September 29, 2010

Jeffrey L. Beck and Matthew J. Kauffman
University of Wyoming

University of Wyoming Wild Ungulate Euthanasia Protocol

a. Method of euthanasia:

Euthanasia Options

In the unlikely event that an animal becomes mortally wounded during capture operations, it will be immediately euthanized. Routine administration of chemical euthanasia is preferable to other methods, but non-routine options include captive bolt (second choice) and gunshot (third choice). Field and capture conditions – including extreme weather, difficult topography, and safety of the capture crew – and consideration of the most humane form of euthanasia for mortally wounded animals will be considered when determining the most appropriate form of euthanasia. Each capture crew will be briefed before each capture operation to ensure the preferred order and proper use of euthanasia procedures are carried forth in the field.

Chemical Euthanasia (preferred choice)

If the animal is not already anesthetized, anesthesia will be administered via hypodermic needle @ 5–10 mg/kg body weight of Ketamine intravenously (IV) or intramuscularly (IM). Upon anesthetic induction, animals will be administered euthanasia via hypodermic needle @ 50 mg/kg body weight of potassium chloride intravenously (jugular vein). Anesthesia and euthanasia administration will be under the direction of Dr. Terry Kreeger, Veterinary Services Supervisor, Wyoming Game and Fish Department (Phone: [307] 322-2571; Email: Terry.kreeger@wgf.state.wy.us). Such direction will occur by means of prior training or via remote communication during the capture operation. Ungulates should be disposed by removal and deep burial if practical.

Captive bolt (second choice)

Captive bolt euthanasia will be a non-routine form of euthanasia that will only be administered when conditions are not amenable for chemical euthanasia. The decision to use a captive bolt may include, but not be limited to, conditions in which wildlife jurisdiction limits the use of chemical euthanasia and/or deep burial of chemically-euthanized animals (e.g., National Parks); the thrashing of mortally wounded animals causes chemical euthanasia to be dangerous for capture personnel to administer; the remoteness of the terrain limits the ability of field personnel to remove an entire chemically-euthanized carcass; or the capture helicopter cannot safely remove chemically-euthanized animals due to limited weight-bearing capacity of the helicopter or unsafe conditions for removal. In such cases, a shot from a captive bolt gun will be administered to the forehead of the mortally wounded animal.
Gunshot (third choice)

Gunshot euthanasia (non-routine, tertiary method) will only be considered when conditions warrant chemical euthanasia (preferential, routine method) or captive bolt euthanasia (secondary, non-routine method) impractical, unsafe, inhumane, or wildlife jurisdiction does not allow for removal and/or deep burial of chemically-euthanized animals (e.g., National Parks). Specifically, the use of gunshot euthanasia will only be considered appropriate when thrashing animals present unsafe administration of chemical or captive bolt euthanasia by capture personnel; when captured animals are no longer restrained, but are mortally wounded and fleeing the capture site; and in those rare instances when timing limits the capture crew from administering chemical or captive bolt euthanasia to mortally wounded animals (e.g., animals are captured, but weather conditions ground the helicopter). With gunshot euthanasia, a gunshot wound will be administered to the head of the mortally wounded animal.

Only trained Wyoming Game and Fish Department personnel or animal handlers will administer euthanasia with a firearm.

b. Drug and dosage

**Anesthesia:** 5–10 mg/kg body weight of Ketamine

**Euthanasia:** 50 mg/kg body weight of potassium chloride

c. If using drugs for euthanasia, describe disposal of animal remains.

Considerations to incorporate deep burial are typically based on the concern that scavenging species (including protected birds of prey) will ingest residual chemical while scavenging on chemically euthanized carcasses. In addition, chemically euthanized ungulates will be unsafe for human consumption. However, it is noted that residual ketamine presents minimal lethality and KCL none. Consequently, when warranted and practical, each euthanized animal will be transported to a disposal site and buried. The site will be determined by wildlife biologists or game wardens employed by the Wyoming Game and Fish Department. To maintain safety to humans and scavenging animals it is suggested that Wyoming Game and Fish Department biologists or game wardens participate actively in those instances when deep burial is deemed necessary and practical.

Standard Language approved by IACUC 9/29/10

[Signature]

9/29/10

[Signature]

10/1/10