

The use of pharmaceutical agents in carnivores, bears and ungulates within a wildlife management agency (reality and challenges)

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Role of Wildlife Management Agencies

- Sustainable management and harvest of wildlife in natural environments
- Agency charged with maintaining a harvestable surplus of wildlife and fish for hunting, fishing, and trapping
- Wildlife broadly considered to be free-living species, not domestic or feral.
- Wildlife includes animals in all taxa including amphibians, reptiles, birds and mammals



Wildlife Management

- Wildlife is managed by state, federal or tribal governments
- Partnership between public land management agencies and private landowners because many species occur on both
- Most important component for the existence of wildlife is appropriate habitat
 - Management of various ecosystems and habitat types is key
- North American Wildlife Conservation Model
 - Two basic principles
 - Fish and wildlife belong to the people
 - Wildlife populations must be managed to sustain populations forever
- Foundational principles of wildlife management by state wildlife management agencies

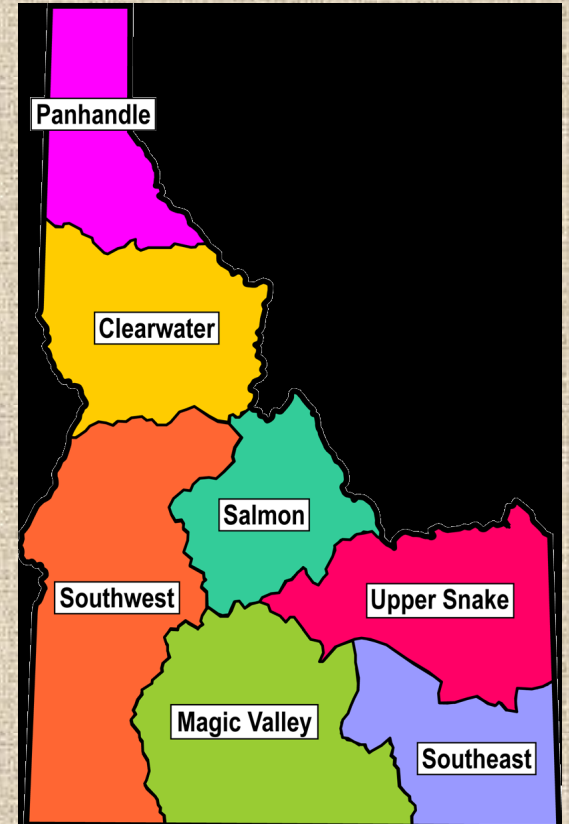


Idaho Constitutional Right to Hunt, Fish and Trap

- The Idaho State Constitution Article 1, Section 23
 - “The rights to hunt, fish and trap, including by the use of traditional methods, are a valued part of the heritage of the State of Idaho and shall forever be preserved for the people and managed through the laws, rules and proclamations that preserve the future of hunting, fishing and trapping. Public hunting, fishing and trapping of wildlife shall be a preferred means of managing wildlife.”
- This constitutional right is similar to constitutional provisions in 22 other states that mandate preservation of rights to hunt, fish and trap

Idaho Department of Fish and Game

- 569 employees
- 7 bureaus
 - Fisheries
 - Wildlife
 - Enforcement
 - Communications
 - Engineering
 - Information Systems
 - Administration
- Approximately 100 biologists, technicians, and researchers in the Wildlife Bureau across the state
- Approximately 100 game wardens in the Enforcement Bureau across the state



IDFG Management and Research

- For management and research objectives, wildlife are captured and handled by IDFG personnel
 - Wildlife Biologists
 - Game Wardens
 - Veterinarian
- Drugs used
 - Chemical immobilization agents
 - Antibiotics
 - Anti-inflammatory agents
 - Vaccines
 - Anthelmintics



Annually for 10 years, IDFG captured and handled around 1100 animals per year

- Physical restraint – traps, snares, drive nets, corral traps, drop nets, or net guns
- Chemical immobilization drugs – ground, helicopter, jet boat, snowmachine

Pharmaceutical Agents for Chemical Immobilization

- Controlled and non-controlled substances
- Approved drugs
 - DEA Scheduled or controlled substances
 - Commercially available drugs
 - Compounded drugs from veterinary compounding pharmacies
- Narcotics (Etorphine, Butorphanol, Nalbuphine)
- Neuroleptic tranquilizers (Acepromazine, Azaperone, Haloperidol, Diazepam, Midazolam)
- Sedatives (Xylazine, Detomidine, Medetomidine)
- Cyclohexamines (Ketamine, Tiletamine in Telazol)
- Antagonists or reversal agents (Naltrexone, Yohimbine, Tolazoline, Atipamezole, Flumazenil)
- Index approved narcotics under INAD with drug supplier (Thiafentanil)



Remote Injection for Chemical Immobilization

- Dart size limitations - 5 ml maximum
- Drug compounding essential
 - Products produced under strict manufacturing practices and existing compounding rules
- Drugs compounded at higher concentrations
- Drugs mixed to higher concentration solutions
 - Telazol at 200 or 300 mg/ml
- Drugs mixed in non-standard combinations
 - 4 ml Xylazine (100 mg/ml) to bottle of Telazol
- Drug combinations premixed
 - BAM (Butorphanol-Azaperone-Medetomidine)
 - Ketamine-Xylazine 5:1
 - Ketamine-Medetomidine 15:1
 - NalMedA (Nalbuphine-Medetomidine-Azaperone)
- Drugs of high concentrations mixed into combinations
 - BAM2 (2x Butorphanol-Azaperone- 1/2 Medetomidine)
 - BMM (Butorphanol-Midazolam-Medetomidine)



Super-Concentration of Drugs

- Xylazine
 - 20, 100, **200, 300, 333** mg/ml
- Ketamine
 - 100, **200** mg/ml
- Butorphanol
 - 10, **30, 50** mg/ml
- Midazolam
 - 5, **50** mg/ml
- Medetomidine
 - 0.5, 1, **10, 20, 40** mg/ml
- Azaperone
 - 10, **50** mg/ml
- Atipamezole
 - 5, **25** mg/ml



Veterinary Role in Wildlife Management Agency

- Wildlife veterinarians - primary drug conduit within wildlife management agencies
- Only 1 veterinarian in IDFG Wildlife Bureau with Idaho as practice area
 - 8 hours or more to drive to northern Idaho and 6 hours to eastern Idaho
 - Local IDFG personnel can attend to animal easier and more efficiently
 - Multiple situations or capture events occur simultaneously in different locations
- Most drug administration done by wildlife biologists and game wardens with minimal direct supervision by veterinarians
 - VCP relationship
 - VCP begins in required 16 hr class on chemical immobilization q 2 yr
 - DVM active in field activities with biologists, game wardens and animals
 - AMDUCA
 - Extra-label Drug Use under VCP
 - Animal ID
 - Meat withdrawal times

AMDUCA Compliance for ELDU

- Licensed DVM
- IDFG personnel are animals' agent
- Identification of all animals that received drugs using ear tags
- Drug use to be reported within 48 hours
 - Signalment
 - Date
 - Location of the animal
 - Drugs used and dosage
- MWT established using FARAD or published references
- Database for retrieval
 - Harvest of a tagged animal and contact with IDFG
 - If animal harvested within the MWT
 - Person in possession of carcass asked, but not required, to surrender carcass
 - Disposal in the nearest landfill
 - New tag for the same species and season offered if same tag was an option



Issues or Concerns

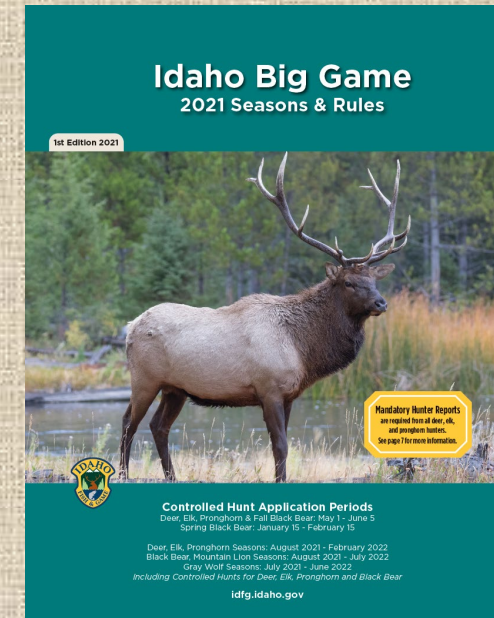
- Goal of capturing or handling wildlife by IDFG
 - Assess management actions or conduct research
 - Animals to be released unharmed
- Predation and consumption of drug residue in prey species
 - Not possible to eliminate due to suite of predators - wolves, coyotes, mountain lions, lynx, bobcat, black bears and grizzly bears
- Death or euthanasia during capture
 - Carcasses retrieved if possible
 - Landfill or burial pit
 - If retrieval not possible, carcass left in the field



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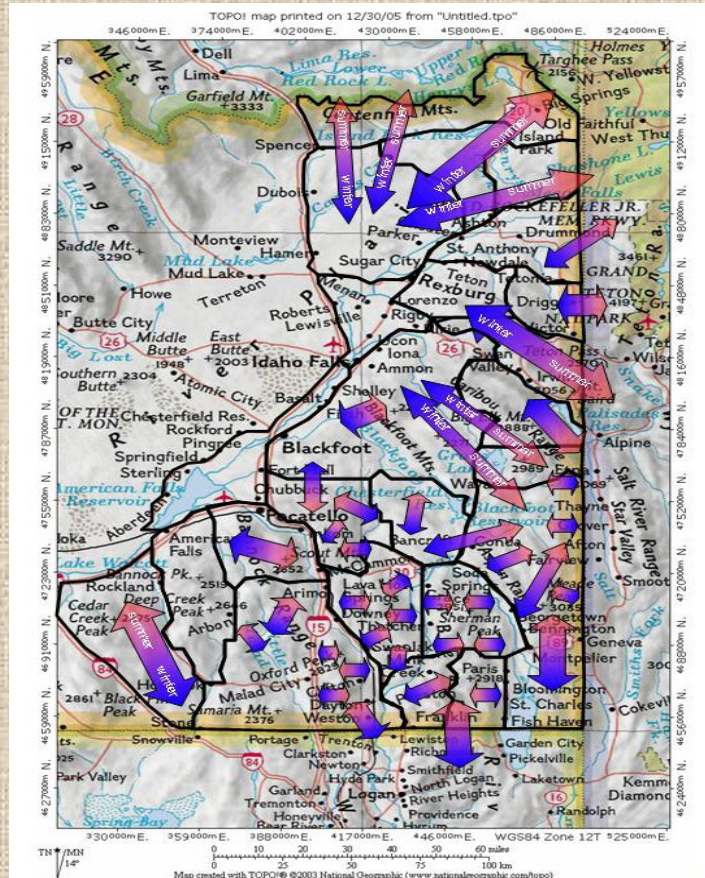
Hunting in Idaho

- IDFG sets season for big game, small game and trophy species harvest
 - Black bear - spring rifle, and fall rifle, archery, and dog season
 - Some bear populations have 7 month harvest seasons
 - Elk - spring green field hunts, fall rifle, archery, and muzzle loader seasons, and winter depredation hunts
 - Some elk populations have 8 month harvest seasons
 - Hunter success rate is relatively low for some species
 - Elk hunter harvest is 25-30% in many GMU
 - Risk of individual animals being harvested by hunters for consumption is relatively low
- Tribal harvest
 - Different bag limits and seasons than the seasons set by IDFG
- Wildlife salvage rule
 - Citizens can collect wildlife that die naturally including HBC for consumption or other uses
- Poachers



Wildlife Movements

- Wildlife move, sometime long distances
 - Winter and summer migration
 - Plant phenology changes
- Wildlife cross state and international borders
- If animals were handled or captured in Idaho
 - They may move across state lines and could be harvested by hunters or trappers in another state



Handling of Wildlife in Idaho

- IDFG primary agency dealing with wildlife in Idaho
- Native American tribes
 - Shoshone-Bannock
 - Shoshone-Paiute
 - Coeur d'Alene
 - Kootenai
 - Nez Perce
- USDA Wildlife Services
 - Predators and species that may negatively impact agriculture
- Bureau of Land Management
- US Forest Service
- US Fish and Wildlife Service
- Universities
- Wildlife Rehabilitation
- Some of these activities are known to IDFG, some are not



Conclusions

- Implicit request to understand
 - Role of wildlife management agency
 - Role of veterinarians balancing appropriate treatment of wildlife with regulatory oversight
 - Complex situation with oversight by multiple regulatory agencies
- Without access to appropriate pharmaceutical agents, handling, treatment and ultimately welfare of free-ranging wildlife for management, health, and research would be severely compromised
- Concern for animal welfare by the public
 - If the only alternative is euthanasia for all animals that cannot be confined or held after receiving pharmaceutical agents
- Wildlife are not domestic, confined or expected to be on the dinner plate
- Wildlife are part of the heritage, landscape and ecosystem
- The application of veterinary medicine to wildlife takes a different thought process and likely, a different approach to regulatory oversight for important and essential pharmaceutical agents

