

Primefact

Appendix 1: Humane destruction of Buffalo and Bison

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Conducting humane destruction, or euthanasia, of water buffalo and bison.

Water Buffalo

Handling and restraint

- Water buffalo behaviour and reactions towards humans are very similar to those of cattle, however, they are less likely to retreat from danger and will face up when challenged or put under pressure. Bulls can become aggressive, requiring segregation or restraint by a head rope.
- Buffalo have fewer sweat glands than cattle, so are more prone to heat stress when overly exerted. Signs include increased reddening of the hide on the brisket, under the belly and between the legs; the tongue hanging from the mouth; panting; bloodshot eyes, and skin that is hot to touch.
- They should be mustered or assembled in the cooler parts of the day, especially if the temperature is going to exceed 32°C. They should be cooled using a sprinkler system and given free access to drinking water.
- Buffalo are more stubborn than cattle and tend to baulk and back up, particularly when stressed. They are also more wary of head bails. Most well-designed cattle yards work well with buffalo; revolving gates that are lined and are not see-through improve movement between yard and race. Fill yards to no more than one third of capacity. Shouting, poking, poly pipe and electric prods are contraindicated when moving buffalo and may result in aggression. Expect to handle smaller numbers of water buffalo than cattle through yards in a day.

Euthanasia method

- Recommended methods of humane destruction of buffalo:
 - Adult buffalo should be killed by a shot to the brain by a firearm in the frontal position (see below). Considering the thicker skin and skull, the use of a high-calibre firearm is the preferred method of euthanasia under field conditions. Captive bolt is not recommended as the distance between the skin surface and the brain stem is greater than the penetration depth of most captive bolt devices.
 - Calves and young buffalo can be killed by either rifle or captive bolt applied in the frontal position.
 - Quiet, well-handled animals that are easily restrained by halter may be destroyed by a veterinarian (or under their supervision) by intravenous injection of a euthanasia solution.

- Ammunition:
 - Larger animals and bulls: minimum .223 calibre centrefire cartridge with hard projectiles is recommended
 - Calves and young buffalo up to 450kg live weight: a rifle should deliver the muzzle energy of at least a standard 0.22 magnum calibre rifle, using solid projectiles.

Anatomy and point of aim

- The preferred anatomic site for gunshot or placement of a captive bolt is the frontal position, located at the intersection of two lines, each drawn from the lower edge of the horn to the upper edge of the opposite horn (Figure 1).
- Another option, though less efficient, is poll position stunning with a captive bolt. It requires accurate placement to prevent misdirection into the spinal cord and exsanguination immediately after animals have lost consciousness to ensure rapid death. Using a heavy-duty, trigger-activated, captive-bolt, the shot should be directed towards the nose, to direct the energy through the cerebellum towards the mid-brain. Place the muzzle of the stunner into the depression at the base of the skull in front of the first vertebrae (Figure 2)
- Buffalo tend to lift their nose when looking directly at the shooter, therefore operators must carefully consider the angle of impact.
- Horns in adults make the temporal aim point impractical.

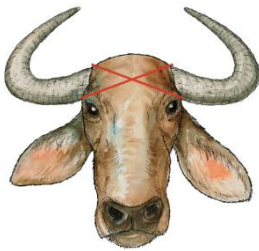


Figure 1: Anatomic site for gunshot or placement of a captive bolt is the intersection of lines, from the lower edge of the horn to the upper edge of the opposite horn.

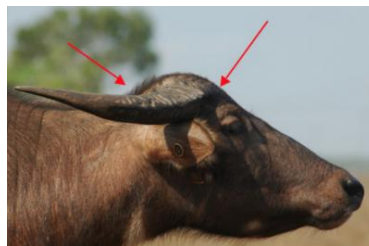


Figure 2: Angle of penetration for frontal rifle projectile or alternative poll shot.

Bison

Handling and restraint

- Bison are generally not aggressive animals, however, they can be defensive particularly if they have young at foot and may attack without warning or apparent reason.
- Bison have poor eyesight but have acute hearing and an excellent sense of smell and, they are capable of jumping over standard fencing.
- Facilities for handling bison must have solid sides on all fences, races, gates, and yards; be at least 2 metres tall and designed so that handlers can operate gates without being among the animals. Crushes should have solid sides as well as a solid top to prevent bison from rearing. Note: the solid sides are to prevent the animals seeing through the structures.
- Handlers should strive to minimize stress by moving animals slowly utilising low-stress handling techniques similar to those applied to cattle. Fill yards to no more than one third of capacity to prevent aggression between animals. Bison should be brought individually up a race from the force yard as waiting in single file often causes agitation. Alternatively, bison can be held in separate compartments between solid sliding gates or allowed to remain in a group in the yards.

Euthanasia method

- Recommended method of humane destruction of bison is by gunshot only, noting that a .22 calibre long rifle does not produce sufficient muzzle energy to humanely kill bison of any age and should not be used.
- Bison have a very thick frontal bone (up to six times that of a domestic bovine at any given age), therefore captive-bolt stunning is not recommended

Ammunition:

- Calves under 180kg: a minimum muzzle energy of a .223 calibre rifle is required. Appropriate firearms include centrefire high powered rifles, or shotguns of 12 gauge or greater fired from no more than 10 meters away from the animal.
- Yearlings, cows, and mature bulls: a minimum muzzle energy of a .223 calibre rifle is required. Minimum appropriate firearms include centrefire rifles such as 223 Remington or 308 Winchester.
- While shotgun slugs can be used effectively in close range situations and within controlled environments, their use is never recommended for euthanasing mature bulls or for any animal involving distances greater than 2 metres between the firearm and the animal.

Anatomy and point of aim

- The preferred anatomic site for entry of a bullet at close range is on the forehead approximately 2.5 cm above a line connecting the bottom of the horns (Figure 4). Ideally, the angle of entry should be perpendicular to the skull. Bison that are alarmed or aggressive will often face the threat and stand with the head in a more elevated position. Do not attempt a forehead shot in this case, as the bullet will glance off the bone.
- If it is necessary to shoot the animal from a distance, the preferred target is the head in the frontal position, or the lateral position, aiming just behind the base of the horn (Figure 5: A).

- A heart-lung shot may be used only in emergency situations. The heart lies very low in the chest cavity, about 10 cm above the lower chest line. Aim just above the intersection of the chest and the elbow (Figure 5: B).



Figure 3: Site for gunshot euthanasia is on the forehead approximately 2.5 cm above a line connecting the bottom of the horns. The angle of entry should be perpendicular.

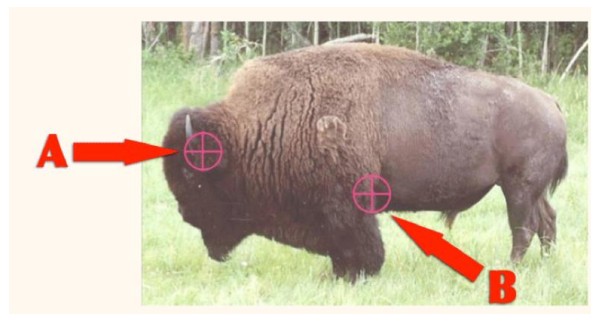


Figure 4: A. Temporal shot placement. B. Heart-lung shot placement

Acknowledgements

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