

		Kentucky Fish and Wildlife		PM No.:	
				ID No.:	
		NECROPSY REPORT		Date of Death: December 15, 2014	
Common Name: Mountain Lion (Puma concolor)		Sex: Male		Weight: 125 lbs	
ID No.:		Tag:		Tattoo: None present	
Chip: NO Microchip Detected		Age: Adult (Estimated ~2 years)		Encl.:	
Inv. Status:		Spec. Status:		No. Sick/At Risk:	
No. Dead: 1		Housed With:		Qty. Spec. Sub.:	
State: Slightly Decomposed		Euthanized: Yes – Shot (Shoulder/Chest, Rear Limb)			
		Prosector: Iga Stasiak			
Date Sent: December 16, 2014		Pathologist:			
History/Circumstances of Death:					
<p>This animal was reported by a landowner the evening of December 15, 2014, approximately 2 miles north of Paris, KY in Bourbon County. A lady had sighted the mountain lion which was chased up a tree by a dog. An officer attended to the incident and found the mountain lion in a tree. The animal was shot in the shoulder and rear quarter. It was approximately 30 feet off the ground. It climbed down and landed on its forelimbs and travelled 30-45 feet before it collapsed and died.</p>					
Rabies Suspect: No			Pictures Taken: Yes		
Necropsy Commenced:		Date: December 16, 2014		Time: 12:00	

EXTERNAL FINDINGS:

The animal in good body condition with good to excellent subcutaneous fat stores. The hair coat condition is good. The hair coat along the dorsum and lateral aspects of the body is diffusely red-tan. There are black horizontal bars of fur along the medial aspect of the forelimbs and hindlimbs. The hair along the ventrum is white.

There are two linear 2-4 cm long black scars along the nasal planum. There are multiple (3-4) small <1 cm diameter circular areas of alopecia along the chin (dermatitis).

There are multiple (6-10) tapered thin 5-10 mm long brown slivers in the subdermis throughout the skin (porcupine quill barbs/plant material).

There is marked crepitus along the medial aspect of the left thigh and along the medial and lateral aspects of the right thigh. There is a closed complete long oblique fracture of the left distal femur with medial displacement of the proximal fragment.

There is a 2x7 cm diameter blue-purple area of hemorrhage (bruising) of the skin in the right inguinal region. The skin in this region is shiny (abraded) and the hair in this area is short (barbered/cut) (abrasion). **There is hemorrhage throughout the subcutaneous tissues beneath the skin in this region. There is a round ~3-4cm diameter hole (tear) in the deep subcutaneous tissues in the area of hemorrhage.** There is a firm subcutaneous mass (~5x10 cm in diameter) underlying the area of hemorrhage.

Upon removal of the skin, there is a 4 cm diameter abdominal hernia with herniation of mesentery and mesenteric fat through the right abdominal wall, lateral to midline. There is a second 3x5cm diameter hernia along the ventrum medial to the first to the left of midline, which also contains mesenteric fat.

There is a small 5 mm diameter skin laceration (bullet hole entry) in the left shoulder region. There is a **~10 cm diameter** area of hemorrhage along the lateral aspect of the **left** elbow and extensive subcutaneous hemorrhage along the **left caudal** ventral thoracic wall, extending along the ventrum.

There is a small 5-7 mm diameter **skin** laceration in the right shoulder in the mid-scapular region (bullet hole entry) and surrounding 5 cm diameter area of hemorrhage in the muscle of the right shoulder with penetration through the medial aspect of the right shoulder into the right thoracic cavity (bullet penetration). There is a large area (7cm diameter) of laceration and hemorrhage of muscle along the **right** medial scapula and **right lateral thoracic wall** (bullet hole exit).

There is a ~5 mm diameter circular hole in the skin of the right hindlimb, at the level of the mid-femur (bullet entry holes). There is a small 5 cm diameter area of hemorrhage along the lateral aspect of the right thigh (bullet hole entry), with more extensive hemorrhage and muscle laceration along the medial aspect of the right stifle (bullet exit). There is a 10 cm diameter area of hemorrhage of the muscle and subcutaneous tissues along the carnio-medial aspect of the left stifle, with fracture of the distal left femur.

There are few nymphal ticks (10-15) and adult ticks (~10) on the skin.

There is very mild wear of the distal tip of the claws. The foot pads are soft. There are multiple superficial fissures/cracks and pits/depressions (~2 mm diameter) on all foot pads.

There is no evidence of wear/abrasion of the elbows. There are no visible tattoos on the insides of the pinna or oral mucosa. The ears appear clean, with no exudate in the external canals.

The oral cavity appears normal. There is minimal wear of the teeth. The tips of the canines are slightly blunted. There is a long shallow groove along the lateral aspect of both upper canines (Length: 104 15mm, 204 12 mm). There is no visible plaque on the surface of the canines. There is wear of the superficial crown of both upper second premolars with tertiary dentine exposure. There are superficial slab fractures of the third upper incisors, with pulp exposure. The crowns are blunted and there is tertiary dentine exposure on the second and third lower left incisors. There is mild dental calculus along the buccal surface of the fourth upper premolars.

There is a 3-4 mm deep depression/defect in the cartilage of the nares above the right nostril, with a healed fissure in the skin of the nose in this region.

The testes are descended and appear normal.

CONDITION:

Hydration – fair

Fat stores – excellent

Muscle mass –good

INTERNAL FINDINGS:

The animal has excellent internal fat stores. The right aspect of the liver is green (bile imbibition). The liver, kidneys, adrenals, thyroids, trachea, esophagus, brain, submandibular, ileocecal lymph nodes, pancreas, spleen, bladder, testes, and heart appear normal. There is laceration and hemorrhage of the caudal left and right lung lobes (gun shot injury). There is extensive hemorrhage in the thoracic cavity.

The stomach contains a small amount of grey fluid. There are multiple streaks of ecchymotic hemorrhage on the mucosal surface of the pylorus. The proximal small intestine contains a small amount of yellow fluid (bile). The distal small intestine (ileum and distal jejunum) contain large numbers (50-100) of variable size tapeworms, which occupy 50% of the small intestinal lumen and are embedded in the mucosa as well as a moderate number of hookworms/whipworms, which are also embedded in the mucosa. The distal colon contains fibrous plant material (thick grass), dark green wet (bile) packed hair and one bone fragment of a proximal tibia (tibial crest) of a small mammal.

CLINICAL PROBLEMS ANSWERED ON NECROPSY:

Based on gross necropsy examination, it is evident this animal suffered a gun shot wound to the right shoulder which penetrated along the medial aspect of the right shoulder into the thoracic cavity, resulting in lung laceration, which resulted in asphyxiation and death. The animal was also shot in the right thigh, with bullet penetration along the medial aspect of the right thigh, which likely resulted in impact with the left distal femur and subsequent femoral fracture.

The animal exhibited extensive hemorrhage along the left thorax. The hemorrhage along the left thoracic wall may be associated with the gun shot or blunt trauma due to impact after being shot.

The animal was in excellent body condition which suggests it was in a good nutritional plane with access to food. There is mild wear of the foot pads with pits and depressions in the foot pads suggestive of

habitation in wet or moist substrate conditions. There was minimal wear of the tips of the claws which suggests the animal likely had not been travelling over long distances or walking on hard surfaces (concrete).

It exhibited minimal wear of the teeth as well as minimal tartar accumulation on the teeth which suggests that it was a young animal. The presence of chip fractures of the crown of the incisors and premolars with tertiary dentine formation is suggestive of chewing on hard objects (rocks/metal/bone).

The animal had a significant tapeworm infestation with a number of tapeworms in the gastrointestinal tract. Tapeworms can be transmitted through the ingestion of small mammals such as rabbits, rodents, or birds, ungulates (deer/elk) or fleas which are the intermediate hosts for this parasite. There was no evidence of fleas on the animal, which suggests infection was due to the former. Tapeworm infestation is not a significant cause of clinical disease in wild carnivores and did not appear to affect the condition of this animal.

The presence of hemorrhage of the musosa of the stomach may be associated with gastritis, Helicobacter infection, or gastric ulceration. Tissues have been submitted for histopathologic examination to aid in further diagnosis.

The presence of hair and mammalian bone in the colon suggests the animal had eaten within 48 hours, however, had not eaten recently as the stomach and small intestine were empty. The bone appears to reflect the size of a small mammal and the origin of the hair is under investigation. Samples of hair have been submitted for genetic analysis to confirm the prey species.

The presence of thin brown slivers underneath the skin may represent migrating porcupine quill barbs or migrating plant material. Confirmation of the origin of this foreign material is under investigation.

The bruise of skin along the right ventral abdominal region is consistent in appearance with an abrasion and the hemorrhage suggests blunt trauma to the region of 4-5 days duration. The underlying hernitation of mesentery is unusual, and could represent injury due to blunt trauma. Although a penetrating injury into the abdominal cavity is possible, there is no associated hemorrhage in the abdominal body wall around the site of hernitation, which would support this diagnosis.

The defect in the cartilage of the right nostril appears to be a healed defect, and may represent an old injury.

Based on the gross examination, it appears this is a young adult animal in excellent body condition, with minimal evidence of tooth or claw wear. The animal was in an excellent nutritional plane prior to death and does not appear to have been subject to extensive travel on rough surfaces or food scarcity. It does appear to have eaten other mammalian prey, the origin of which is under investigation. There is no conclusive evidence the animal is of captive origin and samples are being submitted for genetic analysis to aid in further identification.

Samples/Tests Requested: UPM2 (x2) for cementum aging (Matson's Lab), DNA (muscle, liver, ear cartilage in ethanol), Stable Isotopes/Fatty Acids (thigh muscle and inguinal and abdominal fat frozen)

Bact.:

Frozen: liver, lung, kidney, spleen, brain, testes, muscle, fat

Histo.: all tissues		
Other:		
Tentative Diagnosis:	Final Diagnosis:	Codes:
1. Left femoral fracture, extensive muscular hemorrhage and laceration – gun shot trauma 2. Pulmonary laceration and hemorrhage – gun shot trauma 3. Mild dermatitis (chin) (fungal, mange) 4. Intestinal Parasitism Tapeworm (severe) 5. Hookworm/whipworm (moderate) 6. Migrating subdermal foreign material (porcupine barbs vs. thorn) 7. Pyloric mucosal hemorrhage		
Circumstances of Death:	Carcass Disposition:	
Autopsy Topographical:	Autopsy Etiological:	
Carcass Recipient:		
Date Sent:	Desc.:	Inst./Contact: Laurie Davis

Measurements:

All measurements in cm unless otherwise specified.

Total body length (without tail): 133

Tail length: 75

Neck Circumference: 46.5

Chest Circumference: 80

Abdomen Circumference: 86

Shoulder Height (to metacarpus): 64

Shoulder Height (to tip of middle digit): 80

Front Right Foot:

Metacarpal Foot Pad Length 5 cm

Metacarpal Foot Pad Width: 6 cm

Total Foot Pad Length (including digital pads): 10 cm

Total Foot Pad Width (including digital pads): 8.5 cm

Front Foot (Metacarpal joint to tip of digits) Length: 16 cm

Front Foot Width: 9 cm

Rear Right Foot:

Metatarsal Foot Pad Length 4.5 cm

Metatarsal Foot Pad Width: 5.8 cm

Total Foot Pad Length (including digital pads): 10 cm

Total Foot Pad Width (including digital pads): 7.2 cm

Front Foot (Metatarsal joint to tip of digits) Length: 29 cm

Front Foot Width: 7.5 cm

Straight Line Body Length (head extended): 130 cm

Head Circumference: 53

Skull Length (curved): 29

Zygomatic Width: 146 mm

Canine Length:

Upper Left: 23 mm

Lower Left: 17 mm

Upper Right: 24 mm

Lower Right: 19 mm

Upper Intercanine Distance:

Tip to Tip: 41mm

Maximum: 53 mm

Lower Intercanine Distance:

Tip to Tip: 37 mm

Maximum: 31 mm

Upper Inter 3rd Incisor Distance:

Tip to Tip: 17 mm

Maximum: 20 mm

Lower Inter 3rd Incisor Distance

Tip to Tip: 11 mm

Maximum: 14 mm