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## ANESTHESIA, MORTALITIES, AND LOGISTICS OF CAPTURE WITH TRANSLOCATION OF LARGE NUMBERS OF BEARS IN THE ALASKAN BUSH

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### Abstract

During a 3-wk period in May 2003, 86 black bears (BB) and nine grizzly bears (GB) were immobilized with Telazol<sup>®</sup> (lypholyzed tiletamine HCl/zolazepam HCl reconstituted with sterile water to 200 mg/ml) at a dose range of 1-13 mg/kg (BB) and 1-3 mg/kg (GB) with a mean induction dose of 2.7 mg/kg. The majority (n = 74) were darted from an R-44 helicopter, and the remainder were darted from the ground while restrained in foot snares or attempting to escape by climbing trees (yearling BB only). All initial immobilizations (except hand captured GB cubs) were attained using Palmer Cap-Chur darts from a CO<sub>2</sub> pistol with target areas generally in the rump or shoulder musculature. Darted bears ranged in weight from 8-145 kg (BB) and 75-320 kg (GB). All but four bears (that were captured solely to retrieve GPS collars) were moved from the initial capture site to a pre-translocation processing station by one of three methods in order of frequency: in a sling under the helicopter, inside the helicopter, or by riverboat.

The purpose of the capture operation was to experimentally remove ursine predators of newborn moose calves in a 1368 square km area of the Kuskokwim River drainage near the Alaska native village of McGrath. Prior to translocation, bears were either maintained under anesthesia for the duration or were allowed to recover in cages and then induced with Telazol at 2-3 mg/kg via pole syringe. Induction doses of Telazol<sup>®</sup> generally gave full-restraint for 40 min before any additional drugs were required. For maintenance of anesthesia prior or during transport, bears were given one dose of 1 mg/kg of Telazol<sup>®</sup> (i.m. by hand injection) when purposeful movement was noted. This second dose usually gave an additional 40-60 min of adequate restraint. Thereafter, if additional restraint was required during transport, bears were given hand injections of 10-25 mg diazepam and 50 to 1500 mg of ketamine HCl i.m. Duration of the diazepam/ketamine restraint was 20-30 min before re-dosing was required. No additional anesthesia was given within 20 min of reaching release sites. Of the bears captured, 74 BB and all GB were translocated 290 to 400 km from the pre-translocation processing station in a DeHavilland Beaver (three to seven bears at a time with an attendant) or singly in other fixed wing aircraft. Six BB were transported to a captive facility and not released.

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Anesthetic complications included severe hypothermia, hyperthermia, prolonged recovery time (BB at Telazol doses over 7 mg/kg), hypersalivation, petit mal seizures (more frequent in GB), and mortalities. Direct capture mortalities occurred in only three of 95 captures. One BB died 1 hr after darting from myocardial hemorrhage secondary to blunt chest trauma during darting. One yearling BB was euthanatized because a dart wound penetrated the abdomen. Necropsy revealed a lacerated spleen, as well as a and fractured femur from a second dart administered when the bear was treed. Subsequently, capture of yearling BB was immediately suspended. In addition, an adult male BB died in captivity 3 days post-transport from aspiration pneumonia (one of only three bears that received xylazine at 0.22 mg/kg). In addition to the capture-related mortalities, an adult female BB was euthanatized 24 hr post-darting in captivity and was found to have significant perirenal hemorrhage that may have eventually resulted in morbidity or mortality. Many bears were able to lift their heads at the time of departure of the transport crew from the release site. Three bears were able to rise and walk away before crew departure. No bears that were released failed to recover from anesthesia, and all left the release area. Twenty-two BB received radio-collars for tracking purposes and of those, one BB died during the summer of unknown causes. All bears were marked with ear tags and colored flags indicating the withdrawal time for meat consumption. Only two BB were taken by hunters, both after the withdrawal time.