



## WILDLIFE RESOURCE POLICY COMMITTEE

### Meeting Minutes

Chair: Amanda Wuestefeld (Indiana Division of Fish and Wildlife)  
Vice-Chair: Pete Hildreth (Iowa Department of Natural Resources)

Thursday March 11, 2021  
10:00 AM- 12:00 PM (CST)

86<sup>th</sup> North American Wildlife and Natural Resources Conference

---

#### Welcome, Introductions, Review Agenda & Approve Mtg Notes (Amanda Wuestefeld, IN DNR)

- Director Wuestefeld opened the meeting
- The notes from the previous meeting were not available but will be posted to the AFWA website

#### USDA-APHIS Wildlife Services Report- (Janet Bucknall, Deputy Administrator)

**Please see report in the Appendix**

#### Human/Wildlife Conflicts Working Group Report (Brian Wakeling, MT FWP)

- Update on Wildlife Services Risk Assessment Reviews by AFWA
  - 17 methods have been reviewed with the participation of ~ 100 agency experts.
- Report on progress toward the development of peer reviewed publications on human-wildlife conflicts .[https://digitalcommons.usu.edu/hwi\\_monographs/](https://digitalcommons.usu.edu/hwi_monographs/)
  - Urban Coyote Conflicts: An ad hoc group of urban coyote conflict experts has been developed to produce this document. A draft is expected by early summer 2021. These documents are not prescriptive but are designed to provide the entire profile of management options that may be considered for preventing and resolving conflicts.
- Berryman Institute
  - The 19<sup>th</sup> Wildlife Damage Management Conference will take place virtually during April 19-22. A call for abstracts is open through March 12.

- “Toolkit to Address Free-ranging Domestic Cats on Agency Lands Managed for Native Wildlife and Ecosystem Health” is in the peer-review process for publication in the HWI Monograph series
- Development of an AFWA document on “humane dispatch of wildlife by agency personnel”
  - An outline for this document has been produced (**SEE APPENDIX**).
  - WRPC will be asked to review this outline and provide comments by May 15
  - The AFWA Fish and Wildlife Health Committee is also involved in this effort
- USGS National Climate Adaptation Science Center: Impacts of Climate Change to Wildlife Conflicts
  - A presentation was given to generate interest and discussion amongst the group to begin a potential study to investigate the impacts of climate change on human wildlife interactions and conflicts.
- Other topics of interest
  - *New Wildlife Monograph* on Best Management Practices for Furbearer Trapping in the United States
    - <https://wildlife.onlinelibrary.wiley.com/doi/10.1002/wmon.1057>

Bat Working Group Report- (Jenny Dickson, CT DEEP)

**Please see report in the Appendix**

USGS North American Bat Monitoring Program update- (Melanie Steinkamp)

**Please see report in the Appendix:**

For more information: <https://www.nabatmonitoring.org/about-1>

Recovering America’s Wildlife Act (Bryant White, AFWA)

- RAWA will be introduced into the 117<sup>th</sup> Congress and will need to pass the House and Senate.
- A video created by AFWA staff Sean Saville was played and can be seen at: [North American Short version 3.21.mp4 - Google Drive](#)

Landscape Conservation and At-risk Species (Deb Rocque, USFWS)

**Please see report in Appendix**

## Review 2020 Work Plan (Bryant White, AFWA)

The committee discussed the four Activities and objectives that are contained in the current workplan and agreed to continue to work on these efforts.

- Continue to provide a forum to communicate the work of USDA Wildlife Services
- Continue to make progress on the development of best practice to address human-wildlife conflict issues
- Continue to provide a forum to discuss bat conservation and update the guidance on bats and Covid-19
- Discuss the role of the committee in working on landscape conservation

Of note, three additional ideas were put forward by Committee members for consideration

- 1) Could the committee include some effort toward pollinators? If so, what role would this committee play? (Ollie Torgerson, MAFWA)
- 2) The National Park Service is trying to develop a national standard for reporting wildlife-vehicle collisions and could AFWA assist in that effort (Amanda Hardy, NPS)
- 3) Harvest of “rough fish” by bow fishers relative to the North American Model

### **Action Items**

None

### **Progress and Opportunities**

The committee continues work on best practices to address human and wildlife conflicts and to address issues related to bat conservation and management

The committee has been asked to review the outline regarding Humane Dispatch of Wildlife by Agency Personnel and provide comments by May 15

### **Threats and Emerging Issues Identified**

None identified.

### ***New Opportunities Identified***

*Methods used by agency personnel on humanely killing wildlife*

*Pollinators*

*Wildlife Vehicle Collision Reporting*

## Appendix

### Reports, Presentations, and Submitted Documents

#### Contents:

USDA-APHIS-Wildlife Services Report

Humane Dispatch of Wildlife by Agency Personnel (outline)

AFWA Bat Working Group Report

USGS North American Bat Monitoring Program Update

Landscape Conservation and At-risk Species

## Report to Wildlife Resource Policy Committee

AGENCY: USDA-APHIS-WS

DATE: March 2021

---

### **Wildlife Services (WS) Leadership Changes in 2020**

- WS Associate Deputy Administrator – Jessica Fantinato
- WS Associate Deputy Administrator (*acting*) – Dr. Donna Lalli, started January 10, 2021
- WS National Wildlife Research Center (NWRC) Director – Jason Suckow
- WS Western Regional Director – Keith Wehner
- WS Idaho State Director (*acting*) - Jared Hedelius following retirement of Todd Grimm
- WS Nevada State Director - Mark Ono following the retirement of Mark Jensen
- WS Oregon State Director (*acting*) - Kevin Christensen following retirement of David Williams

### **CONFLICT INCIDENT REPORT**

#### **Livestock Protection – Non-Lethal Program**

#### **MOST SIGNIFICANT ISSUES**

WS assists producers with predator damage to livestock via direct control and technical assistance. In FY20 WS protected livestock in 48 states and Guam from predators including coyotes, feral dogs, wolves, foxes, mountain lions, bobcats, black bears, grizzly bears, feral swine, black vultures, raptors, crows, ravens, skunks, raccoons, ringtails, mink, weasels, opossums, and rattlesnakes. WS also protects silage, livestock feed, rangeland, and pastures.

#### **SIGNIFICANT REGULATORY OR POLICY CHANGES OR ISSUES?**

- **Congressional Allocations for Nonlethal Livestock Protection.** Congress appropriated \$1.38M to WS in FY20 and FY21 for nonlethal livestock protection from large carnivore predators. Distribution of funding occurred to 12 states and NWRC, states include: AZ, CA, CO, ID, MI, MN, MT, NM, OR, WA, WI, and WY. The primary purpose of the funds is for WS to provide technical assistance and operational activities for landowners via 18 positions (15 full-time) across the 12 states. These funds support existing employees on nonlethal projects in addition to new hires. Non-lethal methods for operational activities included range riding, fladry, electric fencing, permanent fencing, harassment, and husbandry practices.

#### **RESEARCH**

- NWRC is analyzing data from research conducted alongside the operational work to determine the efficacy of various nonlethal methods. Results will inform management decisions and best application tools.
  - NWRC is also evaluating producers' attitudes towards using the methods and tools.
-

## **CONFLICT INCIDENT REPORT**

### **Cervid Health – Chronic Wasting Disease**

#### **MOST SIGNIFICANT ISSUES**

Chronic Wasting Disease (CWD) is an infectious, degenerative disease of animals in the family cervidae that causes brain cells to die, ultimately leading to the death of the affected animal. Most WS state programs submit CWD samples to state or national diagnostic labs from deer removed as part of normal field operation projects and the majority of WS state programs are involved in the development or implementation of state CWD taskforce plans.

#### **SIGNIFICANT REGULATORY OR POLICY CHANGES OR ISSUES?**

- For FY21, APHIS received additional funding for the Equine, Cervid, and Small Ruminant line item.
  - APHIS received \$7M for Cooperative Agreements with state agriculture and wildlife agencies to further develop and implement CWD surveillance, testing, management, and research activities.
  - From the \$7M allocation, WS received \$2.975M to distribute directly to state wildlife agencies for CWD activities. The cooperative agreements will be further developed during the APHIS CWD stakeholder engagement held virtually the week of February 22, 2021.
  - The chronic wasting disease management and response activities 2020 cooperative agreements spending report (\$2.8M) is available on the APHIS website.
  - WS NWRC received a FY21 increase of \$2M for CWD research.

#### **CWD SURVEILLANCE**

- WS is conducting CWD surveillance and sampling in 17 Eastern states (including Washington D.C.) and Alaska. CWD is already well established in Western states.
  - Surveillance is occurring in: AK, AL, FL, IL, ME, MD (DC), MI, MN, MS, IA, NH, NC, OH, PA, SC, VA, WI, and TN.
  - Sampling incorporates a diverse array of techniques and involve state wildlife agencies, state and national diagnostic laboratories, and other local governments.
- Upon request, WS assists state game programs at hunter harvest deer check stations sampling for CWD. In FY20, WS sampled approximately 900 deer from hunter harvest deer check stations. WS anticipates this form of assistance to increase.
- WS has six Cooperative Service Agreements (CSA) to remove wild deer in infected areas to help control the spread of CWD and provide data to the state wildlife agencies.
  - States with CSAs: IL, ME, MI, MN, OH, and TN
  - In FY20, WS actively removed 1,864 cervids in CWD infected areas for sample collection.
- APHIS Programs (WS and Veterinary Services) work together to de-populate CWD positive captive cervid herds.
  - Deer: IA, OH, PA, WI, and OK (MN provided technical assistance)
  - Elk: KS
  - In FY20, APHIS removed 960 cervids from captive facilities.
- WS' National Wildlife Disease Program (NWD) deploy wildlife disease biologists (WDB) to help with targeted deer removal in infected areas. The enhanced surveillance helps state wildlife agencies better understand the role wildlife play in the spread of the disease.

- In 2020, WDBs and other WS personnel deployed to Minnesota to help remove 463 deer from infected areas.
  - Seven deer tested positive for CWD and one deer found dead tested positive.
  - MNDNR is in the process of renewing a \$350K CSA with WS for targeted deer removal with a projected project date of February – March 2021.
  - During the expanded MN hunting season, test results from hunter harvests will help to determine the specifics of the removal efforts in February and March.
- In 2020, WDBs deployed to Michigan to help remove 203 deer from infected areas.
  - Five deer tested positive for CWD and one deer struck by a vehicle tested positive.
- In 2021, WDBs will deploy to assist Tennessee with targeted deer removals in infected areas. This deployment was scheduled to take place in 2020 but was postponed due to COVID-19.

## **CONFLICT INCIDENT REPORT BY SPECIES**

### **Feral Swine**

#### **MOST SIGNIFICANT ISSUES**

- Feral swine negatively impact resources with damage costs estimated to be at least \$2.5 billion per year, \$800 million of which is direct damage to agriculture.
- Feral swine occur across the United States, the highest concentrations occur in Southeastern portions of the country and stretch as far west as Texas and Oklahoma with high populations also found in California.
- To date, efforts have been successful in eliminating feral swine in four states - Idaho, New York, New Jersey, and Maryland. An additional 6 states are in monitoring phase (Washington, Colorado, Minnesota, Iowa, Wisconsin, and Maine) and will consider feral swine eliminated if the state detects no activity for an additional two years.

#### **SIGNIFICANT REGULATORY OR POLICY CHANGES OR ISSUES?**

- APHIS receives \$30.55 million to implement the WS' National Feral Swine Damage Management Program (NFSP). WS distributes NFSP base funding to 37 states and 3 territories.
- WS FY21 federal allocation includes an increase of \$1M in support of feral swine eradication efforts.
- APHIS and NRCS jointly implement The Feral Swine Eradication and Control Pilot Program (FSCP). The 2018 Farm Bill provides a one-time multiyear authority of \$75M equally distributed between the two Agencies over 5 year (authorized by Section 2408 of the Agriculture Improvement Act of 2018, P.L. 115-334). The FSCP main objective is to address feral swine threats to agriculture, native ecosystems, and human and animal health.
  - WS is collaborating with Texas A&M University to identify best practices for feral swine removal and implementation of APHIS pilot projects.
  - WS purchased necessary equipment to enhance operational removal efforts in preparing for project activities, for example WS purchased five helicopters which are critical to reducing feral swine populations in difficult to access areas.
  - FSCP prioritizes response to states that have the highest and most damaging feral swine populations. The FSCP builds upon and expands work already underway by WS' NFSP

to remove feral swine and address emerging populations in conjunction with states, local government, the private sector, industry, and academia.

- WS and NRCS collaboratively identify pilot areas for FSCP in consultation with state technical committees. FSCP delivers three coordinated components within pilot areas.
  - First, WS works directly to control feral swine populations.
  - Second, NRCS provides funding to partner organizations to provide technical and financial assistance to agricultural producers for on-farm trapping and other means of feral swine control. Partner organizations also provide other services including pre- and post-project damage assessments and other means to assess progress in control efforts.
  - Finally, once population control occurs, NRCS provides technical and financial assistance for restoration of damage caused by feral swine.
- In this first year of the program, FSCP identified 20 pilot projects in 10 states with the highest feral swine densities. Project implementation started in early FY20 in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, and Texas.
- In FY20, the FSCP identified and selected an additional 14 projects in 8 states during the second round of soliciting projects. States with new projects include Hawaii and Missouri, the six other states were also a part of the first round of projects, Alabama, Mississippi, North Carolina, Oklahoma, South Carolina, Texas. FSCP will fully implement these projects in FY21.

## **RESEARCH**

**Sodium Nitrite.** WS will conduct field trials and food safety studies to support registration of sodium nitrite as a feral swine toxicant. Pending EPA issuance of an experimental use permit, the WS' National Wildlife Research Center (NWRC), with assistance from NFSP, WS state programs in Texas and Alabama, and the Texas Parks and Wildlife Department, will conduct two large-scale field studies to evaluate the efficacy and safety of a sodium nitrite toxic bait for use against feral swine.

- The EPA-required studies will produce a comprehensive report that EPA will use to consider registering the toxicant.
- In a 2018 study the toxicant showed great promise against feral swine, but non-targets, mainly passerine birds, consumed crumbs produced by feral swine feeding on the bait and died.
- NWRC reformulated the bait to make it more palatable to feral swine and less prone to spilling and modified baiting strategy to add a bird deterrent device to scare away birds the morning after WS deploys the toxicant. These modifications remove ~90% of pigs in just one night of toxic baiting with very few non-targets.
- For the upcoming studies, WS will evaluate the bait in Texas and Alabama during the summer.
  - WS will collar feral swine and raccoons in Texas and Alabama.
  - WS will then go back to the states to attempt to remove feral swine and document any non-targets, walking transects to recover carcasses, and using camera images to derive data.



- WS will continue analyzing data to include in the report to EPA. Simultaneously, the NWRC Registration Unit is working to complete other aspects of the data package. WS anticipates EPA review to occur over 2 years.
- Australia has registered this product for over a year and the feedback has been very positive.

# HUMANE KILLING AND EUTHANASIA OF WILDLIFE

## THREE BASIC THINGS TO REMEMBER

1. Plan ahead for the unexpected – plan on providing animal welfare & humaneness
2. Use/review AVMA Euthanasia Guidelines (for vets)-2020 (this is a new edition)
3. ODFW vet staff approval of non-standard procedures

## THE AVMA (AMERICAN VETERINARY MEDICAL ASSOCIATION)

- "Acknowledges an inherent lack of control over free-ranging wildlife"
- "Accepts that firearms may be the most appropriate approach"
- "Acknowledges that the quickest and most humane means of terminating the life of free-ranging wildlife may not always meet all criteria established for euthanasia"

## EUTHANASIA

- The Basics of Wildlife Euthanasia "Eu" meaning good and "Thanatos" meaning death (greek). The goal of any animal euthanasia should be a respectful end of life event and "Good Death", without suffering .
- "The overall goal should be to minimize animal distress and pain, as well as emotional impact and physical risks to personnel." (IACUC, 2016. P. 1)

## MECHANISMS OF EUTHANASIA

1. Rapid loss of consciousness
2. Cardiac or respiratory arrest
3. Subsequent loss of brain function

## WHY IS UNCONSCIOUSNESS BEFORE DEATH IMPORTANT?

- All animals experience hypoxia before death
- Hypoxia = low oxygen levels
- Hypoxia is painful and it causes panic
- No pain is perceived when unconscious
- Brain function must be stopped before other organs stop
- Organ failure before brain function ceases can also be painful
- When brain function stops, all other functions will stop within minutes

## HUMANE KILLING

Involves the quickest and most humane method of terminating the life of a free-ranging wildlife species.

- May not meet all the criteria for euthanasia
- Should minimize and avoid pain, suffering, distress just like euthanasia
- Will often involve procedures less palatable to the public
- Top consideration is still animal welfare, same as euthanasia

## **REASONS WE MAY EMPLOY HUMANE KILLING/EUTHANASIA OF WILDLIFE**

- Wildlife captures: injuries or research/collection requirements
- Disease investigation, control, and/or prevention
- Population management
- Orphaned, injured, or sick animal(s)
- Public safety
- Damage (crops, livestock, etc.) or nuisance animals

### **AN EVOLVING HISTORY**

- "Euthanasia" at animal pounds at the turn of the 20<sup>th</sup> century
  - Shooting
  - Clubbing
  - Decapitation
  - Drowning
- "Humane" killing of food animals
  - Stunning by bolt trauma or pithing
  - Exsanguination (bleeding out)
  - Cervical dislocation (neck wringing)

### **CREATIVE BUT NOT HUMANE**

- Poisoning early 19<sup>th</sup> century
  - Paralytics to suffocate (succinylcholine, anectine, nictone, strychnine)
  - Magnesium or potassium to stop heart
- Commercial electrocution
  - Primitive machine in 1915
  - "More humane" electrocution chamber 1970
- Hypoxic chemicals (CO, CO<sub>2</sub>) and decompression chambers (60's, 70's)
  - Engine exhaust generated CO
  - Then commercial CO chambers

### **WE START TO DO A BETTER JOB**

- Humane Slaughter Act – 1958, 1978, 2002
  - Rendering animals unconscious prior to euthanasia becomes paramount
  - Chambers not appropriate for large numbers of animals (reduce injury during procedure)
  - Restraint at some level adds complexity to the event, but is better for the animal
- Use injectable CNS depressants (sodium pentobarbital)
  - Controlled substances require training, safety, storage, disposal issues
  - IntraCardiac, IntraPeritoneal, IntraVenous

### **WILDLIFE TAKING**

- Federal, state, and local regulations apply to the taking of wildlife; management primarily under state jurisdiction.
- The most humane method applied will vary by species, situation, and individual animal and include minimizing distress and pain, and considering the safety of personnel and bystanders.

## **PEOPLE HAVE A STRONG EMOTIONAL INVOLVEMENT WITH WILDLIFE**

Killing an animal should always be completed outside of public view, if possible, further providing a barrier for public safety

### **PUBLIC SAFETY AND DAMAGE**

- Urbanized landscapes and the spread of cities
  - Conflict wildlife encounters -bears, cougars, raccoons, rodents
- ODFW Damage Policy often involves removing wildlife
  - Nuisance
    - may do damage to property - not a threat to public safety
  - Depredation
  - Dangerous
  
- Humane treatment still applies

### **AVMA CRITERIA TO RANK EUTHANASIA METHODS (CONSIDER FOR HUMANE KILLING TOO)**

- 1) Ability to induce loss of consciousness and death without causing pain
- 2) Time required to induce loss of consciousness
- 3) Reliability
- 4) Safety of personnel
- 5) Irreversibility
- 6) Compatibility with requirement and purpose
- 7) Emotional effect on observers and operators
- 8) Compatibility with subsequent examination or use of tissue
- 9) Drug availability
- 10) Human abuse potential
- 11) Compatibility with species, age, sex, and health status
- 12) Ability for equipment to be maintained in proper working order
- 13) Safety for predators or scavengers, should the carcass be consumed

### **CONSIDERATIONS FOR TECHNIQUES USED**

- Safety (of staff and animals)
- Restraint needed?
- Staff trained in the humane techniques?
- Drugs and equipment available?
- Is the method / technique acceptable to bystanders? (Think cameras)
- Disposition of carcass- scavengers an issue
- Diagnostic samples - brain intact?

### **OTHER CONSIDERATIONS**

- Field projects should have euthanasia policies in proposal and permits
- If possible, always use anesthesia first

### **METHODS: FREE-RANGING WILDLIFE**

#### **TWO-STEP EUTHANASIA**

- Where an animal is rendered unconscious from chemical anesthesia followed by a secondary technique that results in death
- Examples
  - T/K/X sedation on turtle followed by decapitation and pithing
  - Ketamine/xylazine anesthesia on bat followed by cervical dislocation

### **INHALANTS**

- Ether, halothane, isoflurane, sevoflurane
- Small animals in a closed receptacle
- Used under direct guidance of veterinarian (state board of pharmacy registration)
- Human exposure: abortions, congenital abnormalities in early pregnancy (<2ppm)

### **CHEMICAL METHODS: INHALED AGENTS**

- Gas anesthetics
  - Ether
  - Isoflurane, desflurane, sevoflurane- currently available in the US
    - Isoflurane- most commonly used
  - May be primary method of euthanasia for mammals < 7kg
    - Death needs to be confirmed – cessation of heart beat and respiration
  - Can also be used as part of 2-step euthanasia to render animal unconscious followed by secondary kill method

### **GAS ANESTHETICS-DELIVERY METHODS**

- Open drop method = application of liquid isoflurane to an absorbent material which is then placed into the bottom of the chamber
  - E.g. -Container with cotton ball
  - For use on mammals <7 kg
- Do not have animal directly contact the liquid
  - caustic to tissues
- Prevent personal exposure –open air or under a hood preferred

### **GAS ANESTHETICS- OPEN DROP METHOD**

#### Advantages

- May be used as primary euthanasia method in mammals < 7kg if confirm death (e.g. stethoscope)
- Fairly portable
- Socially acceptable

#### Disadvantages

- Don't want to use in enclosed spaces (e.g. caves) human safety
- Pregnant individuals most at risk
- Need to capture animal first

### **CHEMICAL METHODS: POTASSIUM CHLORIDE**

- Given only to anesthetized animals
- Must be given IV or IC (intracardiac)
- K overdose causes heart to stop (basically a heart attack)

## Advantages

- Minimal risk to humans
- Inexpensive
- Non-toxic drug residue (but other anesthesia drugs will likely have residues)

## Disadvantages

- Often takes large volume
- May be difficult to access vein (low pressure) or heart

## **CO<sub>2</sub> EUTHANASIA**

- Compressed CO<sub>2</sub> gas inflow can be regulated precisely
  - CO<sub>2</sub> flow should displace air at a rate of 30% of the chamber volume per minute
  - CO<sub>2</sub> generated by other methods (e.g., dry ice) is unacceptable
  - Procedure:
    - a) Euthanasia of caged animals is preferred.
    - b) CO<sub>2</sub> delivered from a pressurized tank with flow rate set to displace 30% of the chamber or cage volume/minute.
    - d) Animals monitored for cessation of respiration plus at least an 60 seconds after respiration has ceased.
    - e) Never leave a euthanasia chamber with flowing gas unattended.

## **CO<sub>2</sub> EUTHANASIA**

- Office set-up

## **GUNSHOT TO HEAD – KNOW SPECIES ANATOMY**

### **GUNSHOT OR CAPTIVE BOLT**

- Following physical or chemical capture/injury
- Frontal or side brain entry
- Neck shot if brain needed to be preserved
- Close placement of barrel if possible
- High potential risk of human injury

## **CERVICAL DISLOCATION OR DECAPITATION**

### **AMPHIBIANS**

- MS-222 Tricaine methanesulfonate
  - Buffer with sodium bicarbonate to a pH of 7.0 or 7.5
  - Water bath-1-5 g/L
  - Injected into coelomic cavity (200 mg/kg)
- Topical benzocaine gel- applied to ventral belly
- Pithing, hypothermia, decapitation, exsanguination, electrocution and inhaled agents not recommended as primary euthanasia techniques

### **REPTILES**

Extremely tolerant of low oxygen levels and research has shown that the decapitated reptile head can perceive sensation for over 1 hour. Decapitation of conscious turtles is not considered a humane method of euthanasia.

1. Anesthesia followed by decapitation. If turtles cannot be delivered to the wildlife health lab then they can be anesthetized by intramuscular injection with a Telazol/Xylazine/Ketamine (T/K/X) cocktail.\*\* After the anesthetic agent has taken full effect and the turtle is non-responsive, then the animal can be decapitated. After decapitation the skull should be crushed to ensure destruction of the brain.
2. Decapitation (with no anesthesia) followed by immediate crushing of the skull and destruction of the brain. This method should only be used if the turtle has been approved for human consumption or in emergency situations.
3. Destruction of the brain by blunt force trauma (with no anesthesia) followed by decapitation. This method should only be used if the turtle has been approved for human consumption or in emergency situations.
4. Anesthesia combined with intravenous administration of a barbiturate (can only be performed by veterinary staff) . When possible, turtles should be delivered to the Wildlife Health Lab.
5. w metabolic rate, anaerobic metabolism
  - IV barbiturates
  - Physical methods: animals for human consumption
  - Decapitation (brain viable for >1 hour)
  - Freezing is painful (forms of ice crystals)

## **AVIAN**

- Cervical dislocation
- Gunshot
- CO<sup>2</sup> on small birds (< 3 lbs.)
- Thoracic compression not recommended but could be used if anesthetized

## **SMALL MAMMALS**

- CO<sup>2</sup> (<3 pounds)
- Cervical dislocation (<150g)\*
- Decapitation\*
- Concussion or stunning (neonatal or < 2-3 lbs)\*
- Thoracic compression \*
- Other methods (liquid nitrogen, kill traps)
- \*(With anesthesia)

## **UNACCEPTABLE METHODS –THESE ARE NOT HUMANE**

- Hypothermia/freezing
- Nitrogen/Nitrous Oxide
- Ketamine alone
- Neuromuscular blockers
- IP/IC injections w/o anesthesia
- Thoracic compression w/out anesthesia
  - CO/chloroform/ether
  - Car exhaust
  - Strychnine/nicotine/cyanide
  - Nail polish remover
  - Air embolism

## **UNACCEPTABLE PARALYSIS METHODS USING DRUGS**

- Muscle paralysis does not block cerebral cortex
  - Succinylcholine (Sucostrin)
  - Strychnine
  - Curare
  - Nicotine
  - Potassium
  - Magnesium salts
- Animals are fully conscious
- Distress and perception of pain

## **EUTHANASIA AND THE MEDIA**

### **LITERATURE CITED**

1. AVMA Guidelines for the Euthanasia of Animals: 2020 Edition.
2. Julien, T. J., S. M. Vantassel, S. R. Groepper, S. E. Hygnstrom. 2010. Euthanasia methods in field settings for wildlife damage management. *Human-Wildlife Interactions* 4:158-164.
3. Thompson, T. 2018. Field euthanasia methods for wildlife. OLAW Online Seminar.





ASSOCIATION of  
FISH & WILDLIFE  
AGENCIES

# Wildlife Resources Policy Committee Bat Conservation Working Group Report: March 11, 2021

## Working Group Members

### State Agency:

Owen Boyle, *Wisconsin Department of Natural Resources*  
Sunni Carr, *Kentucky Department of Fish and Wildlife Resources*

Jenny Dickson, Co-Chair, *Connecticut Department of Energy and Environmental Protection, Wildlife Division*

Katrina Morris, *Georgia Department of Natural Resources*  
Emily VanWyk, *Oregon Department of Fish and Wildlife*

### Federal Agency:

Jeremy Coleman, *US Fish and Wildlife Service*

Brian Reichert, *US Geological Survey - Fort Collins Science Center*

Dennis Krusac, *US Department of Agriculture Forest Service - Southern Region*

Marikay Ramsey, *Bureau of Land Management - New Mexico*

### Non-governmental Organization:

Mylea Bayless, Co-Chair, *Bat Conservation International*

## Work Group Charge

*The Bat Conservation Working Group will help identify barriers to bat conservation and work with other AFWA committees to provide guidance or assistance on cross-cutting issues. The working group creates a forum for coordination and information sharing regarding broad collaborations (e.g. NA Bat monitoring and WNS response) and develops new conservation tools and solutions.*

## Activities

Following the March 2020 meeting with the Wildlife Resources and Policy Committee, the Bat Conservation Working Group (BCWG) had to quickly pivot and change planned activities to assist states, federal, tribal, and partner organizations in responding to the issue of Sars-CoV-2. In close collaboration with the Fish and Wildlife Health Committee, the Work Group develop a guidance document for bat related activities.

**Association of Fish & Wildlife Agencies**  
Voluntary Interim Guidance for  
Bat-related Activities in Response to COVID-19  
Version 1.0 (April 13, 2020)



ASSOCIATION of  
FISH & WILDLIFE  
AGENCIES

Many BCWG Members also provided technical assistance with assessments conducted by USGS, PWRC, and the NWHC on the risk of transmission of Sars-CoV-2 from humans to bats. This early assessment was followed by a fall study designed specifically to address concerns about hibernacula survey work as part of ongoing white-nose syndrome surveillance efforts.

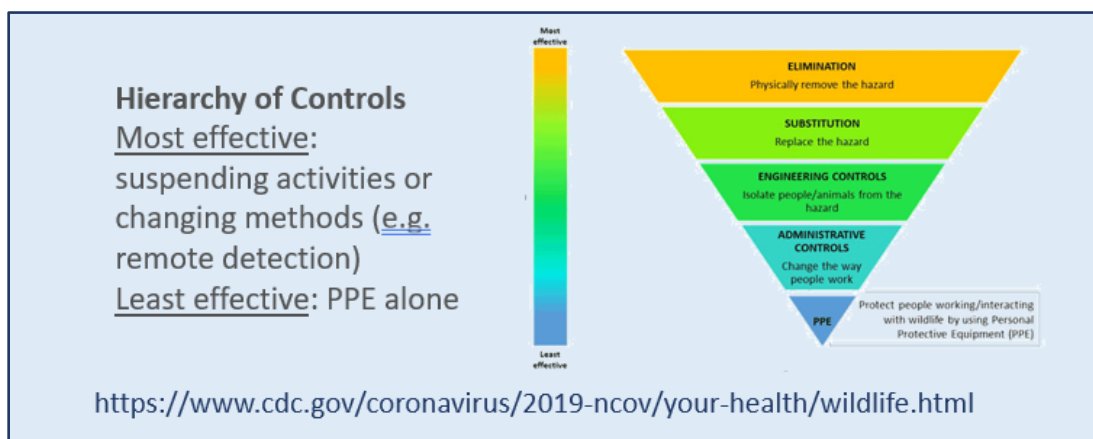
Members of the BCWG also provided technical assistance with disease challenge studies conducted by USGS on big brown bats.

State Members of the BCWG held a teleconference for State Fish & Wildlife Agency bat biologists to discuss concerns with implementation of the AFWA guidance, bat rehabilitation and related communication, and issues surrounding multiple guidance documents being issued to help inform bat conservation and research activities.

The BCWG continued to work on revisions to the AFWA guidance document and will work with the Fish and Wildlife Health Committee to produce a 2021 update.

## Key Information for Bat Conservation

- Risk Assessment by USGS, PWRC, and NWHC concluded risk of transmission from infected people to bats is **nonnegligible** (Runge et. al. 2020)
- USGS challenge study in big brown bats (*Eptesicus fuscus*) showed no clinical signs of infection or viral shedding. However, further research is needed to address uncertainties regarding the risks to other North American bat species known to be more susceptible to novel pathogens and to the risks presented by co-infection with white-nose syndrome.
- IUCN Wildlife Health Specialist Group Guidance produced for bat and wildlife work
- PCR SARS-CoV-2 testing was being developed by the Wildlife Futures Program at UPenn Veterinary School and at Tufts. The Wildlife Futures Program will be able to provide fee based diagnostic services in 2021.
- The CDC issued Guidance on Wildlife Work (Feb. 8, 2021) based on hierarchical assessment of risk which will help further refine decisions about bat-related efforts.



## Recommendations

- Continue the BCWG to facilitate updates to bat research and conservation recommendations as new issues emerge (e.g. how to address rehabilitation and research with human vaccinations underway and PCR testing for captive bats becoming both available and scientifically reliable.)
- Provide a forum for continued discussion among state bat experts and help dissemination of new science



## **USGS Bat Monitoring Program Update**

North American bats face unprecedented threats including habitat loss and fragmentation, white-nose syndrome, wind energy development, and climate change. However, it is difficult to evaluate the impacts of these threats due to a lack of basic information about the distribution and abundance of bats across the continent. Although bat monitoring has long been conducted in individual areas and for individual projects, until now, there has been no statistically robust and standardized monitoring program to assess the status and trends of bat populations across North America. The NABat program provides information to broad constituency garnered from a continental-scale, long-term program, and allows them to better document changes in bat populations, estimate extinction risk, set conservation priorities and evaluate the effectiveness of conservation actions.



This spotted bat, native to western North America, is a hibernating insect-eating bat that may be at risk as the disease white-nose syndrome moves westward. Public domain

### **What is NABat?**

- The North American Bat Monitoring Program (NABat) is an international interagency program designed to monitor bat distributions and abundances on public and private lands, and provide trend data at the state, provincial, tribal, regional (e.g., Landscape Conservation Cooperatives), and range-wide scales.

- The goal of NABat is to provide natural resource managers with information required to manage bat populations effectively, detect early warning signs of population decline, and estimate extinction risk.
- NABat will allow state, provincial, and federal agencies to better prioritize limited resources and engage in cross-agency collaboration. Over time, NABat will involve the public in monitoring and conservation activities.

### **Scope of NABat**

Currently, NABat concentrates on the 47 species of bats found in Canada and the U.S. Over time, NABat will integrate with an existing monitoring program in Mexico.

### **Methods and Approaches Used in NABat**



This southeastern bat (*Myotis austroriparius*) from Alabama shows signs of infection from the *Pseudogymnoascus destructans* fungus that causes white-nose syndrome in bats. (Credit: Dottie Brown, Ecological Solutions, Inc.. Ecological Solutions, Inc. has agreed to place this in the public domain)

A central component of NABat is the use of a master sample of grid cells, a spatially balanced list of sampling areas within a continental grid framework. Conducting standardized monitoring within this framework allows statistical inference to unsurveyed locations. The master sample provides operational flexibility to partners while allowing for regional and rangewide analyses.

NABat gathers monitoring data to assess changes in bat populations using:

- Mobile acoustic surveys along driving transects
- Acoustic surveys at stationary points
- Winter hibernaculum (location of hibernation) counts
- Maternity colony counts
- Emergence counts

### **Anticipated Products and Outcomes**

- The State of North America's Bats: annual and multi-annual reports of status and trends in bat distributions and relative abundances (YEAR)

- Spatially-explicit data on bat populations (e.g., improved range maps, density estimates) that will allow natural resource managers to identify areas and species of conservation concern
- Long-term distribution data for addressing cross-boundary issues related to bat management and conservation



Scientists enter abandoned mine where bats hibernate in New York. (Credit: Kim Miller, USGS. Public domain.)

### **Accomplishments to Date**

- 252 registered projects in 42 states, 6 Canadian provinces, and Puerto Rico
- 2,856 NABat GRTS cells claimed for survey
- 1,496 GRTS cells with survey data uploaded
- 8,633,339 acoustic files uploaded to NABat database
- Release of [nabatmonitoring.org](http://nabatmonitoring.org), a website to support and disseminate information, user resources, and training materials
- Publication of a spatially-enabled database to house NABat data and metadata
- Release of data visualization tools based on the NABat sample design, including mapping features to explore project data (private) and a public data map to identify current monitoring efforts and project details
- Release of a new cell selection tool with numerous data layers, mapping features, and functionality to upload spatial objects and user-generated layers
- Development of an automated project reporting feature for stationary acoustic and winter hibernacula data
- Publication of the NABat Attributed Master Sample: a spatially balanced ordered list of sample units for each U.S. state and Canadian province
- Interagency partnership with the U.S. Fish and Wildlife Service to utilize the NABat database as part of the Species Status Assessment for three North American bat species
- Statewide volunteer mobile transect survey program implemented in North Carolina
- Active engagement by U.S. and Canadian coordinators, state management agencies, and private conservation agencies

- Four workshops and a technical report: A Plan for the North American Bat Monitoring Program (NABat). The report describes rationale, need, sampling design, sampling framework, guidelines for data collection, data management capabilities, and analytical approaches
- Establishment of 4 NABat working groups to refine survey methods and collaboratively address research needs and emerging conservation issues
- Partnership with the U.S. Forest Service to merge the BatAMP database with NABat
- Partnership with the National Parks Service to merge bat acoustic data collected at National Parks across North America with the NABat database

## Update on Landscape Conservation and At-risk Species

The Global Deal for Nature is complementary to the Paris Climate Agreement. And was envisioned to save the diversity of life on the planet and conserve the ecosystems services on which humans depend.

The 30 by 30 tag line was adopted to communicate – simply – the crisis at hand. The ultimate goal to restore ecological function across the globe is to restore and maintain 50% of the land area as intact natural ecosystems. Or 50 by 50.

Three Major Themes:

1. Protect Biodiversity
  1. Via Migration Routes
  2. Connecting lands and water both fresh and marine
  3. Conserving Old Growth Habitats
2. Mitigate Climate Change
  1. Via Carbon Storage in natural areas, forests, working lands
  2. GDN estimates that more than 1 billion tons of carbon dioxide equivalent can be sequestered through natural climate solutions in the United States each year—equal to one-fifth of the country's emissions in 2017
3. Reducing Major Threats
  1. Agriculture – we talk a lot about regenerative or returning to indigenous ways of farming
  2. Overharvest
  3. Invasive species, pollution and toxins
  - 4.

What do we know about the 30x30 plan in the US? Not a lot, this plan focuses on biodiversity, functioning ecosystems, and connecting those ecosystems so States, the USFWS, and Tribes as managers of the countries fish and wildlife should be central to the plan.

The EO directs - DOI to solicit input from State, local, Tribal, and territorial officials, agricultural and forest landowners, fishermen, and other key stakeholders in identifying strategies that will encourage broad participation in the goal of conserving 30 percent of our lands and waters by 2030.

Department of Ag to collect input from Tribes, farmers, ranchers, forest owners, conservation groups, firefighters, and other stakeholders on how to best use Department of Agriculture programs, funding and financing capacities, and other authorities, and how to encourage the voluntary adoption of climate-smart agricultural and forestry practices that decrease wildfire risk fueled by climate change and result in additional, measurable, and verifiable carbon reductions and sequestration and that source sustainable bioproducts and fuels;

- 30 x 30 includes areas that are already under protection.
- This is a voluntary, grassroots, and collaborative initiative.
- State, tribal, local, private conservation lands and working lands can all be included. It can include lands used for recreation such as hunting and fishing.
- Local engagement is key.
- The focus was less on planning and more on an inclusive *process* to engage and inspire all Americans to participate. DOI will reach out to communities.



- "It is also not about locking up land, but is intended to be a national goal that can be met with cooperative efforts from many levels of government and voluntary private action."
- **Protecting carbon stored on vulnerable lands:** If the United States achieves an 80 percent slower rate of natural area loss as part of a 30×30 goal, the country would avoid the conversion of more than 1.2 million acres of natural areas per year. That means at least 22 MMT of greenhouse gas equivalent would remain stored in forests and other natural areas in 2030 instead of being cleared for human use.
- **Investing in urban and community forests:** Research has shown that communities of color, families with children, and low-income communities are significantly less likely to have access to nature.<sup>19</sup> Working toward a 30×30 goal provides an opportunity for policymakers to proactively address this nature gap. The creation of new urban parks, recreation areas, and natural places near communities experiencing nature deficits—and the reforestation and restoration necessary for stewardship of these open spaces—will not only help ensure equitable access to the outdoors but could also sequester 6 MMT of carbon dioxide equivalent by 2030.

There are a number of people in this meeting that know exactly what a Cooperatively Constructed Strategy looks like. Last week, SEAFWA directors established the SECAS Steering Committee as an official standing committee of the Association. This action formalized a State-Federal oversight board for the SECAS partnership, which works across jurisdictions among Southeastern State fish and wildlife agencies, Federal agencies in the Southeast with natural resource management responsibilities, nonprofit organizations and other conservation partnerships in the region.

Similar landscape scale conservation efforts are taking place across the nation. A crucial component of these efforts is in the ability to work across jurisdictions to accomplish conservation at the scale needed to match the threats to conservation.

Deb

Deborah Rocque (she/her)  
Assistant Director for Science Applications  
US Fish and Wildlife Service

703-358-1969 desk  
571-451-6523 cell (Preferred)