



The Work-Up

Diagnostic Services Unit | Issue 5 - January/February, 2023

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Wildlife Pathology

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Jim Carlsen, Cambridge Bay

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DSU Announcements

New DSU submission forms
launching January 2, 2023!

As of January 1, 2023 the DSU
will no longer send or receive
forms, reports, or other informa-
tion via fax.

Holiday closures:
Family Day: Monday, February
20, 2023



SPOTLIGHT: WILDLIFE PATHOLOGY

Dr. Dayna Goldsmith graduated from UCVM in 2013 as part of the second graduating class of veterinary students. She completed a residency in Anatomic Pathology at the University of California Davis, becoming a diplomat of the American College of Veterinary Pathologists in 2016. Dr. Goldsmith worked as a sessional instructor as part of the department of Ecosystem and Public Health at UCVM for 9 months in 2016-2017 then returned to California for two years to work as a diagnostic pathologist at one of the CAHFS state labs in the central valley. Currently she is an instructor tract faculty member of UCVM with an interest in wildlife and zoo pathology.

Jim Carlsen's career started in the Prince Edward Island Provincial Necropsy Suite which swiftly moved into the brand new Atlantic Veterinary College of the University of PEI in 1985. There Jim gained extensive experience within the Diagnostic Services Department, working alongside many distinguished and accomplished veterinarians from around the globe. In 2008, Jim needed a change and joined the newly opened UCVM. He began his position before the Clinical Skills Building was even finalized. One of Jim's first endeavors was to set up the necropsy suite for teaching, diagnostics, research, and wildlife pathology. As the Supervisor of the DSU necropsy lab, Jim is passionate about everything he undertakes, but especially enjoys passing on his 30+ years of knowledge and experience to the DVM students.

From October 13-20, 2022 Jim Carlsen and Dr. Dayna Goldsmith travelled to Cambridge Bay, NU for an Arctic EID Team Meeting and Wildlife Health and Disease Workshop. This workshop was a combined effort of the Universities of Calgary and Glasgow along with Polar Knowledge Canada and the Ekalututiak Hunters and Trappers Organization. During the first two days we performed surveillance necropsies on 17 wolves and 2 wolverines that were hunted as part of wildlife management programs. This was followed by 2 days of the Arctic EID meeting and 2 days of wildlife health and disease workshop. Jim presented on basic necropsy techniques as well as knife sharpening and tool maintenance. Dayna presented on wildlife infectious diseases of the north along with Dr. Susan Kutz and colleagues. This work took place at the Canadian High Arctic Research Station Campus (CHARS). Part of the trip also involved bringing basic supplies to CHARS to outfit their new necropsy lab as well as the development of basic SOPs.



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DSU Team

Anatomic Pathologists:

Dr. Jennifer Davies
Dr. Dayna Goldsmith
Dr. Ashish Gupta
Dr. Cameron Knight
Dr. Carolyn Legge
Dr. Jamie Rothenburger
Dr. Amy Warren
Dr. Erin Zachar

Clinical Pathologists:

Dr. Angelica Galezowski
Dr. Catherine Wagg
Dr. Amy Warren

Microbiologist:

Dr. Beverly Morrison

Support Staff:

Jim Carlsen
Nancy Coulter
Makaela Douglas
Mai Farghaly
Karan Gadani
Lori Goodbrand
Jennifer Larios
Samantha Lewin
Heather Mitchell-Matheson
Mel Nicolas
Dr. Lindsay Rogers
Sara Skotarek Loch

DSU Contact Information

<https://vet.ucalgary.ca/DSU>

E-mail: dsu@ucalgary.ca

Phone: 403-220-2806

Fax: 403-239-6984

Clinical Skills Building
11877 85th Street NW
Calgary AB, T3R 1J3

Trichomonas gallinae was the cause of death in a wild evening grosbeak that was observed dying in a residential area. The bird was next to a bird feeder and appeared to be resting and bloated before dying. Multiple additional evening grosbeaks and pine siskins were previously found dead in the area. On post-mortem, the bird was thin with friable yellow-tan nodules on the palate, under the tongue, and along the inside of the mandible. It had a necrotizing glossitis, oropharyngitis and esophagitis with intralesional protozoa. These findings are typical of trichomoniasis which was confirmed by PCR. *Trichomonas gallinae* is a transmissible protozoal parasite, mainly of pigeons, doves, finches, and raptors, inhabiting the upper gastrointestinal tract. Bird baths and feeders are a potential sites of transmission so should be cleaned regularly with diluted domestic bleach and remain out of use until the first winter frost. For more information on trichomonas and feeder cleaning, visit: <http://www.cwhc-rscf.ca/trichomonosis.php#resources>.

Brucella suis biovar 4 was isolated from the carpal joint of a Muskox harvested for sustenance in the Northwest Territories. The hunters did not note any abnormal behaviour, but pus was found in the joint at butchering. The limb was submitted for Brucellosis surveillance and food safety. Pathological findings were consistent with a hygroma highly suspicious for brucellosis. CFIA was immediately contacted about this federally reportable disease. Samples were submitted to their lab for confirmatory testing. *Brucella suis* biovar 4 was identified which is endemic in caribou and muskoxen in the NWT. This case highlights the importance of relationships with sustenance hunters in remote areas for disease surveillance in wildlife and protection of public health in the communities reliant on wildlife for food.

Necrobacillosis with secondary bacterial septicemia was the cause of death in an approximately 10 year old wild bison bull that was found dead. Necropsy revealed multiple well-demarcated necrotizing lesions within the oral cavity, esophagus, rumen, abomasum, and liver which suggested necrobacillosis caused by *Fusobacterium necrophorum*. This was supported by coagulative necrosis with fibrinoid vascular necrosis and prominent Gram-negative filamentous bacteria on histology and Gram stain. Histologic lesions consistent with bacterial septicemia were also seen and *Streptococcus dysgalactiae* was cultured. Anaerobic culture of *F. necrophorum* was unsuccessful, likely due to advanced autolysis of the carcass. *F. necrophorum* can be a normal commensal of the gastrointestinal tract but invade into the tissues through damaged mucosa, for example from rough forage, which was found in this bison's rumen. The bacteria proliferate and cause necrosis potentially leading to bacterial septicemia. A differential diagnosis for vasculitis and ulceration of the upper gastrointestinal tract is malignant catarrhal fever (MCF) and PCR testing was negative in this case. An additional interesting finding in the bison was mineralization of the abdominal aorta, classically associated with Johne's disease, but seen with other chronic debilitating diseases as well. Fecal material was not available for testing.



Hygroma in carpal joint of a muskox

Tips & Tricks

Contact the CWHC regional centre in your area to report sick or dead wildlife. Regional staff can advise you on the next steps or discuss options for carcass submission. Carcass submissions allow us to investigate cause of death, screen for diseases and parasites, and gather information pertaining to the health of wild populations. We also welcome reports of observational information such as unusual mortality events, or signs of diseased or distressed animals. For more information: <http://www.cwhc-rscf.ca/>.

