

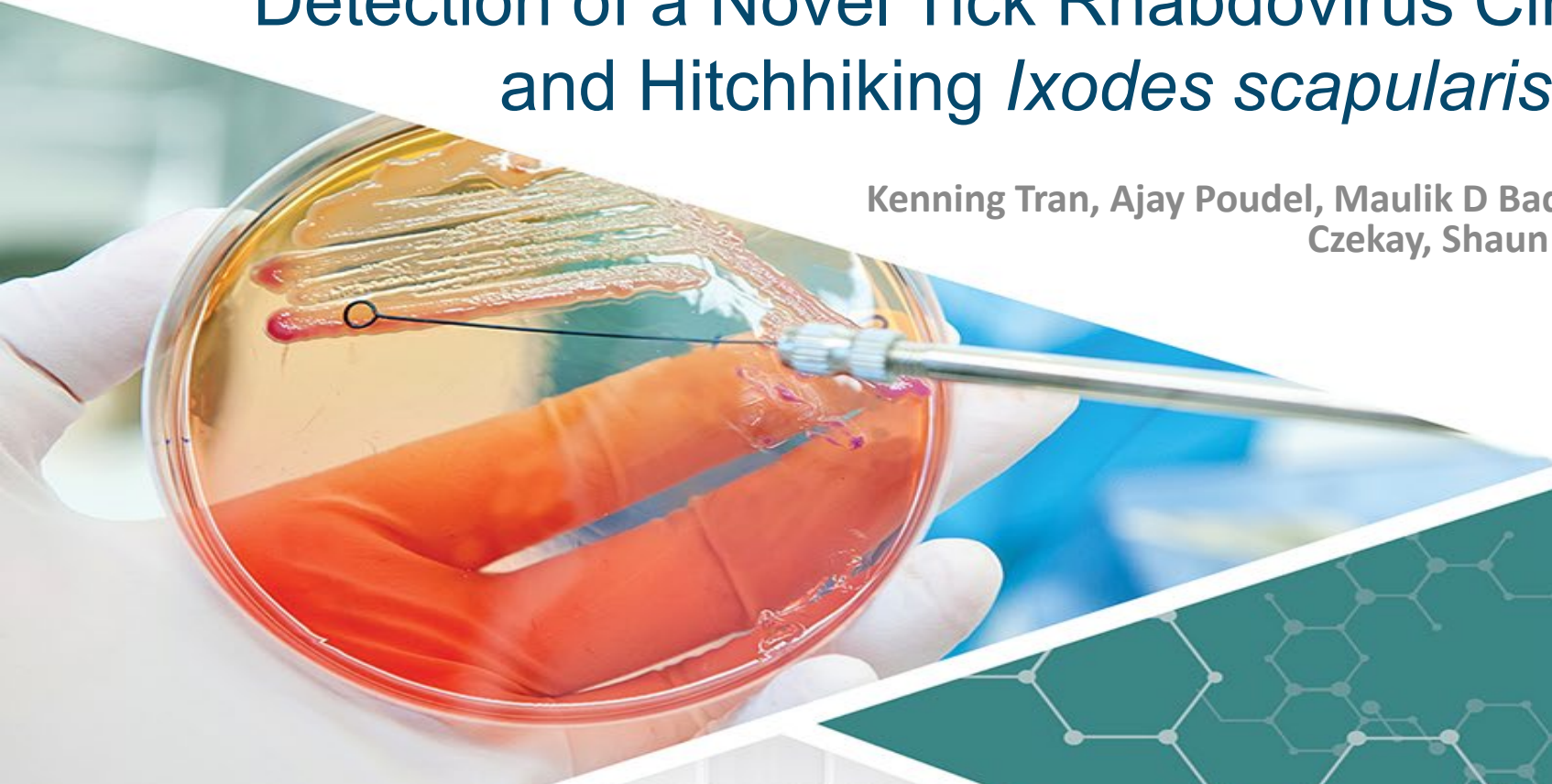


Canadian Food
Inspection Agency

Agence canadienne
d'inspection des aliments

Detection of a Novel Tick Rhabdovirus Circulating in Canada and Hitchhiking *Ixodes scapularis* on the West Coast

Kenning Tran, Ajay Poudel, Maulik D Badmalia, Sarah-Jo Paquette, Dominic Czekay, Shaun Dergousoff, Nariman Shahhosseini

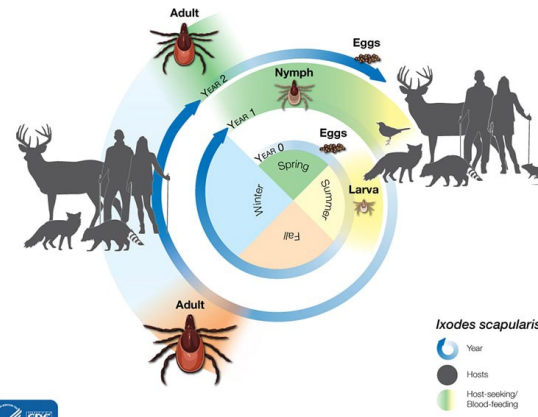


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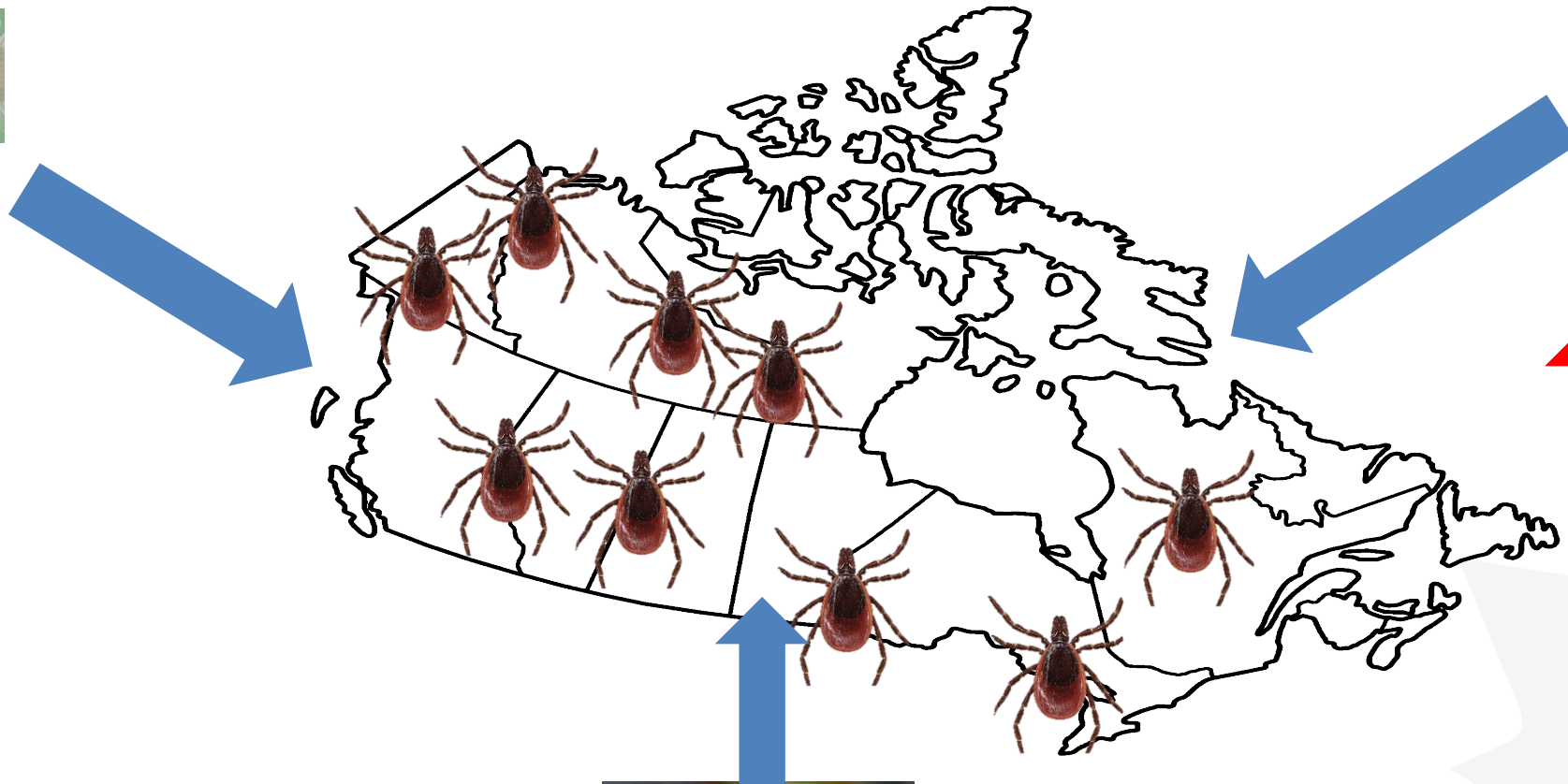
Canada

Ticks in Canada

- Obligate parasites, generally 3 hosts are needed
- Second most important vector of human diseases, most important for cattle
 - Powassan virus, Lyme disease, Anaplasmosis, Babesiosis



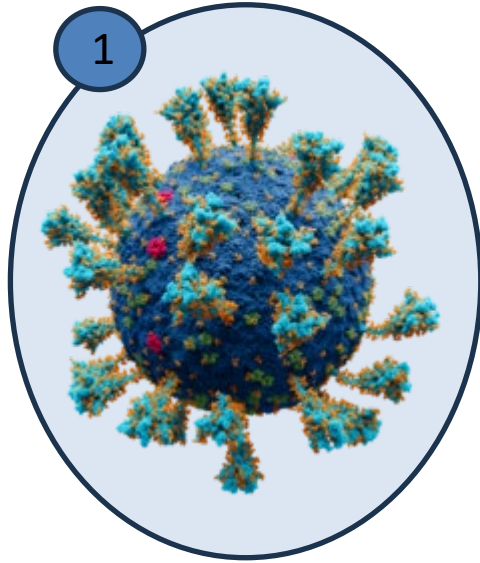
The growing concern Ticks in Canada



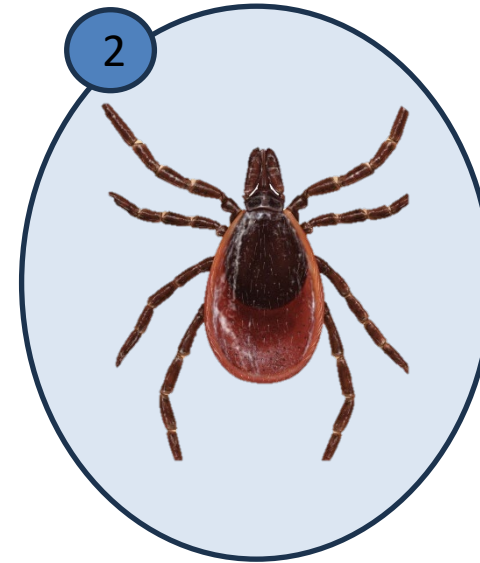
Tick Borne
Diseases



Study Goals



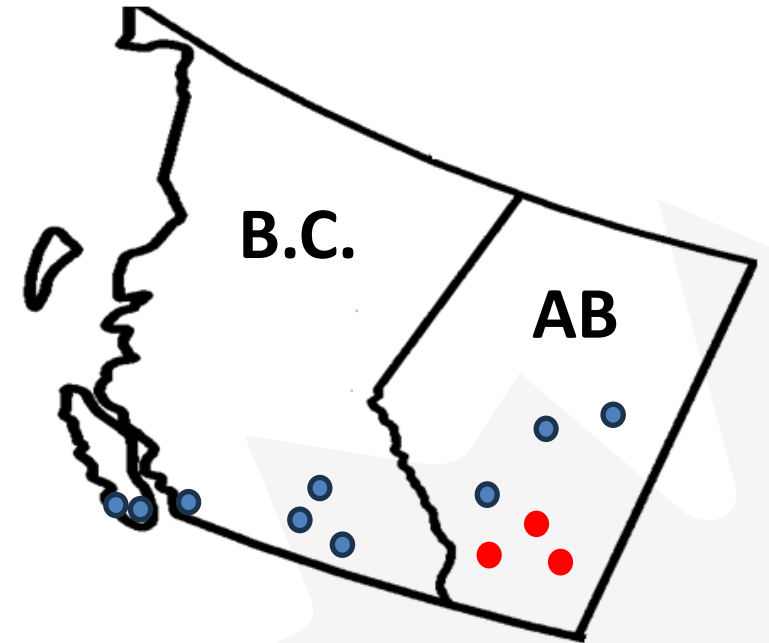
Provide surveillance of circulating arboviruses of ticks in Western Canada and Lyme disease



Detect the movement of tick species from domestic animals and migratory birds

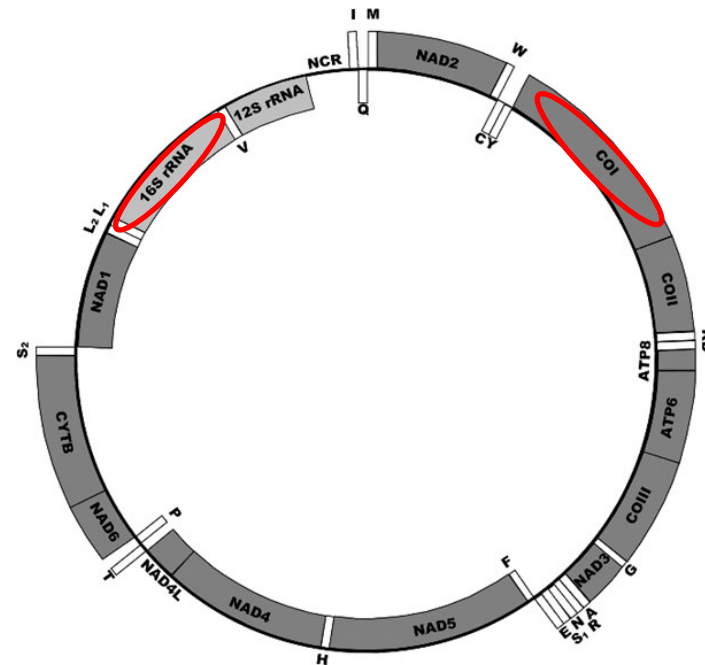
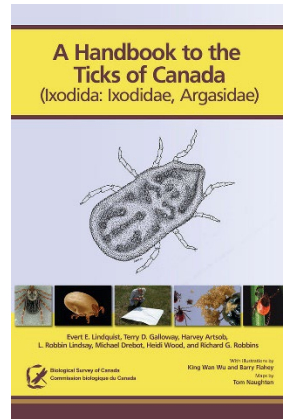
Methods: Samples Acquisition

- Combination of Passive and Active surveillance

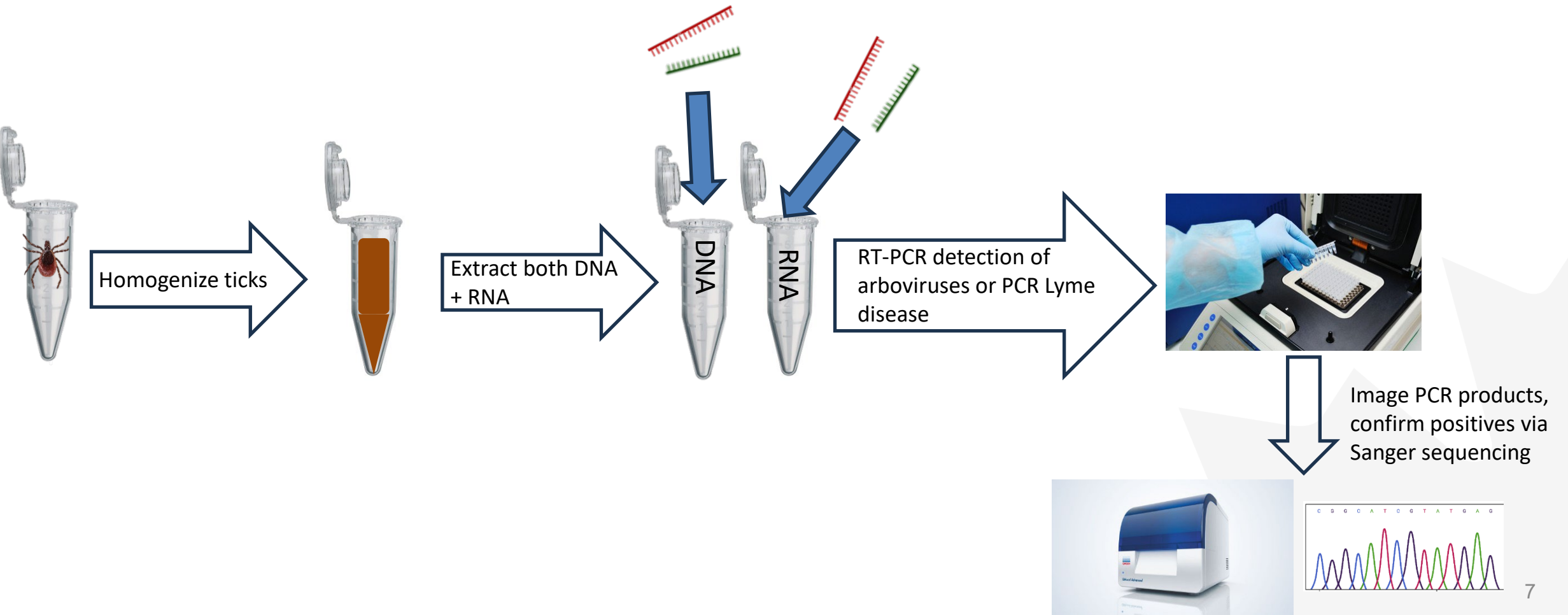


Methods: Species Identification

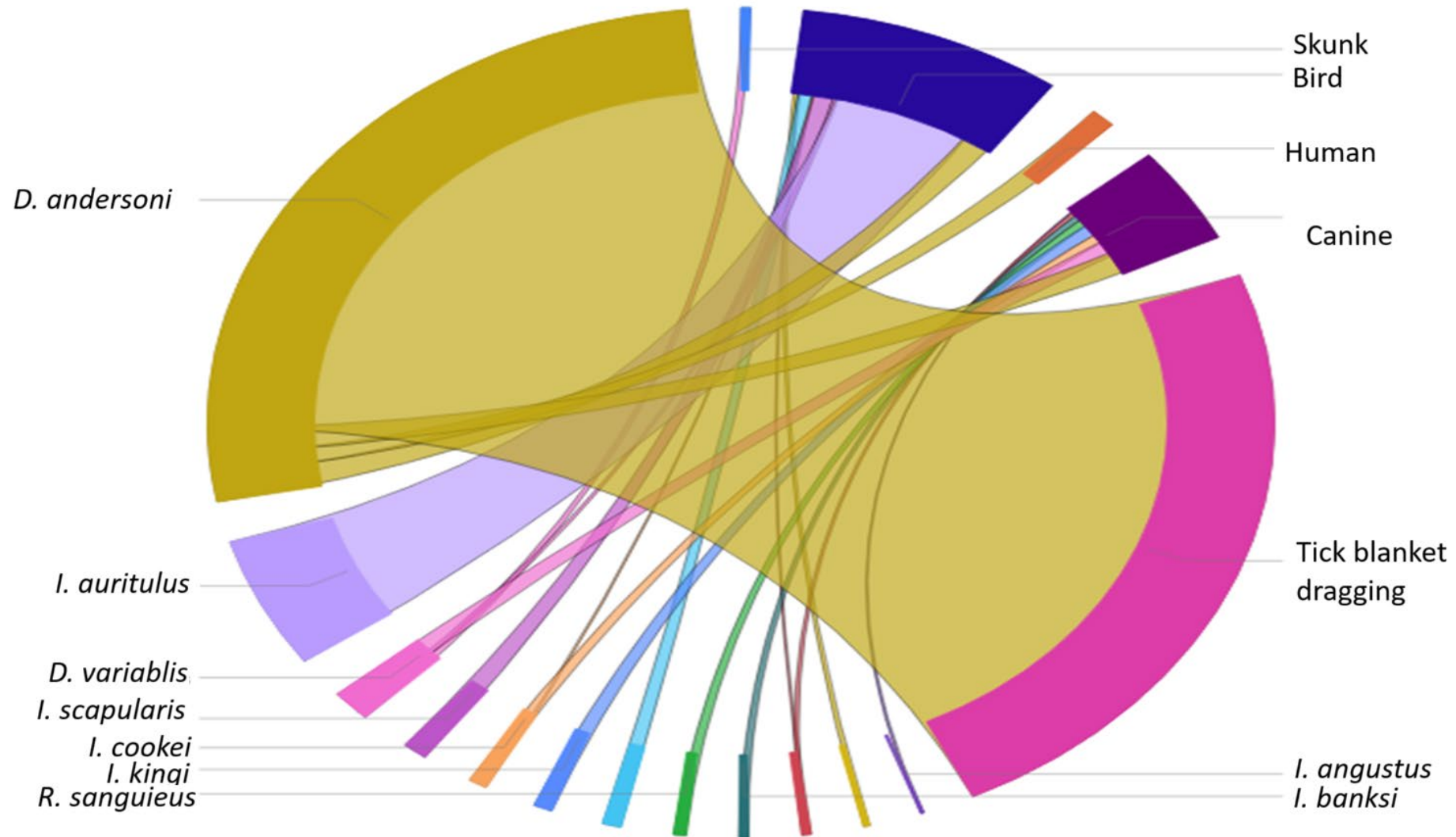
- Combination of Morphological and Molecular Techniques



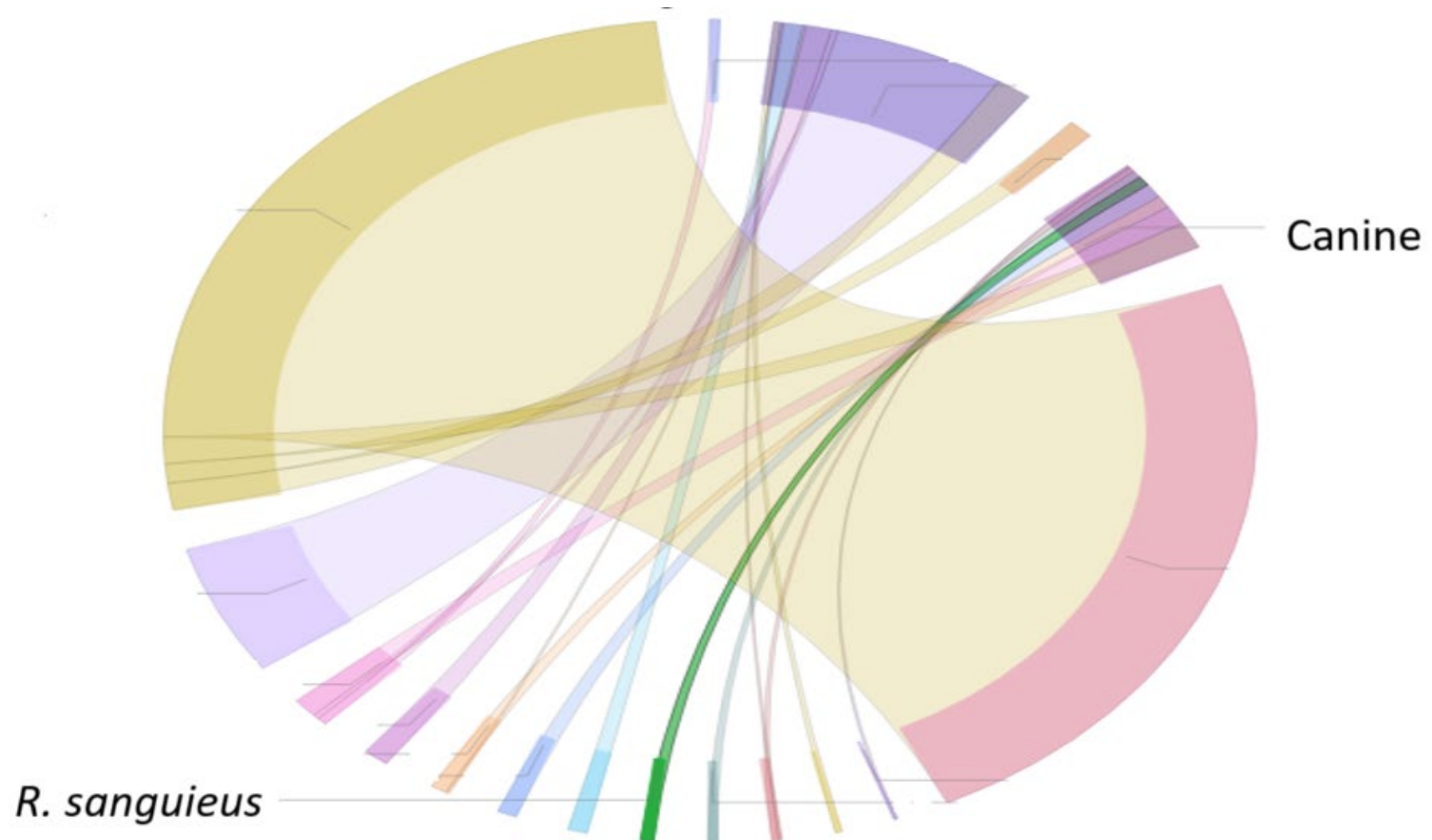
Methods: Pathogen testing



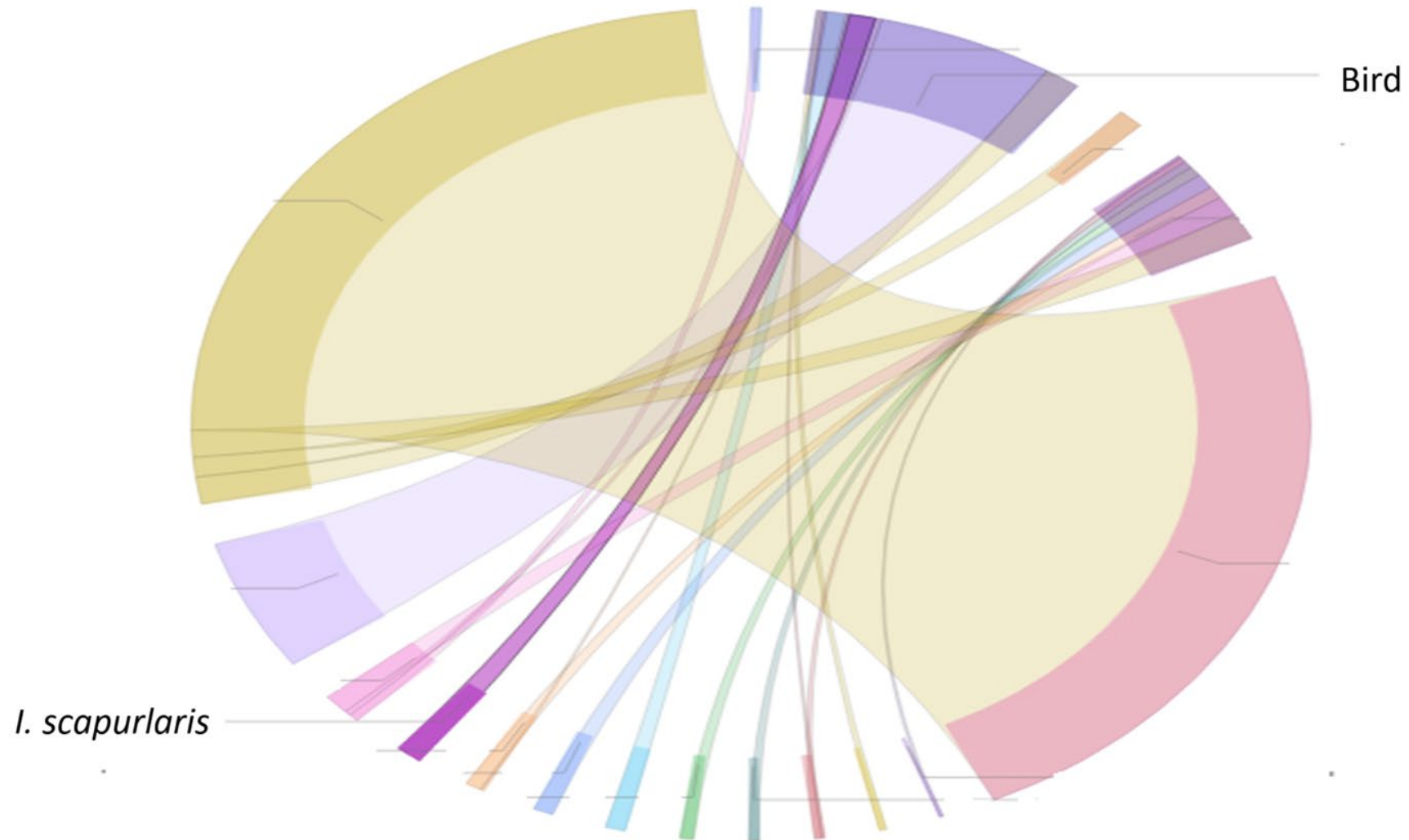
Results: Species Identification



Results: Species Identification



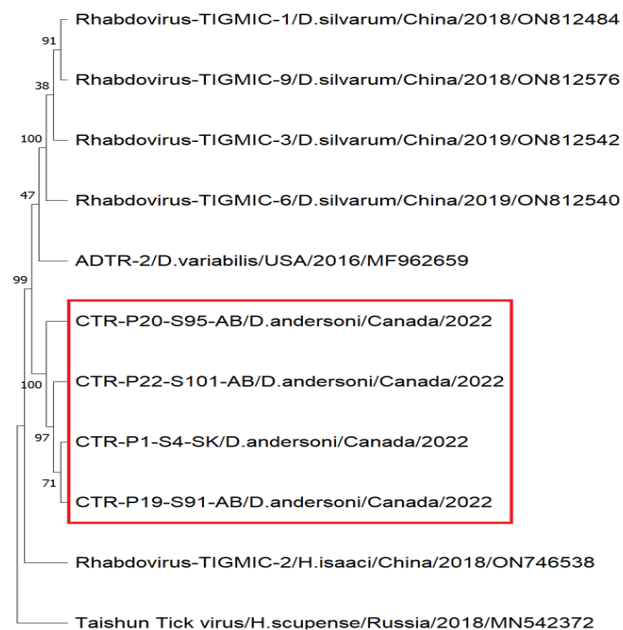
Results: Species Identification



Results: Pathogen testing

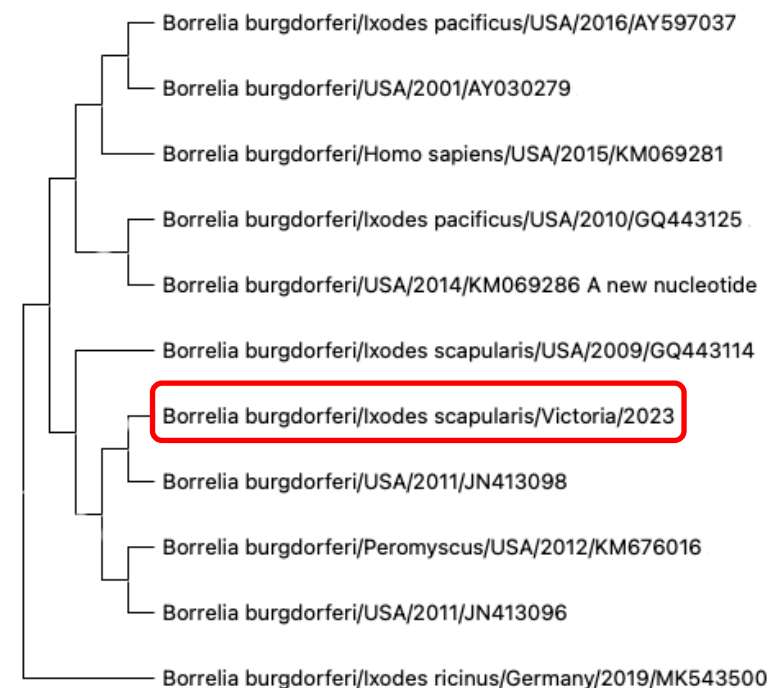
Rhabdovirus detection

- Screened a total of 433 ticks
- 47/433 ticks positive, 10.85%
 - All *D. andersoni* species



Lyme disease detection

- 1/8 *I. scapularis* ticks from birds positive



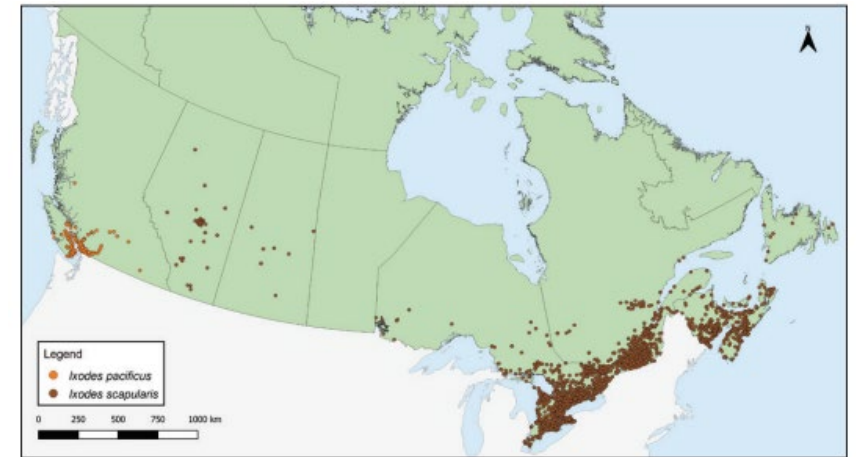
Discussion and future works:

Ixodes scapularis

- First molecular confirmed case of *I. scapularis* ticks off migratory birds in B.C.

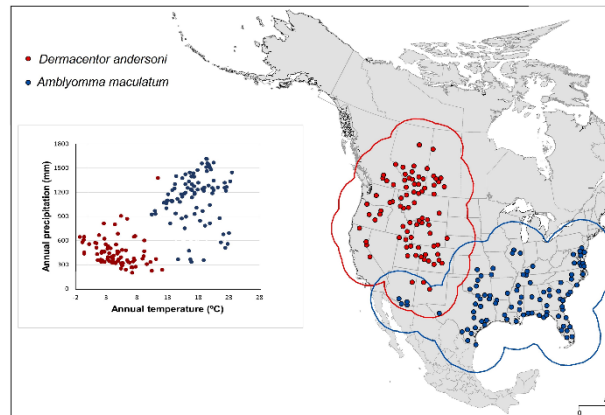


[1]

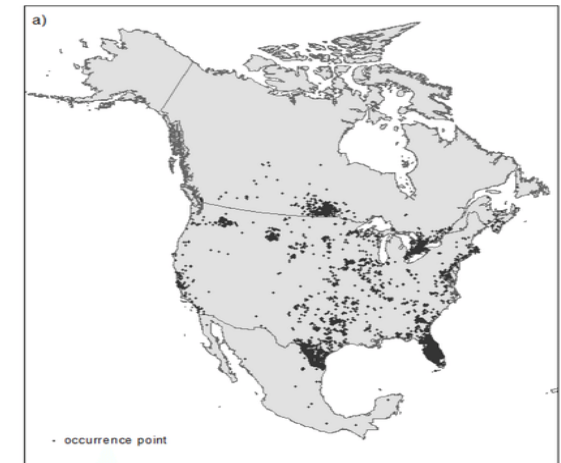


[2]

Discussion and future works: Rhabdovirus presence



[3]



[4]

Acknowledgements



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References

1. Fink, D., T. Auer, A. Johnston, M. Strimas-Mackey, S. Ligocki, O. Robinson, W. Hochachka, L. Jaromczyk, C. Crowley, K. Dunham, A. Stillman, I. Davies, A. Rodewald, V. Ruiz-Gutierrez, C. Wood. 2023. eBird Status and Trends, Data Version: 2022; Released: 2023. Cornell Lab of Ornithology, Ithaca, New York. <https://doi.org/10.2173/ebirdst.2022>
2. Wilson, C., et al. (2023). "Surveillance for Ixodes scapularis and Ixodes pacificus ticks and their associated pathogens in Canada, 2020." Can Commun Dis Rep 49(6): 288-298.
3. Alkishe, A., & Peterson, A. T. (2022). Climate change influences on the geographic distributional potential of the spotted fever vectors *Amblyomma maculatum* and *Dermacentor andersoni*. *PeerJ*, 10, e13279. <https://doi.org/10.7717/peerj.13279>
4. Minigan, J. N., Hager, H. A., Peregrine, A. S., & Newman, J. A. (2018). Current and potential future distribution of the American dog tick (*Dermacentor variabilis*, Say) in North America. *Ticks and tick-borne diseases*, 9(2), 354–362. <https://doi.org/10.1016/j.ttbdis.2017.11.012>

THANKS FOR LISTENING!
ANY QUESTIONS