

The Boone and Crockett Club's Lee and Penny Anderson

CONSERVATION EDUCATION PROGRAM

ON THE THEODORE ROOSEVELT
MEMORIAL RANCH

TRAIL CAMERA

101



This quick and easy lesson plan highlights real world wildlife research going on in Montana on a working cattle ranch. Teach your students about the technology, science and mathematical components of being a wildlife biologist while looking at actual trail camera photos!

What is wildlife? What are trail cameras and how do they work? All of that is answered right here in Wildlife Trail Camera 101!



Additional modules provide practice for students to test their wildlife identification skills while viewing a series of camera photographs, along with worksheets and teacher answer keys.



For more information about the Boone and Crockett Club's Lee and Penny Anderson Conservation Education Program at the Theodore Roosevelt Memorial Ranch in Montana

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Also on Instagram @OutdoorAdventureCamps



Trail Camera 101

Uses, Functions, and How To:
An Introduction to the Boone and Crockett Trail Camera Project



What are they used for?

- Non-Invasive Research
- Sightings of Rare Species
- Usefulness of man-made features (road bypasses, animal bridges etc.)
- Answer Questions (density, abundance, presence/absence, etc.)
- FUN and interesting photos

What do they look like?

Front View




How Do They Work?

Back View

- Operate on AA Batteries (4-8)
- Detect Motion or change in Ambient Temperature
- Use SD card to hold data (up to 10k+ photos on 32GB card)
- Can capture photos and video as well as sound
- Supply user with supplementary data, i.e. Date, Time and Temperature
- Can be placed in lock boxes to deter theft and unwanted damage by animals

Parts and Controls



What Do The Photos Look Like?




How do we set a camera trap?

- Biologists calling "Deploying a Camera"
- We follow specific protocol to maintain consistency each and every time.


Videos on setting up your trail camera:

- <https://youtu.be/7YwU18vY5Gc>
- <https://youtu.be/W82206e3T7A>



Study Site

- Theodore Roosevelt Memorial Ranch in north-central Montana
- 6,000-acre working cattle ranch
- Acts private, state and federal lands
- Owned by the Boone and Crockett Club
- Place-based (terrestrial) education and research facility on the James Pacific boundary



Camera Locations On the TRM Ranch



Let's go over a few key concepts regarding this lesson.

What is a species?

- A class of individuals having common attributes and designated by a common name. (Merriam-Webster)
- An example of a species found on the TRM Ranch would be a white-tailed deer.
- Elk, bear, mountain Lion, coyote and wolf are all other species found on the TRM Ranch.

What is a sub-species?

- A subspecies is another division or variety of the same species that ranks an individual immediately below a species which is genetically (and most often visually) different from another member of the same species.
- An example of two sub-species would be white-tailed and mule deer. (*Odocoileus virginianus* and *Odocoileus hemionus*, respectively)

How do we know if the animal we see is a male or female?

- Identifying gender of species of the Deer Family (deer, elk, moose) can be done most months of the year by simply looking for antlers.
- Antlers are made of bone and fall off or "shed" each year, and regrow in the summer.

Let's go over a few examples to make this more clear...

Elk - Females

- Female elk are called "cows"
- Their offspring are called "calves" until they reach maturity
- Notice no antlers on their heads




Elk - Male

- Male elk are called "bulls"
- Bulls can range from "spillers", with two, straight and long one-antler projections, to large brown-sided bulls having 6 or more points on each side!



Deer

- Deer with antlers (males) are called "bucks". Deer with no antlers (females) are called "does".
- This particular photo is of a white-tailed deer buck, with a doe in the background.
- The trail cameras LED flash allows them to take photos at night. That is why these photos are black and white.



Different Deer Sub-Species

Mule Deer Does

White-tailed Fawns



Mule deer

- Mule deer have long, floppy ears, a lot like a domestic Mule's ears!
- They also have a rope-like tail with a black tip on the end.
- Mule deer bucks typically have forked antlers.




Mule Deer Bucks




Continued from previous page....

101 White-tailed Deer

- Ears are not as large as mule deer.
- Completely white tails on underside and bottom tip.
- Bucks antler points all come off of the same main beam and rarely ever form forks.



101 White-tailed Bucks



101 Be Bear Aware!

- For the purposes of this curriculum we will not cover identifying gender of bears.
- Unless you see a sow (female) with cubs.
- Boars (males) do not raise cubs.
- It is important to know the difference between bear subspecies!



101 Black Bear Grizzly Bear



Color and Size can be misleading.
Look for a combination of characteristics.

101 Bears

Grizzly Bear **Black Bear**



101 Predator or Prey?

- A **predator** is an animal that hunts and eats (preys) upon other animals as a primary source of survival.
- A **prey** animal is an animal that is preyed upon or hunted and sometimes killed for food by predators.
- Examples on the TRM Ranch would include bear (black and grizzly), wolf, mountain lion, coyote and bobcat.
- Examples on the TRM Ranch would include deer, (white-tailed and mule) elk, moose and domestic cattle.

101 Let's review more of the animals we may see in the following lessons.

Wolf

- Can be black or gray!
- Often travel in packs
- Blocky heads and snout, thick tail that often does not touch the ground
- Short ears with rounded tips
- Larger than a coyote
- Considered a predator



101 Coyote

- Can be brown, light gray, red and pale colored
- Often travel in solitude but can "pack-up"
- Narrow head with small pointed ears, tail nearly touches the ground
- Smaller than a Wolf
- Considered a predator



101 Mountain Lion

- Large, cat-like body
- Only the young have spots or bars on legs and underbelly
- Long tail
- Largest wild cat in Montana
- Considered a predator




101 Bobcat

- Small, cat-like body
- Has distinct spots on its legs and underbelly
- Black tip on top portion of tail
- Smaller than a mountain lion
- Considered a predator



101 Moose

- Largest member of the deer family
- Very dark brown in color with "waddle" hanging from neck
- Considered a prey animal (but can be dangerous!)
- Females are called cows, males are bulls and offspring are calves



101 Elk

- Second largest member of the deer family
- Dark brown head, neck and legs, blonde or light brown body with white rump
- Considered a prey animal
- Females are called cows, Males are bulls and offspring are calves




101 Mule deer

- Slightly larger bodied than white-tailed deer
- Antlers grow vertically and typically fork forming two "Y" shapes on each side
- Big, Mule-like ears and black-tipped tail
- Considered a prey animal



101 White-tailed Deer

- Smallest of the deer family in Montana
- Bucks antlers rarely fork, instead, grow straight up from horizontal main beam
- Unmistaken with their white flag like tail
- Considered a prey animal



101 Now you are ready to start Lesson One.

Please open "The Grove" and print out the [TRMRanchCam Student Worksheet](#)

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In 1887, Theodore Roosevelt founded the Boone and Crockett Club. One of the nation's first conservation organizations, the Club continues to focus on the goals of its founder by supporting programs designed to conserve our country's natural wildlife resources. In Roosevelt's 1907 Message to Congress, he challenged the nation to "increase the usefulness" of the land because it was key to the prosperity of future generations.

To stimulate private sector leadership on wildlife research, education and management, the Boone and Crockett Club, in 1986, purchased a working cattle ranch in prime wildlife habitat along Dupuyer Creek on the East Front of the Rocky Mountains in Montana. The mission of the ranch is research, education and demonstration of integrated wildlife/livestock conservation that is integral to the economic viability of private and adjacent public lands.

The 6,060-acre Theodore Roosevelt Memorial Ranch (TRM Ranch) is home to about 250 cow/calf pairs of black angus cattle. The property abuts thousands of acres of national forest and wilderness and contains critical winter habitat for elk and mule deer. Additionally, white-tailed deer, mountain lions, coyotes, wolves, grizzly and black bears regularly use this property.

This unique environment offers the perfect laboratory to study the co-existence of agricultural land uses and wildlife for research purposes. The TRM Ranch is also home to the Rasmuson Wildlife Conservation Center (pictured below), a 5,000-square foot facility that serves a variety of uses including the Boone and Crockett Conservation Education Program headquarters and as a University of Montana field station.

The Boone and Crockett Conservation Education Program strives to offer people of all ages new perspectives that will foster shared use of natural resources, conservation, sustainable development and stewardship of the land to build a common ground for sustaining healthy ecosystems. The Club acknowledges that the future of our world depends on the choices that people make, and further, that education is a key factor in what those choices are.

Constructed around a theme of appropriate and shared use of natural resources and sensitive to the demands and restraints of conducting meaningful research on a working cattle ranch without interfering with normal, daily operations of cattle herd management, the Club's education program staff began deploying camera traps to monitor various wildlife species and habitat ecotypes in 2012. We are pleased to offer an introduction to trail camera use as well as three additional lesson plans based on the subsets of this data.



**LESSON PLANS
AVAILABLE**

TRAIL CAMERA 101

THE GROVE

THE HIGHTOWER

THE NORTH FORK

eMammal Deployment Data Sheet

DEPLOYMENT NAME ex: CES.CAM1.070715 _____	DEPLOYMENT DATE _____ TIME _____	RETRIEVAL DATE _____ TIME _____
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DEPLOYMENT TEAM _____ _____ _____ _____	DEPLOYMENT COORDINATES *USE DECIMAL DEGREES Latitude _____ Longitude _____ or address: EXPECTED RETRIEVAL DATE: _____
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CAMERA ID _____	Camera Deployment Steps: <ul style="list-style-type: none"><input type="checkbox"/> Secure camera tightly at knee height with locked cable.<input type="checkbox"/> Check Date/Time are correct and note on sheet.<input type="checkbox"/> Check battery percentage (60%+)<input type="checkbox"/> Check memory card usage (should = 0%)<input type="checkbox"/> Clear vegetation within 4 feet of front of camera<input type="checkbox"/> Make sure camera points parallel with ground.<input type="checkbox"/> Perform walk test & record detection distance.<input type="checkbox"/> Arm camera and stand in front to take 1st photo. Camera Retrieval Steps <ul style="list-style-type: none"><input type="checkbox"/> Stand in front of camera to take last photo.<input type="checkbox"/> Before powering off, determine camera status. If not working, note reason in comments.<input type="checkbox"/> Power off and retrieve camera and cable.<input type="checkbox"/> Confirm retrieval date and time.
MEMORY CARD ID _____	
BATTERY % _____	
DETECTION DISTANCE _____ (m)	

CAMERA WORKING AT RETRIEVAL? ___ YES ___ NO
COMMENTS: