Management of large animals through bushfires

Dr James Meyer BSc(PV) DVM

with thanks to Dr James Vowles & Professor Chris Riley
Fire risk factors

- Direct burns
- Smoke
- Radiant & residual heat
- Stress
  - Relocation
  - Change of feed/water
- Vegetation regrowth
- ORGANISATION

Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA
Health impacts

- Burns
- Smoke inhalation
- Laminitis
- Colic
- Poisoning
- Eye damage
- Dehydration & kidney damage

Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA
Burns

- **Superficial (first degree) burns**
  - Painful, redness, swelling,
  - Prognosis excellent

- **Partial thickness (second degree) burns**
  - Variable pain level, redness, eschar
  - Heals 2-4 weeks, can result in scarring
  - Prognosis guarded to excellent

*Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA*
Burns

- Full thickness (third degree) burns
  - No sensation
  - Range from white to black
  - Significant fluid loss, shock
  - Infection common
  - Prognosis poor if extensive
    - <15% SA requires IV fluids & intensive care
    - >20% SA potential euthanasia

- Fourth degree burns
  - All of skin, muscle, bone, fat, connective tissue
  - Prognosis grave

Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA
Burns assessment

- Difficult to evaluate in the early phase
  - Thermal burns may not show outward signs initially
- Location of burns
- Laboratory findings useful
- Subsequent complications
  - Burn shock
  - Tissue ischaemia (lack of oxygen causing necrosis)
  - Impaired cellular immunity

Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA
Burns management

- **Superficial (first degree) burns**
  - Immediately cool area, cold water >20 minutes
  - Silver sulfadiazine (antibacterial), aloe vera, solosite, manuka honey
  - Pain management

- **Partial thickness (second degree) burns**
  - Manage as for superficial burns
  - Leave blisters intact for 36-48 hours
  - Apply antibacterial dressing/cream
  - Eschar may form

*Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA*
Burns management

Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA
Burns management

- **Full thickness (third degree) burns**
  - Potentially life threatening
    - Manage shock
    - Manage respiratory distress
  - Prolonged vet care required
    - Fluid therapy
    - Antibiotics
    - Wound care
    - Skin grafts
    - Nutrition
  - May be prone to sunburn and/or cancer when healed

Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA
Smoke inhalation

- Wood smoke contains a range of toxic chemicals
  - Such as carbon dioxide, carbon monoxide, hydrocarbons and acids
- When inhaled they damage the lining of the lungs
- Allows bacteria from the nasal passages to infect lungs
- Exacerbate conditions like heaves, and reduce lung function
- Can present with:
  - Persistent cough
  - Increased nasal discharge
  - Wheezing and increased physical effort when breathing

Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA
Smoke inhalation management

- Limit exercise when smoke is visible
- Provide plenty of fresh drinking water close to feed
- Limit dust exposure from other sources, such as feed
- Give ample time for recovery
  - Airway damage takes 4-6 weeks to heal
- If coughing, nasal discharge or difficulty breathing is observed, seek veterinary assistance
  - Treatment may involve:
    - Intravenous fluids
    - Bronchodilator drugs
    - Antibiotics

Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA
Colic

‘Colic’ simply means pain in the abdomen
- May involve any of the structures in the abdomen, such as:
  - Stomach, small intestine, caecum, large intestine, spleen, liver, kidneys, bladder, and/or uterus & ovaries (mare)

Risk factors relating to fire include:
- Relocation stress
- Excessive travel
- Feed changes
- Water changes
- We have seen everything from mild impactions that were fixed with one treatment to twisted intestine that died at surgery

Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA
Colic assessment

- ALL COLIC CAN BE LIFE THREATENING

- Signs include:
  - rolling
  - pawing
  - flank watching
  - laying down

- Seek veterinary assistance immediately

- Useful to take a TPR (temperature, pulse, respiration)

- Do not administer pain relief unless instructed to do so by your veterinarian

Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA
Colic management

- Plan to take at least 3-4 days worth of your horses’ current feed when evacuating
- Introduce all new feed over many small, frequent feeds
- Take water with you if possible
- Minimise travelling by planning a safe destination
- Travel together to reduce stress if possible

Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA
Laminitis

- ‘Laminitis’ means inflammation (itis) of the lamellae
- Lamellae hold the hoof wall to the pedal/coffin bone
- Laminitis results in the following:
  - Swelling of the lamellae
  - Release of the hoof wall from the pedal/coffin bone
  - Rotation of the pedal/coffin bone
  - Severe cases, loss of the hoof capsule
- Thermal injury from hot ground can cause laminitis
- Essentially cooks and swells the lamellae

Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA
Laminitis management

- Ground may remain hot for days after a fire has passed
- Hoof damage is often extensive
- Limit ongoing damage
- Treatment includes:
  - Icing with boots or baths
  - Sole support
  - Anti-inflammatories
  - Anti-oxidants
- Severe cases may require euthanasia

Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA
Poisoning

- Regrowth after a fire can be dangerous
  - While it may be green, it’s not necessarily edible
- First plants to germinate are often weeds
- Salvation jane, ragwort, potato weed, dandelion, etc.
- Continue to supplement feed until good quality pasture is established
- Consider weed management in early stages

Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA
Other conditions

- Dehydration is a large factor
  - May lead to other conditions such as colic and kidney damage
- Eyes are very sensitive to heat and soot
  - Treatment is common after fires
  - Saline alone may not be enough

Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA
Organisation

- The biggest thing to suffer during a bushfire is organisation.
- Adrenaline, panic, confusion mixed with humans & animals is disastrous.
- All activity should be planned, prepared and acted on calmly and safely.
- Livestock and other animals make relocation infinitely more difficult.
- Evacuation with animals should occur BEFORE danger is imminent.

Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA
Organisation

- The need to enter danger zones to sedate and load animals should not exist
- There is (almost) no reason why a horse should not be able to load on a float
- Practice by loading once or twice a year, head to your local vet clinic, get them vaccinated, and head home
- Organise a float/truck and evacuation destination (short & long term) each year - buddy system
- Difficult loaders should be evacuated earlier
- When evacuating, REMAIN IN ONE LOCATION

Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA
On-scene considerations - horses

- Horses are always capable of explosive action
  - Flight is instinctive
- Use people experienced in large animal handling & management
  - Calm & quiet
- Have the right equipment on hand
  - For restraint and/or rescue
  - Transport (float/truck!)
  - Sedation, medications, bandages
  - Another horse

Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA
On-scene considerations - cattle & sheep

- Rush or stampede if frightened, to escape danger or source of fear
- Will charge if they have no other way out
  - Head butt
  - Crowd & crush
- Calm down more quickly if left in a herd
  - Will always try to get to herd if separated
- Panoramic vision, but poor depth perception at close quarters
  - Sensitive to strange movement

Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA
On-scene considerations - pigs

- Difficult to drive - don’t chase
- Very sensitive to heat & cold
  - Wind chill - provide shelter
  - Heat stress - misters
- Calm down more quickly if left in a herd
  - Will always try to get to herd if separated

Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA
On-scene considerations - alpacas & llamas

- Herd together when endangered
  - Anxiety when separated
- Very sensitive to heat stress
- Sensitive around head & legs
- Will defend if cornered/unable to escape
  - Spitting, biting, charging with chest
  - Lie down when exhausted or stressed

Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA
Following disaster

- Is there enough feed & water left on the property to sustain the remaining animals
- Is there adequate labour to provide the necessary care & attention for animals
- Insurance arrangements
- Grief, depression, financial hardship
Summary

- More risks than direct flames in a bushfire
- Numerous conditions that can affect large animals
- Monitoring during and after the disaster is important
- Livestock make evacuation infinitely more difficult
- Important to evacuate BEFORE danger is imminent

Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA
References & Acknowledgement

- Pictures
  - Wendy Duckett
  - Chris Heislers
  - Chris Pollitt
  - Elizabeth Herbert
  - Chris Riley
  - James Vowles
  - Google

- References
  - Vowles, J 2014, ‘Management of Conditions in Horses Resulting from Bushfires’, Horse SA
  - Riley, C 2013, ‘Triage and management of large animals involved in disasters’, Horse SA
  - Heislers, C 2009, ‘Victorian Bushfires’, Horse SA
  - Meyer, J 2014, ‘Management of large animals through bushfires’, Horse SA