

## **WILDLIFE CAPTURE, IMMOBILIZATION, AND HANDLING COURSE**

**DATES:** March 13-16, 2017

**LOCATION:** Carlos Avery  
Forest Lake, MN

**COURSE TITLE:** Capture, Immobilization, and Handling of Free-Ranging Vertebrates

**COURSE ORGANIZER:** James L. David Smith

**INSTRUCTORS:** Terry J. Kreeger, Adjunct Professor, UMN (TK)  
Peggy Callahan, Director of the Wildlife Science Center (PC)  
Glenn DelGiudice, Adjunct Professor, UMN, Minnesota Dept. Natural  
Resources (GD)  
John Hart, USDA-Wildlife Services (JH)  
J.L. David Smith, University of Minnesota (DS)

### **COURSE OBJECTIVES:**

You will learn

1. Safe restraint, immobilization and handling of free-ranging animals
2. How to handling animals with minimum stress
3. Legal and ethical procedures
4. Diverse capture methods, immobilizing agents, and handling procedures.

### **COURSE OUTLINE:**

#### **Section One: Chemical Immobilization**

**(Primarily presented by TK unless otherwise indicated)**

1. Introduction: Course Overview (DS)
2. Introduction to Conservation Science Center staff (PC)  
Professionalism  
Appreciation of opportunity for hands on immobilization
3. A brief review of State and Federal regulations (DS)  
DEA and controlled substances; IACUC:  
State Pharmacy Board  
International transportation of drugs
4. Legal Considerations (TK):  
Animal Medicinal Drug Use Clarification Act; FDA  
Role of veterinarian  
Withdrawal times, etc...  
Records  
Drug Storage
5. Capture Drug Pharmacology (TK)  
Drug characteristics

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- Calculating drug doses
- Neuromuscular blocking drugs
- Tranquilizers/sedatives; long-acting tranquilizers
- Cyclohexanes
- Opioids
- Gas, others
- 6. Equipment lecture (TK)
  - Syringes
  - Jab sticks
  - Blow pipes
  - Darts
  - Dart guns
- 7. Emergency Medical Treatment – Animals(TK)
  - Respiratory depression
  - Hyperthermia
  - Hypothermia
  - Shock
  - Bloat
  - Wounds
  - Cardiac arrest
  - Dehydration
  - Convulsions
- 8. Emergency Medical Treatment – Humans(TK)
  - Preventative measures
  - Accidental exposure
  - Opioids
  - Cyclohexanes
  - Paralytics
  - Tranquilizers
- 9. The Drugging Event: putting it all together (i.e. drugs and equipment)(TK)
  - Approach
  - Administration sites
  - Immobilization signs
  - Handling immobilized animals
  - Incomplete immobilization
  - Reversal agents, administration, and animal recovery
  - Finding lost darts
  - Euthanasia

**Section Two: Physical Capture**

1. Ungulates (GD, TK)
  - Deer: Clover traps, rocket-nets; net-guns
  - Elk: capture corrals, Clover traps
  - Moose: net-guns vs. chemical immobilization by darting

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- Pronghorn: drive-nets/corrals
- Sheep: net-guns
- 2. Carnivores (JH, DS)
  - Cats: snares, dogs
  - Bears: barrel traps, snares, dogs, aerial darting
  - Canids: leg hold traps
  - Small carnivores: a variety of techniques
  - Marine mammals: nets

**Section Three: Handling and Data Collection Methods** (GD, DS)

1. Morphological and physiological measurements (e.g., dop-tone and visual ultrasound for fat measurements and pregnancy detection; isotope-dilution, bioelectrical impedance, and skin-fold thickness for estimating total body fat)
2. Sampling (this will include various tissues and body fluids and *why* you are sampling, e.g., tooth, blood, urine, fecal, semen, DNA, body fat, etc.; DNA sampling without capture.)
3. Radio collaring; GPS, VHF, breakaway devices, ear tag transmitters, etc...

**Section Four: Hands-On Experience (Laboratories)** (PC and WSC staff, GD, DS, TK, JH)

1. Handling equipment/supplies: hobbles, scales, blindfolds, thermometers, ear-tags, tattoos, biopsy needles, ultrasounds, radio collars (VHF, GPS).
2. Drugging and antibiotics: syringes, pole syringes, blow-pipes, darts, dart-guns
3. Animal capture (students in groups of 5 capture, immobilize, examine, immunize and draw blood, and monitor recovery of a wolf under supervision of a Science Center staff person)
4. Students observe and assist Peggy Callahan immobilize two bears
5. Students set up a Clover trap and Glenn will discuss trap procedures and practice using ultrasound
6. John Hart, and Dave Smith demonstrate carnivore and fur bearing animal traps and trapping techniques
7. Sampling: blood, urine, fecal, hair, fat, biopsy, biopsy darts

**EVALUATION:**

There will be a final session Thursday afternoon to review the course and to address any questions students have.

**TEXT:**

Kreeger, T.J. and J. M. Arnemo. 2014. Handbook of Wildlife Chemical Immobilization: 4<sup>th</sup> Edition.

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**Schedule**

**Monday, March 13**

0800-0830	Dave S.	Course objectives, introduction and schedule
0830-0845	Peggy C.	Introduction of Wildlife Conservation Center staff;
0900-1015	Terry K.	Legal issues safety and professional responsibility
1015-1030	Break	
1030-1200	Terry K.	Capture Drug Pharmacology
1200-1300	Lunch	
1300-14:45	Terry	Equipment lecture
1445-1600	Terry	Emergency Medical Treatment – Animals & Humans

**Tuesday, Mar 14**

0800-1000	Terry	The Drugging Event: putting it all together
1000-1015	Break	
1030-1300	PC,DS	Bear handling (2.5 hr)
1300-1345	Lunch	
1345-1430	PK	Dart/needle lab
1430-1445	Break	
1445-1630	Glenn	Capture and research handling of ungulates

**Wednesday, Mar 15**

0800-1200	Peg, staff	Wolf lab
1200-1245	Lunch	Peggy critique of student's performance handling wolves
1245-1415	Glenn	Deer trapping and handling traps
1415-1430	Break	
1430-1615	Glenn	Capture/handling ungulate neonates: min. abandonment

**Thursday, Mar 16**

0800-0900	Hart	Fur bearers and trapping
0900-1230	JH,DS	Demonstrations and practice setting snares and traps.
1230-1315	Lunch	
1315-1400	DS	One Health: Humans, Animals & Ecosystem
1400-1445	DS	A typical field immobilization: Tiger
1445-1500	Break	
1500-1530	All Inst.	Review course and discussion
1530-1615		Open book exam