



ODFW LIVESTOCK DEPREDATION INVESTIGATION REPORTS

January – May 2021

This document lists livestock depredation investigations completed by the Oregon Department of Fish and Wildlife since January 1, 2021. Investigations are done at the request of the owner of injured or dead livestock when they suspect wolf depredation. The goal of these investigations is to determine if the livestock was attacked by a predator and if that predator was a wolf. The goal is not necessarily to determine the cause of death, as in some cases that would require a veterinary pathologist (e.g. illness, injury, age, poisonous plants). In some areas of Oregon, USDA Wildlife Services assists ODFW when wolves are suspected and is the lead agency to investigate when other predators such as coyotes, bear, or cougar are suspected. In some counties, the local Sheriff's office deputies also attend investigations. ODFW needs to make the determination for lethal removal of chronically depredating wolves to be considered or if the livestock producer wants financial compensation from the Oregon Department of Agriculture.

There is information about methods to minimize conflict at https://www.dfw.state.or.us/Wolves/non-lethal_methods.asp. The investigation determination criteria and previous investigations are listed at https://www.dfw.state.or.us/Wolves/depredation_investigations.asp. Additional information about Oregon wolves and answers to frequently asked questions are provided at www.odfw.com/wolves.

May 31, 2021 – Baker County (Goose Creek area)

Date Investigated: 5/31/21

Cause of death/injury: Confirmed

General situation and animal information: On the morning of 5/31/21 a rider, while checking cattle, found a dead 4-month-old calf that had been drug under a fence. The calf was about twelve feet outside the fence of the 400-acre private rangeland pasture where it died. The calf carcass was intact and had not been scavenged. The calf was estimated to have died 24-36 hours before the investigation.

Physical evidence and summary of findings: The calf carcass was skinned and examined. The calf had pre-mortem tooth scrapes up to approximately 3/16 inch wide with associated muscle tissue bruising under the hide on the rear of both back legs above the hock, the groin and behind the front right elbow. Associated underlying muscle trauma extended at least 1 1/2 inches deep. The location, size, number, and direction of tooth scrapes and severe underlying muscle tissue trauma are consistent with wolf attack injuries on calves. The depredation is attributed to the Keating Pack.

May 22, 2021 – Baker County (Goose Creek area)

Date Investigated: 5/22/21

Cause of death/injury: Possible/Unknown

General situation and animal information: A livestock producer found a dead two-week-old 100-pound calf the morning of 5/22/21 in a private 8-acre irrigated grass pasture. The carcass was mostly consumed with only the front left leg, spinal column, neck and head remaining. It was estimated the calf died the night of 5/21/21.

Physical evidence and summary of findings: There was no chase or struggle scene found. The remains of the calf was skinned and examined. There were no postmortem bite marks, hemorrhage, or muscle tissue trauma found on the calf. Due to the lack of hide and muscle tissue on the carcass, the determination is possible/unknown.

May 10, 2021 – Grant County (Fox Valley area)

Date Investigated: 5/10/21

Cause of death/injury: Possible/Unknown

General situation and animal information: A livestock producer discovered a dead approximately 400-pound yearling cow on the morning of 5/10/21 in a 400-acre pasture on private land. The skeleton was intact except the right hind leg was removed. Most of the hide and tissues were scavenged or decomposed. The shoulder and neck had some remaining tissue. The date of death was estimated around 5/5/21.

Physical evidence and summary of findings: The remains of the carcass were skinned and examined. There were no pre-mortem bite marks or tissue hemorrhage to indicate the calf was attached by a predator. No evidence was found to suggest the death was wolf-related, but due to the lack of hide and tissue the determination is possible/unknown.

May 8, 2021 – Grant County A (Fox Valley area)

Date Investigated: 5/8/21

Cause of death/injury: Confirmed

General situation and animal information: On the morning of 5/8/21, a livestock owner found a dead, approximately 400-pound yearling heifer in an 800-acre rangeland pasture on private land. The carcass was intact and had injuries on the hind legs and left front shoulder. The yearling had died during the early morning of 5/8/21.

Physical evidence and summary of findings: The carcass was partially shaved and skinned. There were bite punctures and multiple tooth scrapes associated with pre-mortem hemorrhage on the carcass indicating it had been attacked by a predator. Multiple bite marks and severe muscle trauma was present on the upper thighs of both hind legs, groin, and left elbow. Tooth scrapes were up to 1/4 inch wide and 2 1/2 inches long; associated underlying muscle trauma extended 1 inch deep. The location of injuries and severity of trauma was similar to other confirmed wolf attack injuries on cattle. The location of the attack was within the Northside Wolves AKWA.

May 8, 2021 – Grant County B (Fox Valley area)

Date Investigated: 5/8/21

Cause of death/injury: Possible/Unknown

General situation and animal information: On the morning of 5/8/21, while investigating a dead yearling (report May 8, 2021 Grant County – A), the livestock producer found the remains of a 300-pound yearling steer in the same 800-acre private-land pasture. The carcass was intact with all tissue on the left hind leg above the hock consumed and 70% of tissue on the right hind leg above the hock consumed. All tissue behind the ribs to pelvis was consumed. The majority of the hide was missing from the back half of the yearling. The date of death was estimated to be between 5/2/21 and 5/4/21.

Physical evidence and summary of findings: There was no evidence of predator attack on the carcass or the scene. The remaining carcass was partially skinned and shaved. No pre-mortem bite marks were found on the hide. No evidence was found to suggest the death was wolf-related, but due to the lack of hide and tissue the determination is possible/unknown.

May 8, 2021 – Grant County C (Fox Valley area)

Date Investigated: 5/8/21

Cause of death/injury: Other

General situation and animal information: On the morning of 5/8/21, while investigating two dead yearlings (reports May 8, 2021 Grant County – A, B), the livestock producer requested that ODFW examine the remains of a 400-pound yearling steer that had been found dead on 5/6/21 in the same pasture. The carcass was intact with most tissue behind the ribs consumed. The majority of the hide was still present. The date of the death was estimated to be between 5/4/21 and 5/5/21.

Physical evidence and summary of findings: There was no evidence of predator attack on the carcass or the scene. The remaining carcass was partially skinned and shaved. No pre-mortem bite marks were found on the hide. No evidence was found to suggest the death was predator related. The cause of death is unknown, but was not wolf-related.

May 8, 2021 – Grant County D (Fox Valley area)

Date Investigated: 5/8/21

Cause of death/injury: Probable

General situation and animal information: On the morning of 5/8/21, while investigating three dead yearlings (reports May 8, 2021 Grant County – A, B, C), the livestock producer requested that ODFW look at an approximately 400-pound yearling steer that was sick in the same pasture. Upon reaching the area that the yearling was last observed the same morning it was found to have died. A gross examination revealed that the yearling was missing its entire tail and had a 9-inch horizontal gash through its hide and deep into the right flank. The carcass was completely intact. The date of death was 5/8/21.

Physical evidence and summary of findings: The carcass was partially skinned and shaved. The 9-inch gash was estimated to have happened at least three days prior to death based on fly larval stages. There was no pre-mortem hemorrhage around the wound. The left hind leg had pre-mortem hemorrhage, extending 1/2 inch into the muscle, but had no associated tooth scrapes on the hide. The right hind leg showed signs of significant infection, and shallow pre-mortem hemorrhage and hemorrhaging between muscle tissues but had no associated tooth scrapes in the hide. The hide around the groin area had multiple 1/16 to 3/16 inch pre-mortem puncture marks and different angled scrapes. Two 1/4 inch pre-mortem puncture marks were also present. There was pre-mortem hemorrhage around the right front elbow that extended 1 inch into the tissue with one 1/4 inch wide mark and one 1/8 inch wide tooth scrape found on the hide. There was sign of infection, as well as pre-mortem hemorrhage around the left front elbow that extended 1/4 inch into the tissue. The location of trauma to the hind legs and elbows are consistent with previous confirmed wolf attacks on cattle; however, the severity and size of the trauma and lack of large tooth punctures and bite scrape marks are not. The scrape marks and associated trauma to the front right elbow indicate a predator attack but lack evidence to conclude wolf. That combined with a confirmed wolf depredation in the same pasture on 5/8/21, the determination is probable.

May 7, 2021 – Wallowa County (Leap area)

Date Investigated: 5/7/21

Cause of death/injury: Other

General situation and animal information: On the morning of 5/7/21, a producer found the remains of a 2-3 month old, approximately 190-pound calf in a 240-acre private rangeland pasture. The calf was mostly intact with only a small portion around the anus and thighs consumed. It was estimated the calf died two days prior to the investigation.

Physical evidence and summary of findings: The area was searched for a chase or kill scene and none was found. The entire carcass was shaved, skinned, and examined. There were no pre-mortem marks on the hide and no hemorrhaging or trauma in the underlying tissues, indicating that the animal was not killed by a predator. The cause of death of the calf is unknown but was not wolf related.

May 4, 2021 – Baker County (Goose Creek area)

Date Investigated: 5/4/21

Cause of death/injury: Other

General situation and animal information: On the morning of 5/4/21, a livestock producer found a dead 3-month-old 250-pound calf on a 2000-acre private rangeland pasture. The carcass was intact, with portions of hide and tissue around the groin scavenged. The calf was estimated to have died the evening of 5/3/21.

Physical evidence and summary of findings: The entire calf carcass was skinned and examined. There were bite punctures and pre-mortem hemorrhage on the calf indicating it had been attacked by a predator. Pre-mortem claw scrapes were present on the right and left side of the calf behind the ribcage, as well as multiple pre-mortem bite marks to the top of the neck. The punctures to the neck measured approximately 1/8 inch by 1/4 inch on the hide with underlying tissue damage that measured 2 inches

deep. The calf's death was not wolf related. The claw scrapes, bite punctures, trauma severity, and location of injuries was consistent with bear attacks on calves.

May 3, 2021 – Baker County (Alder Creek area)

Date Investigated: 5/3/21

Cause of death/injury: Possible/Unknown

General situation and animal information: A livestock producer found a dead 3-month-old 200-pound calf the morning of 5/3/21 in a private 680-acre rangeland pasture. The carcass was intact with most muscle tissue on the hindquarters above the hocks consumed, as well as the intestines. The hide was missing from the abdomen and portions of the rear legs. It was estimated the calf died on 5/2/21.

Physical evidence and summary of findings: There was no chase or struggle scene found at the location of the calf. The entire calf carcass was skinned and examined. There were no pre-mortem bite scrapes on the hide or bite-caused hemorrhage or muscle tissue trauma indicating a predator attack. No evidence was found to suggest the death was wolf related. Due to the lack of hide and muscle tissue on the hindquarters, the determination is possible/unknown.

April 30, 2021 – Baker County (Keating area)

Date Investigated: 4/30/21

Cause of death/injury: Confirmed (2)

General situation and animal information: On the morning of 4/30/21, two dead 2-month-old calves were found by hunters on a large public land allotment. The producer and ODFW were notified and ODFW investigated the scene. Both calves were estimated to have died late on 4/29/21 or early on 4/30/21.

Physical evidence and summary of findings: The scene at both calves showed clear evidence of attack by a predator. The scene showed blood on vegetation from a standing animal and wolf tracks present throughout. Both animals had pre-mortem tooth scrapes up to approximately ¼" wide with associated muscle tissue bruising under the hide, including at the elbows and flanks. Associated underlying muscle trauma extended at least 1 1/2" deep. The location, size, number, and direction of tooth scrapes and severe underlying muscle tissue trauma are consistent with wolf attack injuries on calves. The incident is attributed to the Keating Pack.

April 20, 2021 – Wallowa County (Wallowa/Lostine Rivers area)

Date Investigated: 4/20/21

Cause of death/injury: Other (2)

General situation and animal information: On the evening of 4/19/21, livestock producers checked their cattle in their privately owned 60-acre pasture after hearing a commotion. In the late morning of

4/20/21, the producers found the carcass of a 6-week-old calf, and a live cow with a small area of dried blood on her right ribcage. The calf was fully intact and was estimated to have died less than 24 hours before the investigation.

Physical evidence and summary of findings: The area was searched for a chase or kill scene and none was found. The area with blood on the cow was shaved and examined. There were no underlying wounds in this area or wounds observed on the rest of the cow, indicating the blood was likely transferred from another animal. The calf carcass was skinned and examined; no marks or hemorrhage were found to indicate injury or predator attack. The cause of death of the calf is unknown but was not wolf related.

April 8, 2021 – Wallowa County (Prairie Creek area)

Date Investigated: 4/8/21

Cause of death/injury: Possible/Unknown

General situation and animal information: On the morning of 4/8/21, a ranch hand found the remains of a 5-day-old calf in a privately owned feedlot and pasture. Over 75% of the carcass was consumed. The only remaining parts were the left front leg, both hind legs, and rib bone fragments scattered over a half mile from the feedlot. It was estimated the calf died less than 12 hours prior to the investigation.

Physical evidence and summary of findings: The surrounding area was searched and the carcass remains were shaved, skinned, and examined. A struggle scene approximately 20 yards in length containing spots of dripping blood was found. There were small areas of 1/16 to 1/2 inch deep pre-mortem hemorrhaging behind the left elbow, left stifle, and on the back of the right leg above the hock. The struggle scene and pre-mortem hemorrhaging are signs of predator attack. The location and severity of injuries are consistent with coyote attacks on calves, but since most of the evidence was gone, wolf depredation cannot be ruled out.

April 6, 2021 – Wallowa County (Prairie Creek area)

Date Investigated: 4/6/21

Cause of death/injury: Other

General situation and animal information: On the morning of 4/6/21, a producer found the remains of a 1 or 2-day-old calf in his privately owned calving pasture. Some organs and portions of the abdominal cavity had been consumed, but the carcass was otherwise intact. It was estimated the calf died less than 16 hours prior to the investigation.

Physical evidence and summary of findings: The calf carcass was shaved, skinned, and examined. There were multiple pre-mortem tooth scrapes on both thighs and on the throat measuring up to 1/8 inch wide and 1.5 inches long. Associated hemorrhaging extended up to 1 inch into underlying muscle tissues. The pre-mortem bite marks are a clear sign of predator attack and the size, locations, and severity of injuries are consistent with coyote attacks on calves.

March 31, 2021 – Baker County (Keating Valley area)

Date Investigated: 3/31/21

Cause of death/injury: Other

General situation and animal information: On the morning of 3/31/21, a producer found a dead 7-week-old calf in a private-land pasture approximately 300 yards from a residence. Most of the muscle tissue had been scavenged, but 80% of the hide remained including the majority of the head, back, front legs, rear legs and tail. It was estimated the calf died the night prior to the investigation.

Physical evidence and summary of findings: There was no chase or struggle scene found in the pasture. The carcass was skinned and the hide shaved. There were no pre-mortem bite marks or hemorrhage in the remaining hide and muscle tissue. Due to the absence of any pre-mortem wounds on the remaining hide, which included the areas typically attacked by wolves, the determination is other.

March 22, 2021 – Lake County (Lower Silver Creek area)

Date Investigated: 3/22/21

Cause of death/injury: Possible/Unknown

General situation and animal information: On the morning of 3/22/21, a producer found a dead approximately 10-day-old calf in a 95-acre open country private-land calving pasture. The producer reported that his cows were agitated on the morning of 3/22 standing near the gate, and that he had subsequently found wolf tracks in the pasture near the calf carcass. The majority of the skeleton and substantial portions of the hide were present, though very little tissue remained. It was estimated the calf died approximately 2 days prior to the investigation.

Physical evidence and summary of findings: The head and lower legs were skinned and parts of the hide shaved. Significant trauma was noted on the throat with deep tissue hemorrhaging. There were several marks and scrapes on the hide along the back with associated shallow bruising, that were inconsistent with wolf bites. GPS locations from a radio-collared wolf around the calf's time of death were 4.3 to 6.5 miles away. One GPS collar location was within 300m of the scene at 3/22 at 6am. Wounds on the throat of the calf are consistent with a predator attack. Wolves do not usually bite only at the throat. There were no apparent wolf bite scrapes anywhere on the hide, and no bites on the hide of the hindquarters, where wolves commonly bite. However, the heavily scavenged carcass was missing hide and muscle tissue from several other common wolf attack areas. Because of the lack of diagnostic evidence to confirm species, the determination is possible/unknown.

March 18, 2021 – Baker County (Pritchard Creek area)

Date Investigated: 3/18/21

Cause of death/injury: Possible/Unknown

General situation and animal information: On the evening of 3/17/21, a producer found the lower jawbones of a few-day-old calf on public land adjacent to a large private-land pasture. ODFW was notified late in the evening and investigated the next morning. The remains consisted of two separated lower

jawbones and the front incisors. The producer reported that his cows were stirred up on the morning of 3/16, and that he saw a black radio-collared wolf leaving the area carrying a leg bone on the evening of 3/17.

Physical evidence and summary of findings: There was no muscle tissue or hide on either of the jaw bones and no pre-mortem bite marks were found. There was a chase scene with wolf and adult cow tracks that started about 75 yards up the hill then led down to a larger area of trampled vegetation and turned over soil with sliding adult cattle tracks at the bottom. The chasing incident is estimated to have occurred on the morning of the 3/16 to midday on the 3/17. There was no blood on the scene to indicate whether the calf was attacked or already dead. Three GPS collar locations from a radio-collared Lookout Mt wolf were at the scene between 3/16 at 10pm and 3/17 at 6am. Due to the absence of hide and muscle tissue and the absence of a kill scene, the determination is possible/unknown.

March 9, 2021 – Union County (Cabin Creek area)

Date Investigated: 3/9/21

Cause of death/injury: Other

General situation and animal information: On the morning of 3/8/2021, a livestock producer found a three-year-old adult cow deceased in a 105-acre private-land pasture. ODFW staff was notified the evening of 3/8/2021 and responded the morning of 3/9/2021. The cow had a previously injured rear leg, all muscle tissue and hide remained on the fully intact carcass. The estimated date of death was the night of 3/7/2021 or morning of 3/8/2021.

Physical evidence and summary of findings: There was no evidence of a chase or struggle scene. Parts of the animal were shaved and the entire carcass was skinned and examined thoroughly. There were no bites, tooth scrapes, or predator-related marks on the cow. No evidence suggested the animal was attacked or killed by a predator. The cause of death is unknown, but was not wolf-related.

February 23, 2021 – Grant County (Gilbert Ridge area)

Date Investigated: 2/23/21

Cause of death/injury: Other (3)

General situation and animal information: On the morning of 2/23/21 an agent of a livestock producer found three dead calves in a 30-acre private pasture. Calf 1 and 3 were less than 24 hours old. Calf 2 was 4 days old. For calves 1 and 2, the carcasses were largely intact with the majority of muscle tissue and hide remaining. Calf 3 was mostly consumed, with the majority of hide and part of the skeleton remaining. All three calves had died the night prior to the investigation.

Physical evidence and summary of findings: All three carcasses were skinned and examined. No pre-mortem hemorrhaging or wounds were located on calf 1. Calf 2 had areas of hemorrhaging located at and below both hocks, left stifle, left front elbow, and right front elbow, extending down to the lower leg. The bruises were less than ½ inch in depth. Pre-mortem bite marks measuring 1/8" diameter were found on the hide of the neck. No pre-mortem hemorrhaging or wounds were located on the hide of calf 3. The cause of death of calves 1 and 3 is unknown but was not wolf-related. The pre-mortem bite marks and

hemorrhaging on calf 2 are clear signs of predator attack, however the size and shallow depth of injuries are not consistent with wolf attacks on calves.

February 18, 2021 – Wasco County (Antelope area)

Date Investigated: 2/18/21

Cause of death/injury: Other

General situation and animal information: On the morning of 2/17/21, a livestock owner found two approximately 150 pound injured calves in their feeding corral. The rancher euthanized one calf with extensive injuries that morning. ODFW was called late in the afternoon and investigated the next morning. The live calf was mobile and was able to move fine with the rest of the herd upon ODFW's arrival the next day. The injuries were estimated to have occurred overnight on 2/16-2/17.

Physical evidence and summary of findings: Several domestic dog tracks were found in and around the corral. The euthanized calf was skinned and examined. There were several tooth scrapes and punctures with pre-mortem hemorrhaging on the hindquarters, both front legs, neck and face. Depth of trauma associated with these wounds was $\frac{1}{4}$ - $\frac{3}{4}$ inch deep. There was also an open wound on the right shoulder that was approximately five inches in diameter and up to two inches deep. The injured calf was briefly restrained and examined. There were fresh tooth scrapes on the nose and inside the right hind leg. The pre-mortem bite marks are a clear sign of predator attack and the size, location, and shallow depth of injuries are consistent with domestic dog attacks on livestock.

February 9, 2021 – Deschutes County (Millican Valley area)

Date Investigated: 2/9/21

Cause of death/injury: Other

General situation and animal information: On the morning of 2/9/21, a livestock producer found a dead 7-week-old calf in a private-land pasture. Organs and muscle tissue around the pelvis, upper rear legs, and ribs had been scavenged. The hide was intact other than portions of the chest and abdomen. It was estimated that the calf died the night prior to the investigation.

Physical evidence and summary of findings: The calf carcass was skinned and examined. There was no evidence of pre-mortem hemorrhaging or injuries consistent with a predator attack. The cause of death is unknown, but not wolf-related.

February 8, 2021 – Wallowa County (Prairie Creek area)

Date Investigated: 2/8/21

Cause of death/injury: Other

General situation and animal information: The producer found the recently born, 40 lb., dead calf around 10:00 am on 2/8/21. The calf was found in an approximately 260-acre private grassland pasture with approximately 100 pregnant cows. The calf carcass was largely intact except for the abdominal

organs and some muscle tissue from the inside of the rear legs had been scavenged. The calf was estimated to have died within the last 24 hours.

Physical evidence and summary of findings: The entire carcass was skinned and no evidence of pre-mortem trauma or tissue damage was found. The calf's hooves still had the soft newborn hoof cap, which had not dried out or worn off, indicating that the calf may have never stood and may have been dead at birth. The cause of the death of this calf is unknown, but was not wolf-related.

February 4, 2021 – Lake County A (Goose Lake Basin area)

Date Investigated: 2/4/2021

Cause of death/injury: No Determination

General situation and animal information: On the evening of 2/4/21, ODFW staff received notice of two dead newborn calves (approximately 60lbs) as well as cougar tracks approximately .39mi north of the dead calves. ODFW confirmed that the reported cougar tracks were actually tracks of a wolf that traveled through the area on 2/4. The carcasses were located in a 5-acre calving pen on private property close to the ranch home. Investigation report February 4, 2021 – Lake County A describes the first carcass. The calf was largely consumed with disarticulated appendages cleaned of muscled tissue. All internal organs and skeletal muscle was scavenged. It was estimated that this calf died around 2/1/21.

Physical evidence and summary of findings: At the direction of the owner of the dead calf, the carcass remains were not skinned. No pre-mortem hemorrhage was observed on the hide. Significant evidence of both coyote and avian scavenging was present. No wolf or cougar tracks were found in the snow near the pen. Since the carcass could not be skinned, insufficient access to information was available to ODFW staff to make a determination in this case.

February 4, 2021 – Lake County B (Goose Lake Basin area)

Date Investigated: 2/4/2021

Cause of death/injury: No Determination

General situation and animal information: On the evening of 2/4/21, ODFW staff received notice of two dead newborn calves (approximately 60lbs). The carcasses were located in a 5-acre calving pen on private property close to the ranch home. Calf carcass B was mostly intact with only the front left quarter missing. It was estimated that this calf died around 2/3/21.

Physical evidence and summary of findings: At the direction of the owner of the dead calf, the carcass was not skinned. No pre-mortem hemorrhage was observed on the hide or visible tissue. The hooves were clean and retained the soft newborn hoof caps, indicating the calf may have never stood and may have been dead at birth. Since the carcass could not be skinned, insufficient access to information was available to ODFW staff to make a determination in this case.

January 17, 2021 – Baker County (Foster Gulch area)

Date Investigated: 1/17/21

Cause of death/injury: Confirmed as wolf-caused

General situation and animal information: On the morning of 1/16/21, an approximately 1100 lb. 3-year-old injured cow was found on public land adjacent to a large private rangeland pasture. The cow was euthanized because it could not get up or walk. The carcass was partially skinned and examined by the ranch manager, and then buried to eliminate the predator attractant. Photographs of the injuries and an approximately 18x18-inch section of hide were provided to ODFW for examination. The injuries to the cow were estimated to have occurred late on 1/15/21 to early on 1/16/21.

Physical evidence and summary of findings: The pictures showed evidence of attack by a predator, with pre-mortem tissue damage and bleeding around the anus and on the tail, and pre-mortem tooth scrapes with associated muscle tissue bruising on the right hind leg. The section of hide from above the right hock was shaved and examined. There were more than 30 pre-mortem tooth scrapes that were up to 1/4 inch wide and 3 inches long with bruising apparent on the inside of the hide. Paired canine tooth scrapes were measured at approx. 1 7/8 to 2 inches. The location, size, number, and direction of tooth scrapes and underlying muscle tissue trauma are consistent with wolf attack injuries to adult cows. The incident was wolf-caused but it may not meet the Wolf Plan definition of depredation (lawfully present livestock on public land). This attack is attributed to the Cornucopia Pack.