

ANESTHESIA OF GRIZZLY AND BLACK BEARS USING XYLAZINE, ZOLAZEPAM, AND TILETAMINE AND ITS REVERSAL USING YOHIMBINE

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Wildlife managers and research biologists are continuously looking to improve their field methods and reduce mortality to study animals during capture. This is especially true when handling individual bears from isolated, declining populations. Bear researchers require an anesthetic that is not dangerous to humans, provides a wide safety margin for bears, requires a low volume dose for efficient delivery, maintains physiological homeostasis, and is reversible. No one chemical can meet all these requirements. I tested the use of Xylazine, Zolazepam and Tiletamine (XZT) in combination on grizzly bears (*Ursus arctos*) and black bears (*Ursus americanus*) to determine the quality of anesthesia it produces and its potential to be reversed. Bears were captured as part of on going research in western Montana, northern Idaho, and southeast British Columbia. Bears were captured in foot snares, and delivery systems varied according to capture episode. All bears were administered supplemental oxygen at 3 liter/hour. Bears anesthetized with XZT and reversed with yohimbine recovered from anesthesia faster than bears anesthetized with Tiletamine/Zolazepam combinations. They required smaller dose volume, showed similar induction rates, and were able to maintain physical parameters close to homeostasis. The XZT combination tested is a viable option for safe, effective handling of bears. The synergistic effect of these three drugs allows some of the anesthesia to be reversed allowing bears to recover faster. This permits bears to return to normal body function sooner, reduces vulnerability to predation and allows animals to resume normal behavior quicker.