Quantifying Predation

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TEXAS A&M AGRILIFE EXTENSION

How many do we lose?

- Predation is a reality of the natural world.
  - Animal populations wax and wane as a result of changes in weather, and thus habitat.
  - Predators experience a lag in food resources
- Humans conflict with native predators when..
  - Food animals
  - Economically Important Animals (Wildlife, Livestock)

Impacts on Agriculture

- Impacts on Livestock are Unquestionable
  - Predators have been damaging livestock for ages
  - Impacts to farmers also very prominent
  - Can you think of game animals that are also pests?
- Before we can understand the impacts to solve a damage problem, we must be able to identify the source of the loss—IWDM.

First Questions

- Are my other animals acting normally?
  - Behavior is the better part of ID
- Does the target animal appear healthy?
  - Sometimes scavenging looks like a predation
  - Skin back around wounds to examine…
  - Open up the stomach on young animals

Alternative Mortality ID

- Many reasons that aren't predation:
  - Stillborn
  - Bad Mothering
  - "Hardware Disease"
  - Toxic Plants
  - Poisoning
    - Venomous Snakes

Rapid Food Limitation

General Predation Signs

- We interpret the evidence to determine "Whodunit?"
  - Bite/Claw Marks
  - Drags
  - Targeted Feeding
  - Location of Kill
  - …?

Canids

Canines-Coyote

- Canines ~1.8” apart
- Throat-bit behind jaw and below ear.
  - Suffocation usually cause of death, blood loss is secondary
- Small prey can have skull crushed
- Rarely kill large numbers without consuming them.
  - This behavior with other coyote characteristics can be a sign of feral dog predation.

Canines-Coyote

- Carcass handling:
  - "Hanging Tooth" in jaws
  - Rough feeding profile
  - Viscera consumed early; rumen may not be eaten
- Consumption timeframe
  - Varies, but heavy scavenging common
  - Several days to weeks of capture opportunity
- Age and territory structure effects

Canines-Coyote

Canines-Fox

- Canine spacing:
  - ½” to ¾” on Grays
  - 11/16” to 1” on Reds
  - Typically smaller animals (poultry, fawns, kids)
  - Will scavenge readily on larger animals
  - Little bone damage
  - Throats of larger ruminants, but also can be down back.
- Generally prefer viscera, sometimes start feeding on ground-side.
- Red foxes sometimes carry prey back to den.
  - This can explain “missing” animals.

Canines-Fox

Canines-Feral Dogs

- Canine spacing-Highly variable.
- Difference between free-roaming domestic dogs and true feral dogs.
  - Free-roaming domestics tend to mutilate, not consume.
- May feed on hindquarters and viscera.
- Difficulty separating kills from young coyote behavior.
  - Other sign helpful in making determination.

Canines-Feral Dogs

- Attack profile:
  - Chase predator
  - Attack flanks, hindquarters
- Consumption timeframe:
  - None set
  - May feed on hindquarters and viscera first
- Difficulty separating kills from young coyote behavior.
  - Other sign helpful in making determination.
  - Larger ferals are easier from scale of damage

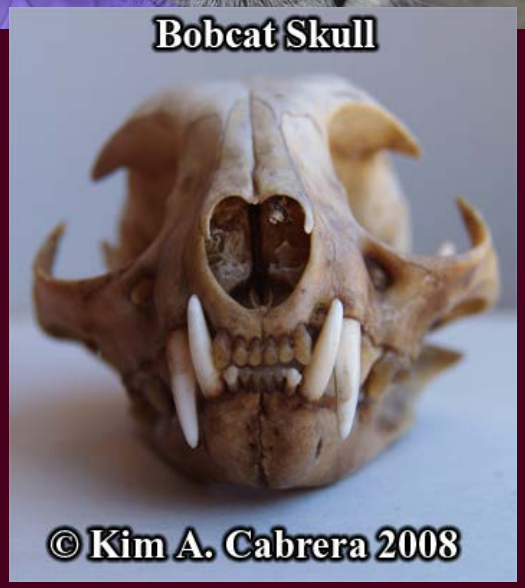
A Rambouillet wether show lamb that was attacked by dogs.

This ewe exhibits the type of injuries that often result from attack by dogs.

These ewes exhibit the indiscriminate mutilation that commonly results from dog attacks.

This ewe was mutilated and partially disemboweled by dogs which killed her.

Comparative Tooth Structure



Felids

Felids-Mountain Lion

- Canine spacing
  - Uppers 1 ½ to 2 ¼”
  - Lowers 3/8” to ½” closer
  - Tooth wounds massive (3/8” diameter) by comparison to most canine predators
- “Clean” feeding on meat
- “Hair clipping” before consumption

Felids-Mountain Lion

- Stalk and attack from cover.
  - Drags back to cover, not usually in open
  - Cover carcasses
  - Claw marks on back
  - Often multiple kills, but on a few fed upon.
- Generally do not feed on stomach
- Rarely scavenge

Felids-Mountain Lion

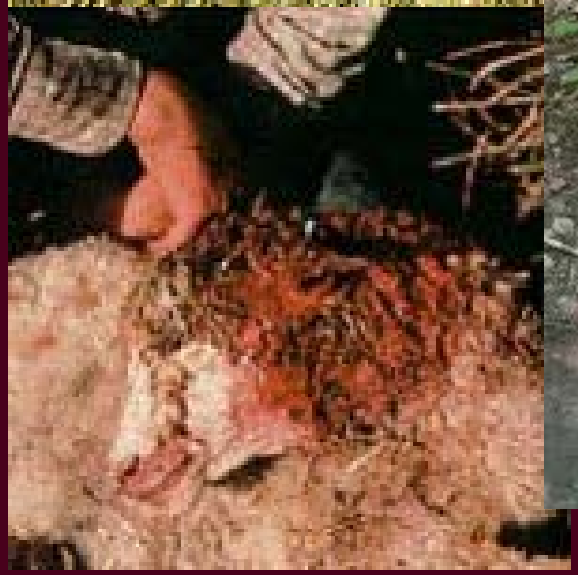
- Carcass handling:
  - First feeding on front quarters
  - Generally do not feed on stomach
    - Variability by region
  - Intestines removed and deposited
  - Rarely scavenge
  - Long, straight drags

Felids-Mountain Lion

- Consumption time:
  - Usually kill every 3-4 days.
    - Time depends on size of prey
  - Capture window 1-3 days.
  - Territories (normally) extremely large.
    - Exceptions to this in winter and drought

Felids-Mountain Lion

Felids-Mountain Lion



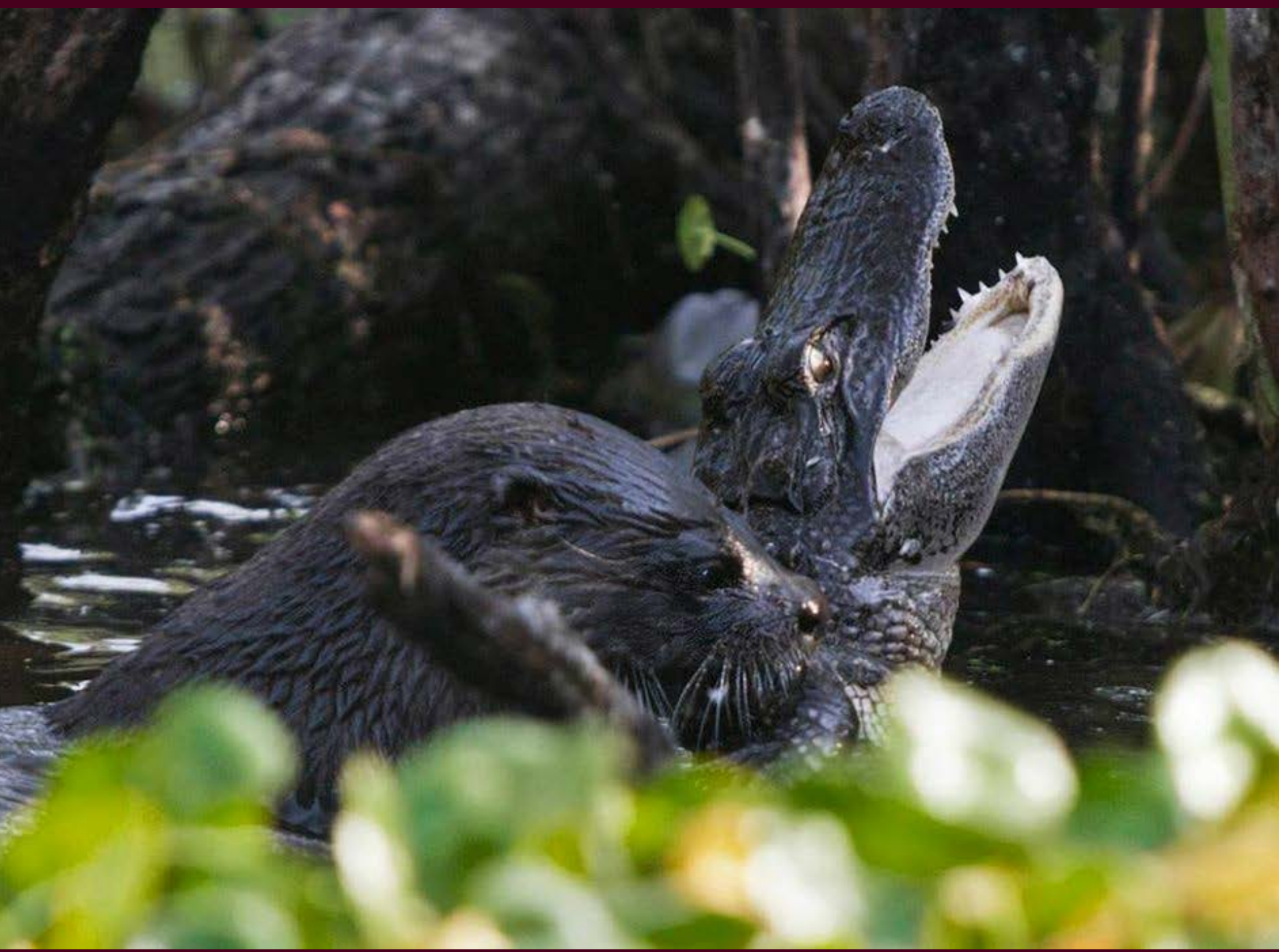
Felids-Mountain Lion

Felids-Bobcats

- Canine spacing ¾” to 1”
- Kills by strangulation-1 bite with lethal hold
- Generally don’t prey on larger animals
  - Claw marks on back of larger prey
- Feed on viscera
  - May consume entire animal if small
- Usually kill their own, but sometimes scavenge
- Cover their kills, but less so than mountain lions

Felids-Bobcats

Smaller Predators

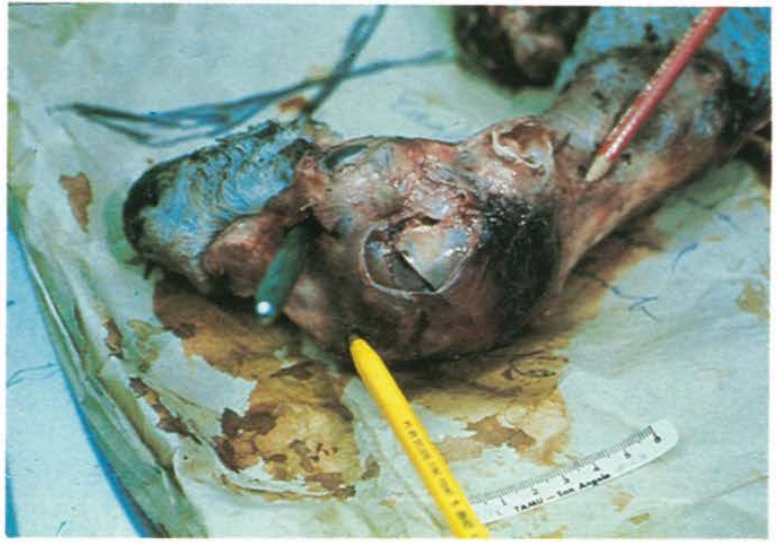


Birds of Prey (and Carrion)

- Caracara
  - Mostly carrion feeders.
  - Growing concern for livestock raisers.
  - Uncertainty as to damages: we need photo/video.
  - Interactions with vultures.
- Vultures:
  - On mammals: young and defenseless, target eyes, nose, naval, and anus.
  - Turkey vultures do not often kill, but scavenge quickly.

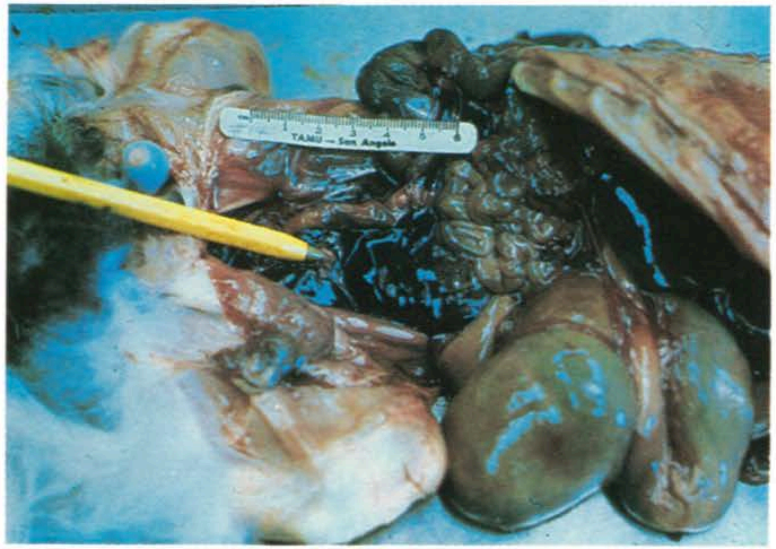
Birds of Prey (and Carrion)

- Golden Eagles
  - Classic avian predator: what's their native prey?
  - Tear-drop shaped talon marks along back, skull
  - "Opening" of skull
  - Feeding of brain, "skinning out" of prey
  - "Rib clipping"
  - Feathers plucked from birds



The head and neck of this lamb show the characteristics of an eagle attack. Pencils are inserted into the talon punctures and the fracture in the right side of the skull was caused by the eagle's grip.

The back of this lamb exhibits the talon punctures made by an eagle which killed the lamb.



During necropsy it was found that the eagle's talons had penetrated through the ribs into the dorsal aorta and caused the massive hemorrhage shown at the tip of the pencil.

This carcass exhibits the characteristics of extensive eagle feeding with the carcass skinned out and the ribs clipped off close to the spine.

Venomous Snakes

- On most livestock and wildlife, venomous snakes are not predatory.
  - Death resulting from strikes a reaction to perceived threat.
- Wounds typically show a swollen, dark, and necrotized area of tissue when animal is skinned, highlighted by puncture marks.

Critically Evaluating the Carcass

- Before and After Death: Hemorrhagic Staining
- Intercanid Distance
- Claw Distance
  - Claw shape, too.
  - Check wounds for left claws
- Other signs/behaviors
  - Viscera Handling
  - Feeding edge texture
  - Characteristic habits

Gaining More Reliable Knowledge

Gaining More Reliable Knowledge

- Instructions to Producers:
  - Cover kill as quickly as possible.
  - Species/Age/Sex/Condition of Animal
  - Record scenario (photos of area too)
  - Photos of:
    - Whole body
    - Any wounds (also skinned back, with scale)
    - Disposition of viscera
    - Any drags/trails

Resources

- Wildlife Services or County Trappers
- Texas A&M AgriLife Extension Service
- Trapping Associations
- Online and Text Resources

- http://www.agrilifebookstore.org/Evaluating-Predation-on-Livestock-and-Wildlife-p/b-1429.htm