



Global Wildlife Resources
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**WILDLIFE HANDLING & CHEMICAL
IMMOBILIZATION
FOR WILDLIFE PROFESSIONALS
-GENERAL COURSE OUTLINE-
Mark R. Johnson DVM, Instructor**

**These are the general topics covered in GWR courses.
Each course is customized to meet the needs of the participants.**

**All labs with live animals have been approved by several
Animal Care and Use Committees.**

[Visit our Training Schedule to register and for more information.](#)

INTRODUCTION

A. Instructor:

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B. Class members: Introductions and interests

C. Class schedule and logistics:

D. Homework - 1) Review course objectives 2) Drug dose calculations

E. Course objectives:

1. Discuss ethical issues relating to wildlife capture and handling within a professional context.
2. Identify legal responsibilities associated with wildlife chemical immobilization.
3. Develop & maintain documentation for a chemical immobilization program.
4. Initiate a five-step preparation method for organizing field operations.
5. Understand & discuss advantages/disadvantages of various drug delivery systems.
6. Walk through basic steps and procedures in processing chemical immobilized or physically restrained wildlife.
7. Utilize professional skills, equipment, and attitudes to convey clear messages to the media and public about animal care and professional handling.
8. Follow safety measures which protect field personnel and the public.
9. Understand basic veterinary procedures for animal care including:
 - a. Monitoring temperature, pulse, and respiration.
 - b. Collecting blood and other samples.
 - c. Preventing and treating simple veterinary emergencies.

PERSPECTIVES

Objective:

Discuss ethical issues relating to wildlife capture and handling within a professional context.

A. What is our highest goal?

B. Ethics of wildlife capture & handling - the well-being of the animal is more important than our work.

LEGAL RESPONSIBILITIES

Objectives:

1. Identify legal responsibilities associated with wildlife chemical immobilization.
2. Develop & maintain documentation for a chemical immobilization program.

A. DEA

1. Function
2. What is a controlled substance?
3. DEA Compliance
 - a. Purchasing
 - b. Documentation
 - c. Storage Security

B. FDA

1. Function
2. FDA Bottle labeling
3. Extra label use

PREPARATION 5 STEPS

Objective: Initiate a five step preparation method for organizing field operations.

A. Project objectives and methods: the BIG picture

B. Handling procedure: A Step by Step Plan

C. Equipment list

D. Field form

E. Euthanasia and other issues

DELIVERY SYSTEMS

Objective:

Understand and discuss advantages and disadvantages of various drug delivery systems.

A. Anatomy of remote delivery systems

B. Delivery systems with powder internal charges

C. Delivery systems with air-pressured internal charges

D. Principles of Remote Drug Delivery

E. Direct Drug Delivery Systems

LAB 1: Drug Delivery Systems

Practice a variety of CO₂ dart guns

Cover dart diversity, loading, and maintenance

IMMOBILIZING DRUGS

Objectives:

1. Calculate drug volumes given animal weight, drug dose, and drug concentration.
2. Identify immobilizing drugs for wildlife and identify their general effects on animals.

A. Calculating Drug Doses

B. Important Terminology

SPECIFIC IMMOBILIZING DRUGS

A. Dissociative anesthetics (Cyclohexamines)

1. Ketamine
2. Tiletamine (Telazol)

B. Alpha-adrenergic Agonists (sedatives)

Xylazine and Medetomidine

C. Alpha-adrenergic Antagonists

Yohimbine, Tolazoline, Atipamezole

D. Butorphanol - added to ketamine/xylazine combinations for an improved version of an old drug combination.

E. BAM - the most current and effective drug combination

F. Accessory Drugs

1. Atropine sulfate
2. Doxapram hydrochloride
3. Tranquilizers - Midazolam, Azaperone, Haloperidol
4. Oxygen

LAB 2: Needle and Syringes Lab

Learn safe and controlled use of needles and syringes

Safe recapping of needles; Handling syringe poles

PRINCIPLES OF IMMOBILIZATION

Objectives:

1. Recognize effects of immobilizing drugs demonstrated by animal behavior and vital signs and correlate to specific drugs administered.
2. Recognize which actions of the biologist influence the animal's response to immobilizing drugs.

A. Drug effects in wildlife and field signs

1. Ketamine/xylazine effects
2. Administering the drug
3. Repeating first attempt
4. Options when anesthetized animal begins to respond

LAB 3: Patient Monitoring Lab (with live animals)

Preparing for the final drugging lab

Becoming confident with the stethoscope and doing TPRs

Becoming familiar with completing a GWR field form

ANIMAL HANDLING

Objectives: Describe the principles and equipment for handling the anesthetized animal with care and human/animal safety.

A. BASIC CARE

1. **Safety First!**
2. **Ground Cloth**
3. **Body position**
4. **Eye hood**

PATIENT MONITORING

Objective: Understand basic veterinary procedures for conducting a physical exam and monitoring an animal's vital signs (temperature, pulse, and respiration, color of gums, and capillary refill time).

A. Physical Exam

B. TPR

1. Temperature
2. Pulse
3. Respiration
4. Pulse oximetry

PREVENTATIVE MEASURES

A. Sterile Technique

B. Antibiotics

SPECIFIC PROCESSING PROCEDURES

Objectives: Describe the techniques and equipment used for each wildlife processing procedure.

A. Weighing

B. Measuring

C. Marking

1. Ear Tagging
2. Tattooing
3. Radio-collaring - VHF and satellite telemetry
4. Abdominal implants
5. PIT Tags

SAMPLE COLLECTION

Objective: Understand basic veterinary procedures for collecting blood and other samples.

A. Blood -

1. Why collect blood?
2. Where to collect
3. How to collect, handle, and store

B. Tooth Collection

PHYSICAL RESTRAINT

1. Ungulates
 - Holding
 - Hobbles

2. Canids
 - Scruff
 - Lateral restraint
 - Y Pole for canids

TRANSPORT

FOLLOW-UP AFTER HANDLING

VETERINARY EMERGENCIES

- A. Hypothermia**
- B. Hyperthermia**
- C. Shock**
- D. Bloat**
- E. Inhaling stomach contents**
- F. Seizures**
- G. Capture Myopathy**
- H. Injuries**
- I. Deep Anesthesia**
- J. Euthanasia**

HUMAN SAFETY

Objective: Address our priority for human and animal safety.

- A. Animal Handling**
- B. Preventing human exposure**
- C. Human First Aid**
- D. Waste Disposal**

LAB 4: Chemical Immobilization with live animals (hand injection):

1. Chemical immobilization and learning the animal's response to immobilizing drugs
2. Monitoring temperature, pulse, and respiration
3. Processing procedures (blood collection, radio-collaring, etc) appropriate for the species, animal, and hosting organization.
4. Documenting chemical immobilization on a field form
5. Professional mannerisms maximizing animal care and field success

COURSE HANDOUTS

- A. DEA and Schedule of Controlled Substances
- B. Drug Storage Inventory
- C. Drug Vial Use Form
- D. Organizing a Step by Step Protocol for Wildlife Chemical Immobilization
- E. Isle Royale Wolf Processing
- F. Voyageur NP Wolf Equipment List
- G. Wildlife Handling Field Form
- H. Calculating Drug Doses - Help Sheet
- I. Problems for Calculating Drug Doses
- J. Drugs and Doses for Various Animal Species
- K. Physical Examination of the Wolf
- L. Blood from Captured Wildlife: Collection, handling, and storage
- M. Basic Sampling Protocol for Diseases in Live Gray Wolves
- N. Veterinary References for Wildlife Professionals
- O. Vendor materials
- P. Course Evaluation Form