



2014 Colorado Chapter of The Wildlife Society Annual Winter Meeting

Hilton Hotel, Fort Collins, CO

February 5-7, 2014

See www.wildlife.org/colorado for more information

Wednesday, February 5

7:30 Registration opens and coffee will be ready!

8:30-4:00 **Workshops (morning/afternoon light food and coffee, and mid-day lunch provided)**

Advanced Wildlife Anesthesia (Salon 6, afternoon capture demonstrations at Foothill Wildlife Research Facility, transportation will be provided)

Dr. Margaret Wild, Chief Veterinarian, National Park Service

Dr. Bill Lance, CEO, Wildlife Pharmaceuticals Inc.

Dr. Mike Miller, Senior Wildlife Veterinarian, Colorado Parks and Wildlife

Dr. Lisa Wolfe, Wildlife Veterinarian, Colorado Parks and Wildlife

8:30am – 4pm, **lunch in atrium, transportation provided at 12:30**

Description: This one day workshop will provide participants with an opportunity to refresh their knowledge and gain new insights into ever evolving wildlife anesthesia drugs and techniques. It will also include live capture demonstrations. Topics will focus primarily on ungulates and carnivores and include: 1) an overview of a range of drug types and their associated tradeoffs ; 2) current veterinary approaches to animal care and emergency response during capture; 3) an in-depth consideration of analgesia and pain management for wildlife during capture and transport; and 4) live capture demonstrations using experimental drugs at the Colorado Parks and Wildlife Foothill Wildlife Research Facility. It is an advanced course intended to facilitate in-depth discussions on wildlife anesthesia, but all are welcome and it will be open to everyone.

Landscape Genetics (Salon 4)

Dr. Sara Oyler-McCance, USGS

Dr. Brad Fedy, University of Waterloo

Dr. Jeff Row, University of Waterloo

10:00am- 3pm, **lunch in atrium provided**

Description: This workshop will focus on how current genetic technology can be used to better understand free-ranging wildlife populations. Topics will include: 1) an overview on current genetic methods; 2) moving from population based analyses to landscape analyses; 3) network theory and its application to landscape genetics; and 4) how to test multiple cost surfaces using Circuitscape. It will also give participants the opportunity to discuss their work or questions with a variety of experts in this field.

7:00-9:00 **Welcome Social and Student-Professional Mixer** (at Odell Brewery, organized by CSU Student Chapter of TWS)

Refreshments by Odell's, food by Fiona's, transportation to/from Hilton provided (**please use it!**)

Large shuttles will leave Hilton at 6:40 and 6:50 (and a small one at 7:00)

Thursday, February 6

7:00 Registration opens and coffee will be ready!

8:00 - all day **Posters displayed in Hilton Atrium** (poster presenter Q & A during breaks)

Morning Plenary Session: “Crawling, Running, Flying...Wildlife Migration and Movement in Colorado and Beyond” (Salons 3/4/6 combined)

8:20 **Welcome**

Ryan Monello, Biological Resource Management Division, National Park Service
President, Colorado Chapter of TWS

8:30 **Introductory remarks**

Bob Broscheid, Director, Colorado Parks and Wildlife

8:40 **(Keynote) Conservation’s unwieldy path — big animals in an increasingly peopled world**

Dr. Joel Berger, John J. Craighead Chair and Professor of Wildlife Conservation,
University of Montana, and Wildlife Conservation Society

9:30 **Connectivity and wildlife conservation in urbanizing landscapes**

Dr. Kevin Crooks, Professor, Department of Fish, Wildlife, and Conservation Biology and
Graduate Degree Program in Ecology, Colorado State University

10:00 **Partnering for wildlife along the Spine of the Continent: the Western Wildway Network**

Paige Singer, Conservation Biologist, Rocky Mountain Wild
Greg Costello, Executive Director, Wildlands Network

10:30 **Break**, refreshments and pastries provided

10:45 **Migration and other ways that amphibians move around**

Dr. Erin Muths, Research Zoologist, Fort Collins Science Center, U.S. Geological Survey

11:15 **How birds connect us locally, regionally and internationally**

Tammy VerCauteren, Executive Director, Rocky Mountain Bird Observatory
Arvind Panjabi, International Program Program Director, Rocky Mountain Bird
Observatory

11:45 **Regional conservation planning for migratory birds: an example using Rocky Mountain Population sandhill cranes in the Intermountain West Joint Venture**

Dr. Josh Vest, Science Coordinator, Intermountain West Joint Venture
Patrick Donnelly, Spatial Ecologist, Intermountain West Joint Venture
Dr. Jim Gammonley, Avian Research Biologist, Colorado Parks and Wildlife

12:15 **Lunch buffet** (Salons 1/2/5 combined; room is located next to plenary session)
CO Chapter of TWS annual business meeting, lunch provided

Afternoon Plenary Session: “Wildlife and Natural Gas Extraction in the Piceance Basin, Colorado: Impacts and Mitigation” (Salons 3/4/6 combined)

- 1:30 Introduction - Ken Wilson, Colorado State University
- 1:35 **Natural gas development in the Piceance Basin**
Romeo Perez, XTO Energy
- 1:50 Mule deer/energy development interactions: overview - Chuck Anderson, Colorado Parks and Wildlife
- 2:00 **Behavioral responses of mule deer to natural gas development and potential links to mitigation**
Joe Northrup, George Wittemyer, Colorado State University
- 2:15 **Effects of natural gas development on neonatal mule deer survival**
Mark Peterson, Paul Doherty, Colorado State University
- 2:30 Greater sage-grouse and natural gas extraction: overview – Brett Walker, Colorado Parks and Wildlife
- 2:35 **Testing lek-based conservation strategies for breeding male greater sage-grouse**
Brett Walker, Colorado Parks and Wildlife
- 2:45 **Improving population monitoring strategies for greater sage-grouse: dual frame sampling as an alternative to traditional lek counts**
Jessica Brauch, Barry Noon, Colorado State University
- 3:00 **Break**, refreshments, granola bars, and fruit provided
- 3:30 Habitat restoration for mule deer: overview - Danielle Johnston, Colorado Parks and Wildlife
- 3:40 **Increasing mule deer forage: effectiveness of mechanical treatments in habitat restoration**
Garrett Stephens, Mark Paschke, Colorado State University
- 3:50 **Restoring threatened *Physaria* populations**
Sasha Victor, Mark Paschke, Colorado State University
- 4:00 **Improving habitat for mule deer: consequences for songbirds and small mammals**
Sara Bombaci, Liba Pejchar Goldstein, Colorado State University
- 4:10 **Does mechanical habitat manipulation mimic natural disturbance? Effects of hydroax and fire on songbird communities**
Travis Gallo, Liba Pejchar Goldstein, Colorado State University

- 4:20 **The use of acoustic collars for studying landscape effects on mule deer behavior**
Emma Lynch, Lisa Angeloni, George Wittemyer, Colorado State University
Megan McKenna, Kurt Fistrup, National Park Service
- 4:30 **Does anthropogenic noise affect occupancy, species richness, species composition, or activity levels of bats?**
Katy Warner, Ken Wilson, Colorado State University
Kurt Fistrup, National Park Service
- 4:40 Moderated Panel Discussion – XTO Energy, Colorado Parks and Wildlife, Colorado State University
- 5:30 Session End
- 5:30-9:30 **Mixer, banquet, awards, and auction** (Salons 1/2/5 combined)
Refreshments provided by New Belgium Brewing
Dinner served at 6:30pm
Awards presentation during dinner; silent & live auction follow
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Friday, February 7

- 7:30 Registration desk will be open and coffee will be ready!
- 8:00-12:00 **Posters displayed** (poster presenter Q & A during break)
- 8:15 Announcements

Concurrent Technical Session 1 (Green and Gold Room):

*Only presenters are listed, please see abstract program for all contributing authors

Moderator: Mike Smith, Colorado Parks and Wildlife

- 8:20 **Estimating cougar densities in Northwest Oregon using conservation detection dogs**
Gregory A. Davidson, Oregon Department of Fish and Wildlife
- 8:40 **Development of a noninvasive method to sample cougars**
Kirstie L. Yeager, Colorado State University
- 9:00 **Urbanization drives differential prey use within an urban-wildland mountain lion population**
Wynne E. Moss, University of Wisconsin-Madison
- 9:20 **Telomere length as a proxy for biological age in Colorado black bears**
Rebecca Kirby, University of Wisconsin-Madison
- 9:40 **Migration patterns of adult female mule deer in response to natural gas development**
Chuck Anderson, Colorado Parks and Wildlife
- 10:00 **Break**, refreshments and muffins provided
- 10:20 **Forest cover change and mountain nyala protected areas management in Ethiopia**
Nicholas E. Young, Colorado State University

- 10:40 **Survival of the Rocky Mountain sandhill crane**
William L. Kendall, U. S. Geological Survey, Colorado Cooperative Fish and Wildlife Unit
- 11:00 **Wildlife camera trapping: variables influencing encounter rates in occupancy and relative abundance indices**
Kevin A. Blecha, Colorado State University
- 11:20 **A recent epizootic of skunk rabies and associated spillover in Northern Colorado**
Amy Gilbert, National Wildlife Research Center
- 11:40 **Evaluation of a novel bait for oral rabies vaccination of wildlife reservoirs: consumption and bate fate**
Shylo Johnson, National Wildlife Research Center

Concurrent Technical Session 2 (Legends Room):

*Only presenters are listed, please see abstract program for all contributing authors

Moderator: Brett Walker, Colorado Parks and Wildlife

- 8:20 **Wildlife movement guilds: a classification system for road ecologists**
Julia Kintsch, ECO-resolutions LLC
- 8:40 **Using standardized survey protocol frameworks to facilitate cooperative landscape-scale wildlife monitoring: The RMBO/FWS landbird survey protocol framework**
Lee E. O'brien, USFWS
- 9:00 **Impacts of elk and vegetation management on songbirds of Rocky Mountain National Park**
Apryle D. Craig, Colorado State University
- 9:20 **Evaluation of the Raven small Unmanned Aircraft System (sUAS) to detect and monitor greater sage-grouse leks within the Middle Park population**
Michelle Cowardin, Colorado Parks and Wildlife
- 9:40 **Gunnison sage-grouse (*Centrocercus minimus*) vocalization reduction in response to anthropogenic noise sources within the Gunnison Basin, Colorado**
Daniel Piquette, Western State Colorado University
- 10:00 **Break**, refreshments and muffins provided
- 10:20 **Engaging youth in wildlife-related recreation through science education**
Rebecca Thomas, Colorado State University
- 10:40 **Human dimensions of coyote management in the Denver Metro area: A spatially explicit approach to understanding public and manager perspectives**
Andrew W. Don Carlos, Colorado State University
- 11:00 **Applying social sciences to inform conservation solutions regarding owned outdoor cats in urbanizing landscapes**
Ashley Gramza, Colorado State University

- 11:20 **Using species conservation banks to offset the need for species listings and aiding recovery under The Endangered Species Act: sage-grouse and Colorado plants examples**
Al Pfister
- 11:40 **Collaborative wildlife management contracting in a state wildlife agency: pointing at an elephant in the room**
Robert K. Towry, RKT LLC.
- 12:00 **Closing remarks and best student poster and technical presentation awards**
- 12:30 **CCTWS board meeting**

Posters (Hilton Atrium Thursday and Friday):

Using constraints on animal movement to model telemetry measurement error

Brian M. Brost¹, Mevin B. Hooten^{2,3}, Ephraim M. Hanks⁴, Robert J. Small⁵

¹Department of Fish, Wildlife, and Conservation Biology Graduate Degree Program in Ecology
Colorado State University

²Colorado Cooperative Fish and Wildlife Research Unit, U.S. Geological Survey

³Department of Fish, Wildlife, and Conservation Biology, Department of Statistics Colorado State University

⁴Department of Statistics Pennsylvania State University

⁵Alaska Department of Fish and Game

Identifying dispersal in *Lynx canadensis* using a coupled telemetry model

Frances E. Buderman¹, Mevin B. Hooten^{1,2}, Jake S. Ivan³, Tanya M. Shenk⁴

¹ Fish, Wildlife, and Conservation Biology, Colorado State University, Fort Collins, CO

² Colorado Cooperative Fish and Wildlife Research Unit, U.S. Geological Survey, Fort Collins, CO

³ Colorado Parks and Wildlife, Fort Collins, CO

⁴ National Park Service, Fort Collins, CO

Evaluation of the Raven small Unmanned Aircraft System (sUAS) for wildlife assessment: population estimates of sandhill cranes (*Grus canadensis*) and detecting and monitoring greater sage-grouse (*Centrocercus urophasianus*) leks in Colorado

Chris Holmquist-Johnson¹, Leanne Hanson², Michelle Cowardin³

¹Research Hydrologist, USGS Fort Collins Science Center

²Biologist, USGS Fort Collins Science Center

³Wildlife Biologist, Colorado Parks and Wildlife

Evaluating habitat use of an Alaskan Dall sheep (*Ovis dalli dalli*) population via camera traps

Jeremy Dertien^{1,2}, Calvin Bagley², John Haddix³, Aleya Brinkman^{2,3}, Elizabeth Neipert^{2,3}, and Paul Doherty, Jr.¹

¹Department of Fish, Wildlife, and Conservation Biology, Colorado State University, Fort Collins, Colorado

²Center for Environmental Management of Military Lands, Fort Collin, Colorado

³United States Army, Fort Wainwright, Fairbanks, Alaska

Effects of conservation development design and stewardship on birds and mammals in Northern Colorado

Cooper Farr¹, Liba Pejchar¹, Sarah E. Reed^{1,2}

¹Department of Fish, Wildlife, and Conservation Biology, Colorado State University

²North America Program, Wildlife Conservation Society

Emerging wildlife diseases: enhancing research and management of vector-borne pathogens with molecular phylogenetics

Matthew W. Hopken^{1,2}, Kathryn P. Huyvaert², Mark W. Lutman³, and Antoinette J. Piaggio¹

¹ USDA APHIS National Wildlife Research Center, 4101 Laporte Avenue, Fort Collins, CO 80521.

² Department of Fish, Wildlife, and Conservation Biology, Colorado State University, Fort Collins, CO 80523.

³ USDA APHIS National Wildlife Disease Program, 4101 Laporte Avenue, Fort Collins, CO 80521.

The State Highway 9 Safety Improvement Project: collaborative stakeholder involvement in the design, funding and monitoring of wildlife crossings to mitigate wildlife-vehicle collisions in North Central Colorado

John Kossler, Blue Valley Ranch

Michelle Cowardin, Colorado Parks and Wildlife

Research-in-progress: assessing bird-mediated ecosystem services and disservices in Colorado orchards

Anna M. Mangan^{1,2}, Liba Pejchar², Scott J. Werner¹

¹United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, National Wildlife Research Center, 4101 LaPorte Avenue, Fort Collins, CO 80521

²Colorado State University, Department of Fish, Wildlife and Conservation Biology, Campus Delivery 1474, Fort Collins, CO 80523

Pineridge Natural Area wildlife camera study by Boltz Middle School Students

Rebecca Much¹, Alex Arvin¹, Genevieve Fuller¹, Kerry Gold¹, Emily Grabowsky¹, Meredith Kittelson¹, Samuel Peterson¹, Toryn Schafer¹, Jordan Baumgartner¹, and the Boltz Middle School 6th Grade Science Class, Kevin Crooks¹

¹Colorado State University

Using protocols to enhance scientific credibility of inventory and monitoring at National Wildlife Refuges

James P. Ward, Jr., Peter Dratch, Lee O'Brien, and Mark Chase, US Fish and Wildlife Service, Natural Resources Program Center, Fort Collins, Colorado.

Habitat Factors Limiting Wyoming Toad (*Anaxyrus baxteri*) Survival and Growth at a Reintroduction Site in the Laramie Basin of Wyoming

Julia S. Polasik, Melanie A. Murphy, University of Wyoming

Measuring oxygen consumption in captive South American sea lions (*Otaria flavescens*)

H. Miller¹, L. Conlon², L. Keller³, P. Jobsis²

¹Western State Colorado University,

²University of the Virgin Islands,

³Coral World Ocean Park

2014 CCTWS Annual Winter Meeting Planning Committee:

Wednesday Social: Stacy Lischka and CSU Student Chapter of TWS

Workshop Programs: Stephanie Ferrero & Ryan Monello

Plenary Session Program: Stephanie Ferrero, Evan Phillips, Brett Walker, & Ryan Monello

Technical Session Program: Evan Phillips

Facilities: Brad Milley

Auction: Cary Aloia

(But none of this could be done without the efforts of the entire board and committee chairs and our incredible membership...thank you!)