise the fire risk.

4.8 The use of toxic substances (for example herbicides and pesticides) should be in such a manner as to avoid any risk to emus.

# 5 FOOD AND WATER

**Food**

Emus in the wild feed largely on high quality food such as succulent herbage, seeds, insects, fruit and other flora.

**Minimum standard**

5.1 Emus must have daily access to adequate quantities of appropriate food to maintain their health and vitality. This period for newly hatched chicks may be extended to not more than 48 hours.

**Recommended practice**

5.2 Emus, other than newly hatched chicks, should have *ad libitum* access to adequate quantities of appropriate food. There should always be at least one week's feed supply on hand.

5.3 Emus should receive a diet containing complete balanced nutrients to meet their requirements. Emus should not be provided with food that is detrimental to their health. Young chicks should not be fed fibrous or coarse food as it may become impacted and cause an obstruction. Commercial chick rations are available from commercial suppliers. Chopped lucerne can be mixed with rations and can stimulate birds to eat.

5.4 Medicated food or water should be supplied only under the supervision of a veterinarian familiar with emus, as the overuse or mixing of medicaments, or the medicament itself, may cause toxic injury.

5.5 Where it is proposed to slaughter emus that have received medications, professional advice should be sought to ensure that chemical residues do not contaminate the carcase.

5.6 When using mechanical systems for delivery of food, alternative methods of feeding should be available. There should be enough food on hand, or ready means of obtaining food, in the event of failure of supply.

5.7 Where chicks and yearlings are reared in groups of over 100, multiple feed points should be provided in each pen.

5.8 Mouldy feed should be removed from feeders.

**Water**

| **Minimum standards** | |
|---|---|
| 5.9 | An emergency delivery system must be able to deliver adequate supplies of water in the event of a power failure. |
| 5.10 | Emus must be provided with access to sufficient drinkable water to meet their physiological requirements. |

**Recommended practice**

5.11 When an emu farm is first established, or when a new water source is accessed, the water should be tested for mineral content and microbiological contamination and advice obtained as to its suitability for emus. As the composition of water from bores, dams or water holes may alter with changes in flow or evaporation, the water may require more frequent monitoring to ascertain its continued suitability.

5.12 Where chicks and yearlings are reared in groups of over 100 birds, multiple water points should be provided in each pen.

# 6 HANDLING, FENCING AND YARD FACILITIES

**Minimum standards**

6.1 Internal fences for adult emus must be adequate to contain them to the enclosure.

6.2 A perimeter fence must prevent escape and meet the recommendations in section 6.3.

**Recommended practice**

6.3 Boundary fences are to be constructed to confine birds of three months or more of age, in accordance with the requirements of the licensing authorities and as follows for minimum construction standards:

6.3.1 Minimum height of 1.8 metres.

6.3.2 Line posts to be of treated pine, hardwood, metal or such other material of adequate strength and durability, to be securely fixed at a maximum spacing of 10 metres between line posts.

6.3.3 Strainer posts to be of pressure treated pine or hardwood of no less than 125 mm diameter or of a metal or such material of equivalent adequate size, strength and durability. Strainer posts must be securely fixed in the ground and braced.

6.3.4 Deer or Emu wire, chain mesh or other wire must be properly strained and fixed to the line posts to the side of the fence and fixed in such a way as to prevent movement of emus in or out of the farm.

6.3.5 Gates must be the same height and materials as the fence.

6.4 All fences in handling yards and on transportation facilities should have smooth sides with no projections or 'footholds' and should be solid sided so that the emus cannot see outside the confines of the yard or race. It is preferable for handling yards to be covered or roofed. Conventional yards can be used if some form of cladding such as plywood, tarpaulin or hessian is placed on the inside of the rails so that a solid, non-see-through barrier is presented to the emus. Emus will behave in a more orderly manner when placed in such an enclosed environment.

# 7 SPECIAL REQUIREMENTS

**Minimum standards**

7.1 Emus must be inspected at least daily.

7.2 A stock-person competent to inspect emus must be involved to detect the early signs of distress or disease in the birds and for the cause to be identified for prompt and appropriate remedial action to be provided.

**Recommended practice**

7.3 ***Inspections***

7.3.1 Once birds reach 12 months of age they start to form social hierarchies. Introducing non-socialised birds into such groups should be minimised to avoid the potential for aggression and injury.

7.3.2 The frequency and level of inspection should be related to the likelihood of risk to the welfare of the emus in relation to food, water, protection against natural disasters, predators and the likelihood of diseases. More frequent inspections may be required during hot weather, during outbreaks of disease, or when groups of emus have been mixed. Recommended frequency of inspections for chicks less than two months of age is three times a day, chicks two to six months of age twice a day and adults once a day.

7.3.4 Daily checks should be made of the effectiveness of any automated feeding or watering systems where these have been installed.

7.4 ***Health***

7.4.1 All persons responsible for the care of emus should be made aware of the signs of ill-health. These include separation from other emus, lethargy, refusal to eat, changes in faeces or urine/urates, coughing, panting, lameness, and swellings on the body or legs. If unable to identify and correct the causes of ill health, the manager should seek advice from a veterinarian – preferably one familiar with emus.

7.4.2 Emu farmers should operate an effective program to prevent infectious disease and internal and external parasitism. Particular attention should be paid to the stocking densities used for yearling and adult groups as aggressive behaviour and injuries may occur during the breeding season, when the stocking density is high.

7.4.3 Sick and injured emus should be treated as soon as possible and isolated if necessary. Records of sick animals, deaths, treatment given and response to treatment should be maintained to assist disease investigations.

7.4.4 Dead emus should be removed promptly and, if not required for post-mortem examination, disposed of in a hygienic manner, for example, by deep burial.

7.4.5 Emus with an incurable sickness, injury or painful deformity should be slaughtered humanely without delay.

7.4.6 Newly acquired stock should be quarantined from existing stock for four to six weeks to minimise the risk of introduction of disease.

7.5 ***Declawing***

**Minimum standards**

7.5.1 Declawing must not be carried out on chicks over 36 hours of age.

7.5.2 Declawing must be conducted by a skilled operator.

7.5.3 Emus must be kept in facilities where natural aggression is effectively managed.

7.5.4 Declawed chicks must be housed on clean litter, rubber matting or similar soft material until healing has occurred.

**Recommended practice**

7.5.5 If emus are kept in extensive conditions it may be necessary for emus to be declawed. If this procedure is deemed necessary to reduce aggression and stereotypic behaviours that can contribute to social stress and skin damage, it should be carried out as soon after hatching as possible, preferably within 24 hours and no later than 36 hours.

7.5.6 Declawing involves the removal of the distal or last phalangeal (bony part of the toe) joint using sharp clean shears, a beak trimming machine or other suitable device, angled to retain the bottom part of the last phalanx within the foot pad. The aim is to remove the nail and growth point, as outlined in the following diagram (Figure 1). Declawing by either of these methods will minimise the risk of both acute and chronic pain resulting from tissue and nerve damage.

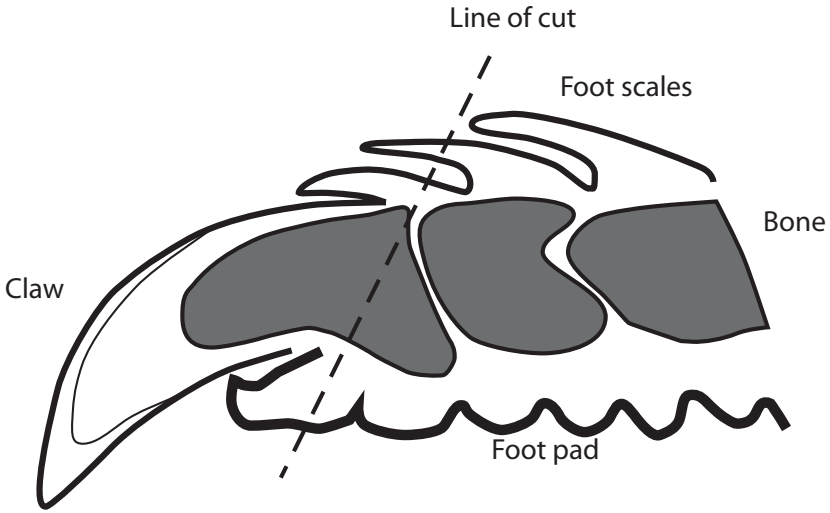


**Figure 1. Section of emu's toe, showing the angle of declawing**

## 7.6 *Transportation*

**Recommended practice**

7.6.1 The duration of all journeys should be as short as possible, as transportation can be a stressful experience.

7.6.2 The successful transportation of adult emus starts with orderly, well-disciplined husbandry practices which are imposed on emu chicks from when they are a day old, so that the emus become used to being handled and moved about the farm. When possible, the transport of emus during extremes of temperature should be avoided. When temperatures are above 30°C, extra care with provision of ventilation is required.

7.6.4 Chicks up to 12 weeks of age should be transported in groups of no more than 20, with partitions placed between adjacent groups. The transport vehicle should be dimly lit and provide fresh air, but the chicks should be protected from chilling and extremes in temperature.

7.6.4 Yearling and adult emus should be transported in vehicles which are fully enclosed, but which provide sufficient ventilation for the comfort of the birds. The transport vehicle should be divided into compartments, each containing no more than 10 emus, and should be dimly lit. The floor surfaces should provide a firm but soft footing for the birds, e.g. rough rubber matting or rubber matting with mesh on it. It should be capable of absorbing or draining away any moisture associated with faeces and urine. The housing density in the transport vehicle should be varied with the size and age of the emus so that a comfortable environment is provided. It is recommended that the densities do not exceed eight birds per $m^2$ for birds less than 7 kg weight, three birds per $m^2$ for birds weighing 25–30 kg and two birds per $m^2$ for mature birds of 35–45 kg live weight.

7.6.5 Transport vehicles, cages, crates and compartments should be cleaned thoroughly and disinfected after delivery of each consignment of emus.

7.7 ***Records***

The maintenance of good records is an integral part of good farm management. Adequate records will assist in the detection of any husbandry, health or breeding problems. Accurate information should be kept on the sources of all stock, general husbandry practices, and the case history and treatment of any diseased or injured birds.

# 8 HATCHERY MANAGEMENT

**Recommended practice**

8.1 Incubators should be well ventilated. Soiled or heavily contaminated eggs should not be placed into an incubator. These eggs should be culled or cleaned and disinfected as soon as possible after being picked up from the nest site.

8.2 Chicks should be brooded within 24 hours of hatching. Weak, deformed or unthrifty emus should be humanely destroyed.

8.3 Chicks in brooders should be inspected at least once every 12 hours and action taken to correct problems as they occur.

8.4 Hatchery waste, including unhatched embryos, should be treated quickly and effectively to ensure rapid destruction. Hatchery waste should not be stored or allowed to accumulate in the vicinity of the incubators. Hatchers should be thoroughly disinfected between hatches.

# 9 HUMANE SLAUGHTER

**Minimum standards**

9.1 Emus must be killed humanely.

9.2 The method of slaughter of emus in licensed abattoirs must be humane and must adhere to the standard outlined in 'The Australian Standard for Hygienic Production of Ratite (Emu/Ostrich) Meat for Human Consumption'.

**Recommended practice**

9.3 Emus of all ages may need to be killed for a variety of health and production reasons.

9.4 Acceptable methods of humane killing are electrical stunning followed by bleeding out, neck dislocation or decapitation.

9.5 A bird that is mobile and cannot be restrained should be shot with a firearm, preferably a shotgun when the bird is in close range (less than 30 metres from the shooter), aiming for the brain. If the bird is more than 30 metres from the shooter, a shot to the centre of the chest using a centre-fire rifle and ammunition appropriate for the size of the bird (e.g. .243 calibre for larger birds) should be used.

9.6 Birds should be checked to ensure they are dead. The following observations should be made – absence of movement, absence of rhythmic respiratory movements, absence of a heartbeat and absence of eye protection reflex or 'blink' when the cornea is touched.

9.7 Emus that can be safely and humanely handled and restrained can be slaughtered using electrical stunning or captive bolt stunning to cause unconsciousness prior to bleeding out.