

**Publications - 38**

1. McLaughlin, A., J. Giacinti, I. Rahman, J. Wight, H. Kathryn, A.S. Lang, M. Mallory, K. Elliott, D. Ojkic, S. Lair, M. Jones, Y. Berhane, G. Gilchrist, L. Wilson, S. Wilhelm, M. Brown, J. Provencher. Spatiotemporal patterns of low and highly pathogenic avian influenza virus prevalence in murrelets in Canada from 2007 to 2022 - a case study for wildlife viral monitoring. Accepted for publication. *Facet*, March 2023.
2. Giacinti, J., A. Signore, M. Jones, L. Bourque, S. Lair, C. Jardine, B. Stevens, T. Bollinger, D. Goldsmith, M. Pybus, I. Stasiak, R. Davis, N. Pople, L. Nituch, R. W. Brook, D. Ojkic, A. Massé, G. Dimitri-Masson, G. J. Parsons, and C. Soos. Avian influenza viruses in wild birds in Canada following incursions of highly pathogenic H5N1 virus from Eurasia in 2021/2022. Accepted for publication. *mBio*, January 2024.
3. Béland, K., C. Rousseau, S. Lair. Diet-induced nephrocalcinosis in aquarium-raised juvenile spotted wolffish *Anarhichas minor*. *Diseases of Aquatic Organisms*. 157: 19–30. 2024. <https://doi.org/10.3354/dao03769>.
4. Lane, J.V., J.W.E. Jeglinski, S. Avery-Gomm, E. Ballstaedt, A.C. Banyard, T. Barychka, I. Brown, B. Brugger, T. Burt, N. Careen, J.H.F. Castenschield, S. Christensen-Dalsgaard, S. Clifford, S. Collins, E. Cunningham, J. Danielsen, F. Daunt, K. d'Entremont, M. English, M. Falchieri, J. Giacinti, B. Gjerset, S. Granstad, D. Grémillet, M. Guillemette, G.T. Hallgrímsson, K.C. Hamer, S. Hammer, K. Hargan, K. Harrison, C. Hatsell, R. Humpidge, J. James, A. Jenkinson, M. Jessop, M.E.B. Jones, S. Lair, A. Lang, T. Lewis, A.A. Malinowska, A. McCluskie, G. McPhail, B. Moe, W.A. Montevecchi, G. Morgan, C. Nichol, C. Nisbet, B. Olsen, P. Provost, A. Purdie, J-F. Rail, Y. Sayer, M. Sheddan, C. Soos, N. Stephens, H. Strøm, V. Svansson, D. Tierney, G. Tyler, T. Wade, S. Wanless, C.R.E. Ward, S. Wilhelm, S. Wischnewski, L.J. Wright, B. Zonfrillo, J. Matthiopoulos, S.C. Votier. High pathogenicity avian influenza (H5N1) in Northern Gannets (*Morus bassanus*): Global spread, clinical signs and demographic consequences. *Ibis*. 2023. <https://doi.org/10.1111/ibi.13275>.
5. McAlpine, D.F., T. Wimmer, W. Ledwell, P.-Y. Daoust, L. Bourque, J.W. Lawson, W. Bachara, Z.N. Lucas, G.A. Reid, S. Lair, A. François, and R. Michaud. A review of beaked whale (Ziphiidae) stranding incidents in eastern Canada. Accepted for publication. *Canadian Field-Naturalist* 137(2): xxx-xxx. 2023. <https://doi.org/10.22621/cfn.v137i2.2967>.
6. Jakobek, B. T., Y. Berhane, M-S. Nadeau, C. Embury-Hyatt, O. Lung, PhD, W. Xu, S. Lair. Characterization of influenza A (H5N1) infections in two free-ranging black bears (*Ursus americanus*). *Emerging Infectious Diseases*;29(10):2145-2149. 2023. <https://doi.org/10.3201/eid2910.230548>.
7. Renaud, L-A., X. Bordeleau, N. Kellar, G. Pigeon, R. Michaud, Y. Morin, S. Lair, A. Thérien, V. Lesage. Estimating pregnancy rate from blubber progesterone levels of a blindly biopsied beluga population poses methodological, analytical and statistical challenges. *Conservation Physiology*. 11(1): 2023. [coad075;doi:10.1093/conphys/coad075](https://doi.org/10.1093/conphys/coad075).

8. Nielsen, O. T., T.C.S. Rodrigues, M. Marcoux, K. Béland, K. Subramaniam, S. Lair, N. Hussey, T.B. Waltzek. Alphaherpesvirus infection in a free-ranging narwhal *Monodon monoceros* from Arctic Canada. *Diseases of Aquatic Organisms*. 154:131-139. doi: 10.3354/dao03732. 2023. PMID: 37410432.
9. King, M., J. Giacinti, S. Dubois, S. Lair, E.J. Parmley, C.M. Jardine. Using wildlife rehabilitation and postmortem data to identify key causes of morbidity and mortality impacting the health and welfare of free-living wild animals in Canada. *Journal of Wildlife Diseases*, 59(1), 93-108. 2023.
10. Béland, K., S. Lair, M. Guay, T. Juette, C. Bédard, SR. Black, M. Marcoux, CA. Watt, NE. Hussey, M. Desmarchelier, Validation of enzyme-linked immunosorbent assay techniques to measure serum dehydroepiandrosterone (DHEA) and DHEA-S in narwhals (*Monodon monoceros*). *Journal of Zoo and Wildlife Medicine*. vol. 54,1: 119-130. 2023. doi:10.1638/2022-0049.
11. Lair, S. G. Bourguelat, G. Fournier. Comparison of two ratios of xylazine:ketamine for the anesthesia of free-ranging north American beavers (*Castor canadensis*) in a remote setting. *Canadian Journal of Veterinary Research*. Jul;87(3):224-230. PMID: 37397631; 2023. PMCID: PMC10291699.
12. Simond, AÉ, PS. Ross J. Cabrol, V. Lesage, S. Lair, M. Woudneh, H. Peng, K. Colbourne, K. TM. Brown. Declining concentrations of chlorinated paraffins in endangered St. Lawrence estuary belugas (*Delphinapterus leucas*): Response to regulations or a change in diet? *Science of the Total Environment*. 868, 161488. 2023. <https://doi.org/10.1016/j.scitotenv.2023.161488>.
13. Ampuero F, Leacy A, Pham PH, Che S, Jardine C, Nagy E, Delnatte P, Lillie BN, Susta L. Experimental pathogenesis of aquatic bird bornavirus 1 in Pekin ducks. *Scientific Reports*. 2023 Oct 23;13(1):18094.
14. Robinson SJ, Borlang J, Himsforth CG, Pearl DL, Weese JS, Dibernardo A, Osiowy C, Nasheri N, Jardine CM. Rat Hepatitis E Virus in Norway Rats, Ontario, Canada, 2018–2021. *Emerging Infectious Diseases*. 2023 Sep;29(9):1890.
15. Schutten K, Chandrashekar A, Bourdages M, Bowes V, Elliott J, Lee S, Redford T, Provencher J, Jardine C, Wilson L. Assessing plastic ingestion in birds of prey from British Columbia, Canada. *Environmental Science and Pollution Research*. 2023 Jul;30(31):76631-9.
16. Giacinti JA, Robinson SJ, French SK, Pearl DL, Jardine CM. The influence of sociodemographic and environmental factors on wildlife carcass submissions in urban areas: Opportunities for increasing equitable and representative wildlife health surveillance. *Facets*. 2023 Apr 20;8(1):1-3.
17. Robinson SJ, Kotwa JD, Jeeves SP, Himsforth CG, Pearl DL, Weese JS, Lindsay LR, Dibernardo A, Toledo NP, Pickering BS, Goolia M. Surveillance for SARS-CoV-2 in Norway rats (*Rattus norvegicus*) from southern Ontario. *Transboundary and Emerging Diseases*. 2023 May 26;2023.
18. French SK, Kotwa JD, Singh B, Greer T, Pearl DL, Elsemore DA, Hanna R, Jardine CM, Weese JS, Mercer N, Peregrine AS. Factors associated with *Giardia* infection in dogs in southern Ontario, Canada. *Veterinary Parasitology: Regional Studies and Reports*. 2023 Jun 1;41:100870.

19. Allen SE, Vigil SL, Furukawa-Stoffer T, Colucci N, Ambagala A, Pearl DL, Ruder MG, Jardine CM, Nemeth NM. Abundance and diversity of *Culicoides* Latreille (Diptera: Ceratopogonidae) in southern Ontario, Canada. *Parasites & Vectors*. 2023 Jun 14;16(1):201.
20. Ampuero F, Leacy A, Pham PH, Che S, Tuling J, El-Khoury A, Nagy E, Jardine C, Delnatte P, Lillie B, Susta L. Experimental infection of aquatic bird bornavirus 1 (ABBV-1) in Canada geese (*Branta canadensis*). *Veterinary Microbiology*. 2024 Jan 1;288:109946.
21. Giacinti JA, Signore AV, Jones ME, Bourque L, Lair S, Jardine C, Stevens B, Bollinger T, Goldsmith D, British Columbia Wildlife AIV Surveillance Program (BC WASP), Pybus M. Avian influenza viruses in wild birds in Canada following incursion of the highly pathogenic H5N1 virus from Eurasia in 2021/2022. *bioRxiv*. 2023:2023-11.
22. Robinson EL, Jardine CM, Russell C, Clow KM. Comparing Canadian Lyme disease risk area classification methodologies. *Zoonoses and Public Health*. 2023 Jun;70(4):294-303.
23. Jeeves SP, Kotwa JD, Stevens B, Shirose L, Cai HY, Peregrine AS, Mubareka S, Jardine CM. Additional diagnoses of *Echinococcus multilocularis* in eastern chipmunks (*Tamias striatus*) from southern Ontario-results from ongoing surveillance for *E. multilocularis* in intermediate hosts in Ontario, Canada. *Veterinary Parasitology: Regional Studies and Reports*. 2024 Feb 1;48:100982.
24. Giacinti JA, Pearl DL, Ojkic D, Bondo K, Jardine CM. CANINE DISTEMPER VIRUS ECOLOGY: INSIGHTS FROM A LONGITUDINAL SEROLOGIC STUDY IN WILD RACCOONS (*PROCYON LOTOR*). *The Journal of Wildlife Diseases*. 2023 Jul 1;59(3):407-19.
25. Sinclair D, Stephen C, Parmley EJ, Jones-Bitton A, Poljak Z, Jardine CM. Using communication networks to assess the level of sharing of wildlife health data and information among wildlife professionals in Ontario, Canada. *Human Dimensions of Wildlife*. 2023 Sep 3;28(5):468-80.
26. Dillon RM, Paterson JE, Manorome P, Ritchie K, Shirose L, Slavik E, Davy CM. Effects of ophidiomycosis on movement, survival, and reproduction of eastern foxsnakes (*Pantherophis vulpinus*). *Scientific Reports*. 2024 Feb 28;14(1):4948.
27. Olson DH, Grant EH, Bletz M, Piovio-Scott J, Lesbarrères D, Kerby JL, Adams MJ, Breitman MF, Christman M, Forzan MJ, Gray MJ.....Shirose L, et al. Preparing for a Bsal invasion into North America has improved multi-sector readiness. *Frontiers in Amphibian and Reptile Science*.;2:1347541.
28. Alkie TN, Cox S, Embury-Hyatt C, Stevens B, Pople N, Pybus MJ, Xu W, Hisanaga T, Suderman M, Koziuk J, Kruczkiewicz P. Characterization of neurotropic HPAI H5N1 viruses with novel genome constellations and mammalian adaptive mutations in free-living mesocarnivores in Canada. *Emerging microbes & infections*. 2023 Dec 31;12(1):2186608.
29. McLaughlin, A, J Giacinti, I Rahman, J Wight, K Hargan, Lang, AS, M Mallory, K Elliott, D Ojkic, S Lair, M Jones, Y Berhane, G Gilchrist, L Wilson, SI Wilhelm, M Brown, J Provencher. 2023. Spatiotemporal patterns of low and highly pathogenic avian influenza virus prevalence in murrelets in Canada from 2007 to 2022 - a case study for wildlife viral monitoring. *FACETS*. Manuscript ID: facets-2023-0185. In press.
30. McAlpine, DF, KJ Vanderwolf, C Fehlner-Gardiner, S McBurney and D Washinger. 2023. Continuing increase in the abundance of the big brown bat (*Eptesicus fuscus*) in Maritime

Canada in the presence of the fungal disease white-nose syndrome. *Journal of Bat Research and Conservation*. Submitted for publication.

31. Scott, B, GR Milton, S McBurney, and DT Stewart. 2023. Population genetic structure of the provincially endangered mainland Eastern Moose (*Alces alces americana*) in Nova Scotia, Canada. *Canadian Field-Naturalist*, 137(1) <https://doi.org/10.22621/cfn.v137i1.3127>
32. Lane, J.V., Jeglinski, J.W., Avery-Gomm, S., Ballstaedt, E., [...] Jones, M.E., [...], Matthiopoulos, J. and Votier, S.C. 2023. High pathogenicity avian influenza (H5N1) in Northern Gannets: Global spread, clinical signs, and demographic consequences. *Ibis*. <https://doi.org/10.1111/ibi.13275>
33. Alkie T.N., Byrne A.M.P., Jones M.E.B., Mollett B.C., Bourque L., Lung O., James J., Yason C., Banyard A.C., Sullivan D., et al. Recurring Trans-Atlantic Incursion of Clade 2.3.4.4b H5N1 Viruses by Long Distance Migratory Birds from Northern Europe to Canada in 2022/2023. *Viruses*. 2023; 15(9):1836. <https://doi.org/10.3390/v15091836>
34. Greenwood, S. J., Decelles, N., Jones, M.E.B., & Daoust, P. Y. 2023. Renal Coccidial Infection in North American Northern Gannets (*Morus bassanus*). *Journal of Wildlife Diseases*, 10.7589/JWD-D-22-00178. <https://doi.org/10.7589/JWD-D-22-00178>
35. Taylor, L. U., Ronconi, R. A., Spina, H. A., Jones, M., Ogbunugafor, C., & Ayala, A. J. 2023. Limited Outbreak of Highly Pathogenic Influenza A(H5N1) in Herring Gull Colony, Canada, 2022. *Emerging Infectious Diseases*, 29(10), 2150-2154. <https://doi.org/10.3201/eid2910.230536>.
36. Sudlovenick, E., Simonee, J., Jones, M.E.B., L'Hérault, V., Hernández-Ortiz, A., Jenkins, E., Parker, S., Mavrot, F., Schneider, A., Kutz S., Saliki J.T., and Daoust, P.-Y. 2023. Surveillance for Zoonotic Pathogens and Inuit Qaujimagatuqangit of Ringed Seals (*nattiit*) (*Pusa hispida*) in Frobisher Bay and Eclipse Sound, Nunavut, Canada. *Arctic* 76(3): 293-310. <https://doi.org/10.14430/arctic78294>.
37. Proctor HC, Decelles N, Daoust P-Y [corresponding author]. 2023. Deutonymphs of *Neottialges caparti* Fain (Astigmata: Hypoderatidae) from North American Northern Gannet (*Morus bassanus*). *Canadian Field-Naturalist* 137(1–2): 96–102.
38. Saab ME, Vanier G, Sudlovenick E, Powell AL, Simonee J, Desmarais G, Muckle CA, Fairbrother JM, Daoust P-Y. 2023. Occurrence and antimicrobial resistance of *Salmonella* species and potentially pathogenic *Escherichia coli* in free-living seals of Canadian Atlantic and eastern Arctic waters. *Zoonoses and Public Health* 70:542-554.

## Reports - 12

1. Ferrell, S., S. Lair. Évaluation des lésions cutanées chez les grands brochets (*Esox lucius*) du Lac Saint-Pierre. 19 pages.

2. Lair, S. Évaluation histologique des foies et gonades de grands brochets (*Esox lucius*). 12 pages.
3. Jakobek, B., S. Lair. Surgical Implantation of satellite transmitters on common eiders (*Somateria mollissima*) in Southern Labrador, NL. 12 pages.
4. Lair, S. Collecte et examen post-mortem de carcasses de bélugas du Saint-Laurent : Rapport final 2022. 56 pages.
5. Lair, S. Sexage d'anguilles d'Amérique (*Anguilla rostrata*) par examen histologique des gonades. 6 pages.
6. Lair, S. Dindons sauvages prélevés à la chasse récréative – Évaluation des risques sanitaires pour les élevages avicoles et bovins. 12 pages.
7. Parlange, M. S. Lair. Capture et immobilisation de lynx du Canada dans la région de l'Abitibi-Témiscamingue (automne 2023). 9 pages.
8. Ministère de l'environnement, de la lutte contre les changements climatiques, de la faune et des parcs (2023). Surveillance des maladies de la faune 2015-2020 — Stratégie québécoise sur la santé des animaux sauvages, gouvernement du Québec, Québec, 108 pages.
9. Patriquin, K, L Phinney, S McBurney, D McRuer, Canadian Wildlife Health Cooperative, Atlantic Region, and Canadian Bat Welfare Working Group. 2023. Welfare and Handling Recommendations for Bat Censuses in Canada. Parks Canada Agency. 74 pp. ISBN 9780660485836.
10. Alger, K and White Nose Syndrome National Response Team Diagnostic Working Group (S McBurney included as member). 2023. White-Nose Syndrome Diagnostic Laboratory Network handbook: U.S. Geological Survey Techniques and Methods, book 15, chap. E1, 50 p., <https://doi.org/10.3133/tm15E1>
11. Miller, KJG, EJ Parmley, A Ballmann, J Buckner, M Jones, JS Lankton, M Zimmer. 2023. Case Definitions for Wildlife Diseases. Techniques and Methods 19. US Department of the Interior, US Geological Survey. Prepared in Cooperation with the Canadian Wildlife Health Cooperative. <https://doi.org/10.3133/tm19>
12. Daoust P-Y. 2023. A review of regulated fur trapping in Prince Edward Island (Epekwitk). 34 pp. Tabled in the Legislative Assembly of the Government of Prince Edward Island by the Minister of Environment, Energy and Climate Action, November 18. <https://www.assembly.pe.ca/legislative-business/house-records/tailed-documents#/service/LegislativeAssemblyTabledDocuments/LegislativeAssemblyTabledDocumentsSearch>

1. Lair, S. Guidelines for Euthanasia and Humane Killing of Birds in Canada for Scientific Purposes. Eastern Wildlife Animal Care Committee, Environnement et Changement climatique Canada. Ottawa, Ontario.
2. Lair, S. L'influenza aviaire hautement pathogène H5N1 chez les oiseaux sauvages : Émergence d'une nouvelle maladie au Québec. Congrès ornithologique – QuébecOiseaux. Quebec City, Québec.
3. Lair, S. Émergence de la grippe aviaire H5N1 et surveillance – Oiseaux sauvages (et mammifères marins). Journée annuelle de santé publique. Montréal, Québec.
4. Lair, S., J. Garand, B. Balducchi. Mortality of Aquarium-housed American Shad (*Alosa sapidissima*) in a Multispecies Habitat. Eastern Fish Health Workshop, Gulfport, Missouri, USA.
5. Lair, S., R. Michaud, V. Lesage, P. Béland, N. Ménard, D. Martineau. Quarante ans de nécropsies de bélugas de l'estuaire du Saint-Laurent : L'évolution de l'occurrence des cancers et des niveaux de contamination de l'écosystème par les hydrocarbures aromatiques polycycliques suggère fortement un lien de causalité. Symposium Béluga, Montréal, Québec.
6. Lair, S., R. Michaud, V. Lesage, N. Ménard. Quarante ans de nécropsies de bélugas de l'estuaire du Saint-Laurent : État gestationnel, mortalités néonatales, et occurrence inhabituellement élevée de mortalités reliées à la parturition. Symposium Béluga, Montréal, Québec.
7. Chételat, J., K. Gurney, C. McClelland, J. Elliott, G. Fitzgerald, M. Jones, S. Lair, S. de Solla, F. de Bie, L. Bourque, H. Fenton, D. Goldsmith, J. Harms, M. Henaff, S. Lee, K. Magnusson, J. McLeod, E. Moffatt, K. Rae, L. Shirose, J. Stalwick, M. Zimmer. Lead exposure of scavenging birds in Canada due to accidental ingestion of lead ammunition. Canadian Ecotoxicology Workshop, Ottawa, Canada.
8. Avery-Gomm, S., T. Barychka, M. English, R. Ronconi, J-F Rail, S. Duffy, G. Robertson, M. Beaumont, C. Ward, S. Wilhelm, C. Gjerdrum, S. Gilliland, A. Kennedy, R. Wells, B. Montevecchi, S. Lair, M. Jones, J. Giacinti, C. Soos, J. Provencher, G. McPhail, T. Burt, S. Collins, A. Lang, J. Wight, I. Rahman, G. Sutherland, Y. Seyer, M. Guillemette, J-F. Giroux, G. Parsons, K. Hargan. A comprehensive summary of wild bird mortalities in eastern Canada during the 2022 Highly Pathogenic Avian Influenza (HPAI) outbreak. 71st Annual International Conference of the Wildlife Disease Association. Athens, Georgia.
9. Jakobek, B., C. Lepage, K. McLean, S. Lair. Effect of intramuscular administration of injectable vitamin E and selenium on post-capture movements of sandhill cranes (*Antigone canadensis*). 71st Annual International Conference of the Wildlife Disease Association. Athens, Georgia.
10. Nury, C., S. Lair. Fatal pneumothorax secondary to verminous bronchopneumonia (*Halocercus* sp.) in a juvenile white-beaked dolphin (*Lagenorhynchus albirostris*). 71st Annual International Conference of the Wildlife Disease Association. Athens, Georgia.

11. Trinquet, A., M. Babin, A. Agathine, J. Verreault, V. Lesage, J. Cabrol, S. Lair, G. Tetreault, Z. Lu. UV Absorbents and Industrial Antioxidants in the Food Web of St. Lawrence Estuary Beluga. Symposium Béluga, Montréal, Québec.
12. Desmarchelier, M., L. Loseto, É. L-Couture, S. Lair, M. Guay, C. Bédard, K. Béland. Validation d'une méthode immune-enzymatique ELISA pour la mesure de la DHEA et de la DHEAS, marqueurs potentiels de stress chronique, chez le béluga (*Delphinapterus leucas*). Symposium Béluga, Montréal, Québec.
13. Couture-L, É. S. Lair, R. Le Net, R. Michaud, V. Lesage, S. Wund. Bélugas (*Delphinapterus leucas*) en rivière : effets pathophysiologiques possibles d'une exposition prolongée en eau douce. Symposium Béluga, Montréal, Québec.
14. Martineau, D., M. Poirier, S. Lair. 35 ans plus tard, les bélugas du Saint-Laurent ne sont plus les ramoneurs du Saint-Laurent. Symposium Béluga, Montréal, Québec.
15. Larrat, S. S. Lair. Condition corporelle et causes de la mort chez les bélugas (*Delphinapterus leucas*) du Saint-Laurent : retour sur 35 ans de données d'examen postmortem. Symposium Béluga, Montréal, Québec.
16. Jakobek, BT., S. Lair, J. Cabrol, G. Parent, V. Lesage, S. Turgeon. *Toxoplasma gondii*, toxoplasmose et bélugas (*Delphinapterus leucas*) de l'estuaire du Saint-Laurent : constat et piste de recherche. Symposium Béluga, Montréal, Québec.
17. Le Net, R., S. Lair, S. Larrat, R. Michaud. Atlas, fréquence et pathologie des lésions cutanées chez les bélugas (*Delphinapterus leucas*) de l'estuaire du Saint-Laurent, Québec, Canada. Symposium Béluga, Montréal, Québec.
18. Lair, S., C. Vergneau-Grosset, C. Coulombe, N. Vachon, M-A. Couillard. Conservation of the Endangered Copper Redhorse (*Moxostoma hubbsi*): Implication of the Aquarium du Québec. International Association for Aquatic Animal Medicine. Salt Lake City, USA.
19. Jakobek, BT. S. Lair, X. Bordeleau, M. Desmarchelier, J. Farley. Behavioral Impacts of 69 kHz Acoustic Transmitter on Aquarium-Housed Harbor Seals (*Phoca vitulina*) and Harp Seals (*Pagophilus groenlandicus*). International Association for Aquatic Animal Medicine. Salt Lake City, USA.
20. Béland, K. S. Lair, C. Rousseau. Effect of Diets on Blood Parameters and Development of Nephrocalcinosis, Urolithiasis, and Xanthomatosis in Aquarium-raised Juvenile Spotted Wolffish (*Anarhichas minor*). International Association for Aquatic Animal Medicine. Salt Lake City, USA.
21. Quesnel, L. S. Lair, Y. Berhane, M-S. Nadeau, ST. Ferrell, R. Michaud, C. Embury-Hyatt. Highly Pathogenic H5N1 Avian Influenza Virus Infection in Marine Mammals in the St. Lawrence Estuary, Quebec, Canada. International Association for Aquatic Animal Medicine. Salt Lake City, USA.

22. Trinquet, A., M. Babin, A. Agathine, J. Verreault, V. Lesage, J. Cabrol, S. Lair, G. Tetreault, Z. Lu. Trophodynamics of UV Absorbents and Industrial Antioxidants in the Food Web of the Endangered St. Lawrence Estuary Beluga Population. Quebec Ocean Annual Scientific Meeting 2023.
23. Chemical immobilisation of wildlife. Nation Huronne-Wendat. Quebec City, Quebec. 2.5 days.
24. McRuer, D, K Patriquin, L Phinney and S McBurney. Welfare Recommendations for Canadian Bat Censuses Involving Capture and Handling. (General Poster Presentation) for the 71st Annual International Conference of the Wildlife Disease Association – People, Passion, and Purpose: The Pathway to Wildlife Health, Athens, Georgia, August 2-3, 2023.
25. Segers, J, S McBurney, M Jones, P Zimmer and D Joly. Update on the Canadian National Bat Health Program. (15 minutes) for White-nose Syndrome Annual Workshop, Palm Springs, California, June 9, 2023.
26. Segers, J, S McBurney, M Jones, P Zimmer, and D Joly. Using a Wildlife Health Intelligence Platform for Recovery of Endangered Bat Species in Canada. (15 minutes) for White-nose Syndrome Annual Workshop, Palm Springs, California, June 10, 2023.
27. Jones, M. Wildlife health surveillance: why parasites and parasitologists matter (Part of keynote session: How can we help? How parasitologists can help in government, NGOs, and communities). Atlantic Canada Association of Parasitologists Annual Meeting, Pictou, NS, Oct 20, 2023.
28. Clark, A, RS Fraser, L Bourque, MEB Jones. Pathologic findings in 11 striped skunks diagnosed with highly pathogenic avian influenza from Prince Edward Island, Canada. American College of Veterinary Pathologists Annual Meeting, Chicago Illinois, USA, Poster Presentation. Oct 31, 2023.
29. Graham, KF, L Bourque, SJ Greenwood, GA Conboy, MEB Jones. Dude where's my mange? What we don't know about the transmission dynamics of sarcoptic mange in red foxes (*Vulpes vulpes*). Atlantic Canada Association of Parasitologists Annual Meeting, Pictou, NS, Oral Presentation, Oct 20, 2023.
30. Robbins, W, O Galeuzzi, KF Graham, S Greenwood, M Jones, M Buote, G Conboy. *Echinococcus multilocularis* infection in a red fox (*Vulpes vulpes*) on Prince Edward Island. Atlantic Canada Association of Parasitologists Annual Meeting, Pictou, NS, Oral Presentation, Oct 20, 2023.
31. Galeuzzi, O, W Robbins, T McBurney, M Buote, M Jones. Ectoparasite survey of the Prince Edward Island little brown myotis (*Myotis lucifugus*). Atlantic Canada Association of Parasitologists Annual Meeting, Pictou, NS, Oral Presentation, Oct 20, 2023.
32. Chételat, J, K Gurney, C McClelland, J Elliott, G Fitzgerald, M Jones, S Lair, S de Solla, F
33. de Bie, L Bourque, H Fenton, D Goldsmith, J Harms, M Henaff, S Lee, K Magnusson, J McLeod, E Moffatt, K Rae, L Shirose, J Stalwick, M Zimmer. Lead exposure of scavenging birds in

Canada due to accidental ingestion of lead ammunition. Canadian Ecotoxicity Workshop, Ottawa, ON, Oral Presentation, Oct 4, 2023.

34. Giacinti, J, A Signore, C Erdelyan, M Jones, S Lair, C Jardine, B Stevens, D Goldsmith, C Himsworth, M Pybus, Y Berhane, C Soos. A phylogeographic reconstruction of the spatiotemporal emergence and spread of highly pathogenic H5N1 avian influenza in Canada. 71st International Conference of the Wildlife Disease Association, Oral Presentation, Aug 3, 2023.
35. Avery-Gomm, S, T Barychka, M English, R Ronconi, J-F Rail, S Duffy, M Beaumont, C Ward, W Montevecchi, S Lair, M Jones, J Giacinti, C Soos, G McPhail, T Burt, S Collins, A Lang, J Wight, I Rahman, C Sutherland. A comprehensive summary of wild bird mortalities in eastern Canada during the 2022 Highly Pathogenic Avian Influenza Outbreak. 71st International Conference of the Wildlife Disease Association, Poster Presentation, July 29-Aug 4, 2023.
36. Daoust, PY. Health surveillance in the Canadian North. Wildlife session, ACVP Annual Meeting, Chicago (invited presentation). Oct 30, 2023.
37. Poultry Industry Council, update on H5N1 in wild birds in Ontario – July 17, 2023 (~20 participants – Online)
38. Public Health of Ontario presentation on CWHC and Public Health – Sept. 27, 2023 (~30 participants – Online)
39. OMAFRA Wildlife conflict working group on HPAIV in wildlife – Sept. 28, 2023 (~30 participants – Online)
40. Wild pigs in Ontario for the Royal City Men’s club – Oct. 12, 2023 (~50 participants – In person)
41. Royal Society of Canada - One Health meeting; CWHC and One Health – November 13, 2023 (virtual)
42. OMNRF Human Wildlife Conflict Advisory Group (HWCAG); CWHC and what we do – March 5, 2024 (~20 participants - Online)
43. Biweekly Wild Birds and Avian Influenza updates (ongoing). Presented updates on HPAIV in wild birds. Jardine and Stevens attended (~20 participants - online)
44. OAHN meetings (February 2024). Presented research and CWHC case updates at each meeting. Jardine and Stevens attended (6 people).
45. Rabies Advisory Committee, Province of Ontario (September 2023, January 2024)
46. *Echinococcus multilocularis* Public Health working group (Feb. 8, 2024). Stevens attended (~10 people).
47. Shirose was Co-Lead of the Cross-Canada Ophidiomycosis Surveillance Workshop on Feb 20 2024 (by Zoom)

### Media - 33

1. La Presse. Pourquoi déplacer des caribous et pas des cerfs?

2. 24 heures. On est allé à la recherche des cerfs de Virginie au parc Michel-Chartrand de Longueuil.
3. TVA nouvelle. Surabondants dans l'est, les chevreuils ont causé 103 accidents de la route à Montréal en trois ans.
4. Le Devoir. Des cerfs du parc Michel-Chartrand montrent des signes de dépérissement.
5. Radio-Canada. Boréal 138. Grippe aviaire en 2022 chez les phoques.
6. La Presse. Grippe aviaire en 2022 - 6,7 millions d'oiseaux d'élevage décimés
  
7. CBC TV/Radio/Web (Megan Jones interviewed by Nancy Russell, Arturo Chang): New avian flu virus subtype found in PEI birds and raccoons. June 1, 2023. <https://www.cbc.ca/news/canada/prince-edward-island/pei-avian-flu-virus-h5n5-raccoons-1.6861818>
8. Saltwire (Megan Jones interviewed by Logan Plant): First Canadian mammal cases of Eurasian H5N5 bird flu found in PEI raccoons. June 1, 2023. <https://www.saltwire.com/atlantic-canada/news/first-canadian-mammal-cases-of-eurasian-h5n5-bird-flu-found-in-pei-raccoons-100859525/>
9. CBC PEI (Megan Jones interviewed by Sam Wandio): Avian influenza in mammals (update). March 15, 2024. Story pending.
10. Saltwire/Guardian PEI (Megan Jones interviewed by Caitlin Coombs): Status of Avian Influenza on PEI. March 25, 2024. Story pending.
  
11. Saltwire/The Guardian PEI. (Megan Jones interviewed by Thinh Nguyen): Great white shark washes up on PEI's Greenwich Beach, taken to Atlantic Veterinary College for Necropsy. Aug 8, 2023.
12. <https://www.saltwire.com/atlantic-canada/news/great-white-shark-washes-up-on-peis-greenwich-beach-taken-to-atlantic-veterinary-college-for-necropsy-100881166/>
13. CBC/Radio Canada: Television (Megan Jones interviewed by Héloïse Rodriguez-Qizilbash), CBC Regional Evening News (NL, NS, PEI, NB), Aug 10, 2023.
14. CBC Web News, Aug 11, 2023: <https://www.cbc.ca/news/canada/prince-edward-island/pei-shark-death-cause-1.6933603>
15. Global News Morning, Television (Megan Jones interviewed by Eilish Bonang): Learning more about the Greenwich Beach great white. <https://globalnews.ca/video/9899436/learning-more-about-the-greenwich-beach-great-white>
  
16. CBC Radio and Web. (Megan Jones interviewed by Arturo Chang): Animal tests positive for rabies in PEI for the first time since 2009. Oct. 12, 2023. <https://www.cbc.ca/news/canada/prince-edward-island/pei-rabies-bats-1.6993896>
17. Saltwire Network, Print and Web (Megan Jones interviewed by Kirsten Gardiner): Rabies confirmed in PEI animal for the first time since 2009. Oct 12, 2023. <https://www.saltwire.com/atlantic-canada/news/rabies-confirmed-in-pei-animal-for-the-first-time-since-2009-100896144/>
  
18. Saltwire Network / Guardian PEI (Darrian Washinger interviewed by Caitlin Coombes): Fatal Fungus: Hibernating bats battle white-nose syndrome in PEI. Oct 16, 2023. <https://www.saltwire.com/atlantic-canada/news/fatal-fungus-hibernating-bats-battle-white-nose-syndrome-in-pei-100902016/>

19. CBC Web, CBC News, Main Street PEI (Darrian Washinger interviewed by Sheehan Desjardins): Researchers raise concerns about health of PEI bat populations. Nov 20-22, 2023. <https://www.cbc.ca/news/canada/prince-edward-island/pei-researchers-concerns-bat-population-1.7035430>
20. CBC Radio Island Morning and CBC News (Darrian Washinger interviewed by Laura Chapin): Bat boxes – new guidelines. Jan 25, 2024.
21. La Voix Acadienne print (Darrian Washinger interviewed by Marine Ernout). Le crépuscule des chauves-souris. Feb 1, 2024. <https://lavoixacadienne.com/~voixa/voir-plus/societe/4762-le-crepuscule-des-chauves-souris>
22. July 18: Trapping (local French newspaper)
23. October 24: Crows (local French newspaper)
24. November 29: Trapping (Radio-Canada, local station)
25. November 30: Trapping (CBC, local station)
26. Gray seals on PEI (observations of gray seals on land during pupping season while ice cover in the Gulf of St. Lawrence is very low). February 13, 2024. Pierre-Yves Daoust interviewed by the Globe and Mail.
27. Interview with The Weather Network on HPAIV – April 19, 2023
28. Interview with The Toronto Star on HPAIV – April 27, 2023  
[https://www.thestar.com/news/canada/we-haven-t-come-across-a-virus-like-this-could-dabbling-ducks-be-the-link/article\\_48cf462b-3d20-5938-931c-1a704bc39cee.html](https://www.thestar.com/news/canada/we-haven-t-come-across-a-virus-like-this-could-dabbling-ducks-be-the-link/article_48cf462b-3d20-5938-931c-1a704bc39cee.html)
29. Radio interview with City News Ottawa on HPAIV – May 30, 2023
30. Interview with CTV on squirrelpox – Jan. 12, 2024 <https://kitchener.ctvnews.ca/squirrelpox-virus-believed-to-be-in-kitchener-1.6723997>
31. Responded to questions via email for CTV on squirrelpox – Jan. 16, 2024  
<https://www.ctvnews.ca/health/what-is-squirrelpox-and-should-canadians-be-concerned-1.6728568>
32. Interview with CBC on mortality event of Canada geese in Kingston – Feb. 2, 2024  
<https://www.cbc.ca/news/canada/ottawa/kingston-sick-dead-canada-geese-park-1.7103102>
33. Interview with Global New on HPAIV in crows in Kingston – Feb. 22, 2024 <https://globalnews.ca/news/10312820/bird-flu-found-in-dead-crows-bald-eagle-in-kingston/>

**Education: Wildlife Health - 23**

**Students Supervised in 2023-24 (all have wildlife health focus)**

2024-present	PhD	Eleanor Glahn	Fish Health in PEI Rivers	LB: Co-supervisor
2020-present	PhD	Kylee Graham	Sarcoptic mange in red foxes in Prince Edward Island: risk factors and disease ecology	MJ: Co-Supervisor

May 2021 - present	MVSc / Anatomic Pathology Residency	Amanda Clark	Test validation and distribution of Skunk Adenovirus in PEI wildlife	MJ: Co-supervisor; LB: Committee member
May 2021 - present	MSc	Tessa McBurney	Zoonoses and bat health within Atlantic Canada	MJ: Supervisor
2017-2023	PhD (completed)	William Robbins	Transmission of metastrongyloid parasites of Atlantic Canadian canids	MJ: Supervisory Committee; member; MJ and LB: PhD comprehensive exam committee members
2023 summer	Summer student assistant	Carissa Grove	Wildlife Pathology	MJ/LB Co supervisors
2023 summer	Summer research student	Paige Mitchell	Leatherback Turtle Hindlimb Functional Anatomy	MJ Co-supervisor
August 2023	MSc (University of Calgary)	Summer Hunter	Characterization of incidental lesions and common causes of morbidity and mortality among free-ranging Leporidae in Canada	MJ: External Member of MSc Examination Committee
2023-present	MSc (University of Prince Edward Island)	Giulianna Obeid	Epidemiology of Toxins in Raptors on PEI	MJ: Supervisory Committee Member
2023-24	4	Olivia Galeuzzi	Ectoparasite Survey of Endangered Bats in PEI (continued)	Co-Supervisor with M. Buote (research elective, VPM 4710) †
Fall 2023	3	Paige Mitchell	Pelvic and Hindflipper Muscle Reconstruction of Leatherback Sea Turtles ( <i>Dermochelys coriacea</i> ) (continued)	Co-Supervisor with S. Martinson (Research Elective, VPM 3610) †

**Courses taught: wildlife health  
UPEI/Atlantic Veterinary College**

- **VCA 3520. Introduction to Zoo, Wildlife, and Aquatic Animal Medicine.** Lecture: wildlife health surveillance, 1 hour, M Jones. March, 2024.
- **VPM 8540 Diagnosis of Wildlife Diseases.** (Graduate Student Course) MEB Jones, L Bourque. Total contact hours: 80. Summer Semester 2023.

- **VPM 8110 Bats and Zoonoses** (Graduate Student Course) MEB Jones. Total contact hours: 40. Summer semester 2023.
- **VPM 4130 Wildlife Health (Senior Veterinary Student Rotation, AVC)**. MEB Jones (Course Coordinator), L. Bourque, P-Y Daoust, D. Jones, F. de Bie. Enrollment: 5. In-person content delivery, 2-week rotation. 2-credit rotation; total contact hours: 80. Winter Semester, 2023.
- **VPM 4500**. Diagnostic Services: Wildlife Pathology Lab. MEB Jones, L. Bourque, D. Jones, F. de Bie. Ten rotations per year, cumulative enrollment: 68. Total contact hours: 40
- **VPM 4600**. Morphologic Pathology: Wildlife Pathology Lab. (Senior Veterinary Student Rotation, AVC) MEB Jones, L. Bourque, D. Jones, F. de Bie. Enrollment: 8. Total contact hours: 8 May 2023.
- Wildlife health surveillance in the Canadian North. Student presentation, AVC. PY Daoust, Nov 14 2023. 1 hour.
- Wildlife Health surveillance. Enooyaq Sudlovenick and P-Y Daoust. Special vet camp day for Indigenous Youth in the Maritimes. AVC.

#### **Holland College Wildlife Conservation Technology Program**

- **Deer necropsy lab: March, 2024**. 21 students, in-person necropsy laboratory, 4 hours. M. Jones, L Bourque, D. Jones, PY Daoust.
- Wildlife Euthanasia Seminar: March, 2024. 21 students, lecture, 2 hours. PY Daoust.
- Wildlife Health Surveillance Lecture: March, 2024. 45 students, lecture, 2.5 hours. M Jones.

#### **Wildlife Health Consultation Activities and Special Projects**

**Bats and Rabies Infographic** (T. McBurney, M. Jones). Consultation with Public Health Agency of Canada to provide subject-matter-expert review of PHAC's proposed Bats and Rabies infographic, which is intended for publication on the Government of Canada website.

**Rabies test coordination and sample submission**. CWHC Atlantic, through an arrangement with the Chief Public Health Office and the Chief Veterinary Office, Government of Prince Edward Island, collects, and ships samples for rabies testing from both domestic and wild animals. These submissions are undertaken at the request of the CPHO or CVO in situations where there has been direct contact between rabies-suspect wildlife and humans or domestic animals, and submissions are thus processed as high-priority. In some cases, CWHC Atlantic initiates communications regarding potential rabies exposure, particularly where we are the first contact from members of the public who may have encountered a wild animal (e.g., through our Bat Hotline). For fiscal year 2023-24, we processed 21 specimens for priority rabies testing at CFIA, which was greatly increased compared to our five-year average of 12.5 submissions/year. Species tested included little brown myotis bats, dogs, cats, raccoons, foxes, and two cattle. Significantly, this process identified one

rabies-positive little brown myotis bat that had been found alive in a home in Prince Edward Island (and reported to the Bat Hotline, see below), which was the first positive rabies result in the province since 2009. Quick coordination and response in this case facilitated appropriate public health actions.

**Bat Health: Atlantic Canada.** CWHC Atlantic: “Essential services for the health and conservation of Atlantic Canadian endangered bat species.” ECCC Habitat Stewardship Program – Species at Risk Stream project. Our Bat Hotline serves as a contact point for people from all four Atlantic Provinces who call with reports of live or dead bat observations, and with questions about bat conservation, bats in buildings, and bat-related human health concerns. The hotline received 156 calls from April 1, 2023 to March 25, 2024. For all live and dead bat observations, callers are asked about possible human or domestic animal contact, and if necessary, directed to the appropriate authorities in each province. Through the hotline, we also assist with coordination of response activities, if warranted, including collection of bats by wildlife authorities for necropsy and rabies testing. As an example, through this service, we played a key role in the identification of the first case of animal rabies in PEI since 2009 (little brown myotis found in a home in PEI) and facilitated appropriate public health response for the situation. We also served as subject matter experts and were asked by the CVO to review official releases and communications about this case with the provincial Veterinary Medical Association, and media requests about the case were referred to our group by the PEI VMA, the CVO, and PEI Fish and Wildlife (see Media Interviews).

**Collaborative Research: Survey for zoonotic parasites of canids in Atlantic Canada.** CWHC Atlantic is collaborating with Dr. Nina Germitsch, Assistant Professor of Parasitology at Atlantic Veterinary College, on a survey of helminth parasites of wild coyotes and foxes in Atlantic Canada. Through this project, samples will be examined for the zoonotic parasite *Echinococcus multilocularis*. The first report of *E. multilocularis* in Atlantic Canada was made through a CWHC Atlantic parasite surveillance project in 2022, and this project represents continued surveillance to determine the prevalence and distribution in the Maritime Provinces (Robbins et al, 2022, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9377194/>).

**Consultation: PEI One Health Working Group. 2023-24.** M. Jones, CWHC Atlantic, has served as an external consultant for the Government of PEI One Health Working Group, which is comprised of representatives from the Chief Veterinary Office, Chief Public Health Office, and PEI Fish and Wildlife. Dr. Jones was asked to present an overview of *Echinococcus multilocularis* and its status in PEI and Atlantic Canada in January, 2024. Information generated through wildlife health surveillance activities at CWHC Atlantic is provided to members of this working group regularly, especially avian influenza surveillance data.

**HPAI in Atlantic Canada – Working Group.** M. Jones represents CWHC Atlantic at monthly meeting with wildlife directors / delegates from all four Atlantic Provinces, along with representatives from CWS Atlantic, ECCC, and Parks Canada, to discuss relevant issues related to HPAI trends and cases in the region and provide specific wildlife health and diagnostic expertise.

**Atlantic Canada Animal Health Network (AtCAHN).** M. Jones and L. Bourque attend and contribute current and ongoing wildlife health surveillance information to representatives from four Atlantic Canadian provincial veterinary laboratories, Chief veterinary officers, Parks Canada (Atlantic Region), and personnel from Atlantic Veterinary College Diagnostic Services. AtCAHN is part of the Canadian

Animal Health Surveillance (CAHSS), and network meetings take place quarterly.

<https://cahss.ca/cahss-networks/other-network-groups/atcahn>

**NEAFWA Wildlife Health Specialist Group.** CWHC Atlantic participates in specialist group comprised of representatives from Northeast Association of Fish and Wildlife Agencies. The group has regular meetings and shares data on significant wildlife health issues in the northeastern United States and eastern Canada.

**Veterinary Consultation, Marine Animal Incidents:** Marine Animal Response Society, Nova Scotia. Consultation and response on strandings of marine animals across the Canadian Maritime provinces (PEI, NS, NB); Assessment of animal health, advisement on course of action. Over 210 emails were received and monitored in 2023-24. (Bourque, L, and Jones, M)