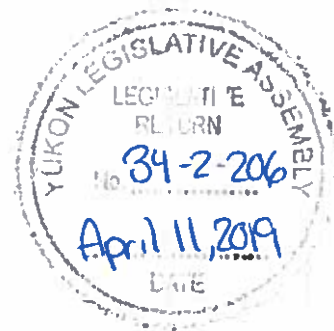


LEGISLATIVE RETURN

SUBMITTED BY: Pauline Frost, Minister of Environment



1. On April 4, 2019, Brad Cathers, Member for Lake Laberge

☐ asked the following question during the Oral Question Period
at page(s) _____ of *Hansard*

☐ submitted the following written question – WQ No. _____

☒ gave notice of the following motion for the production of papers – MPP No. 18

RE: Winter ticks

OR

2. This legislative return relates to a matter outstanding from discussion related to:

on _____ at page(s) _____ of *Hansard*.

The response is as follows:

I am happy to provide an abstract and a copy of the presentation (attached) on winter ticks that Department of Environment officials presented at the Biodiversity Forum on March 2, 2019.

Background information, that supported the presentation, is summarized annually in the public State of the Environment Report. A copy of the section of the 2018 State of the Environment Report with information on winter tick surveillance is also attached. The 2019 State of the Environment Report should be available later this spring which will provide updated information on winter ticks as it is a monitored environmental indicator.

April 11, 2019

Date

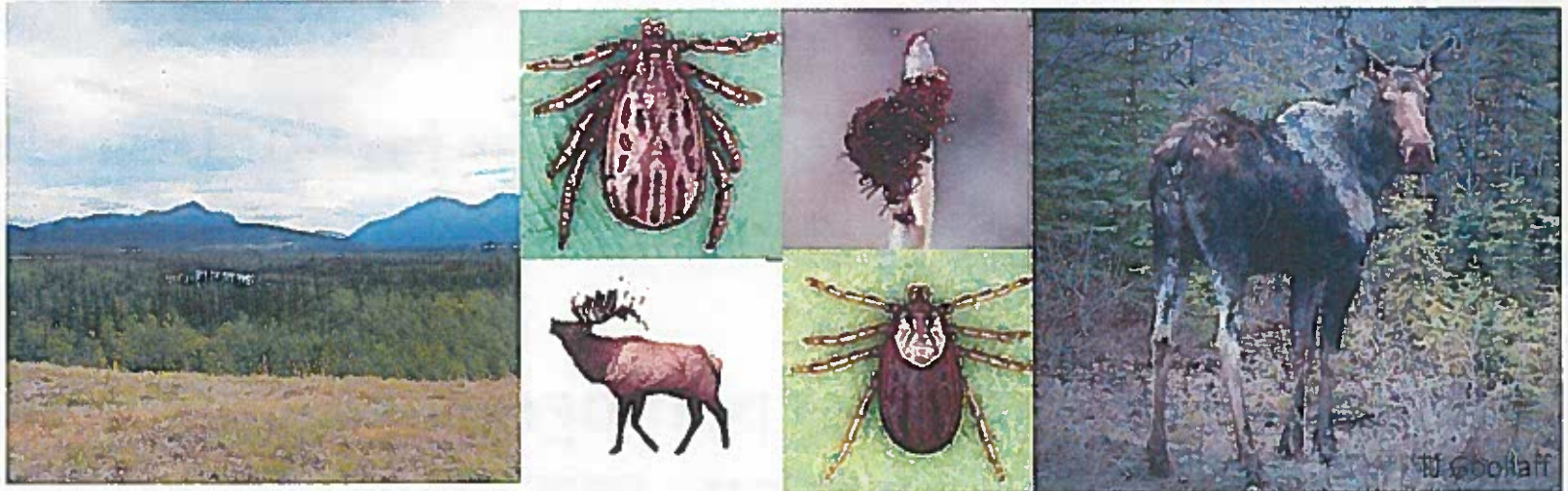


Signature



The Yukon Winter Tick Monitoring Project

Understanding the impacts of climate change on a wildlife parasite



Emily Chenery, Peter Molnar, **Jane Harms**, Meghan Larivee, Michelle Thompson, Julianna Campbell



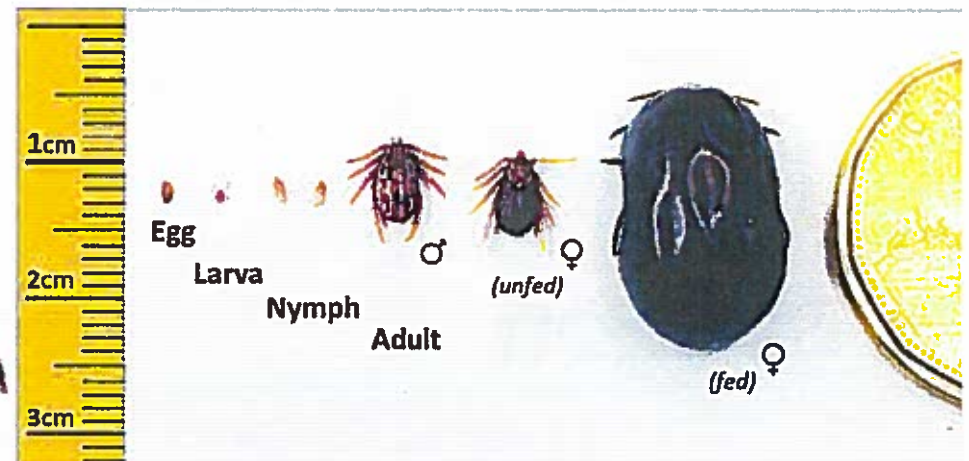
UNIVERSITY OF
TORONTO
SCARBOROUGH

What are Winter Ticks?

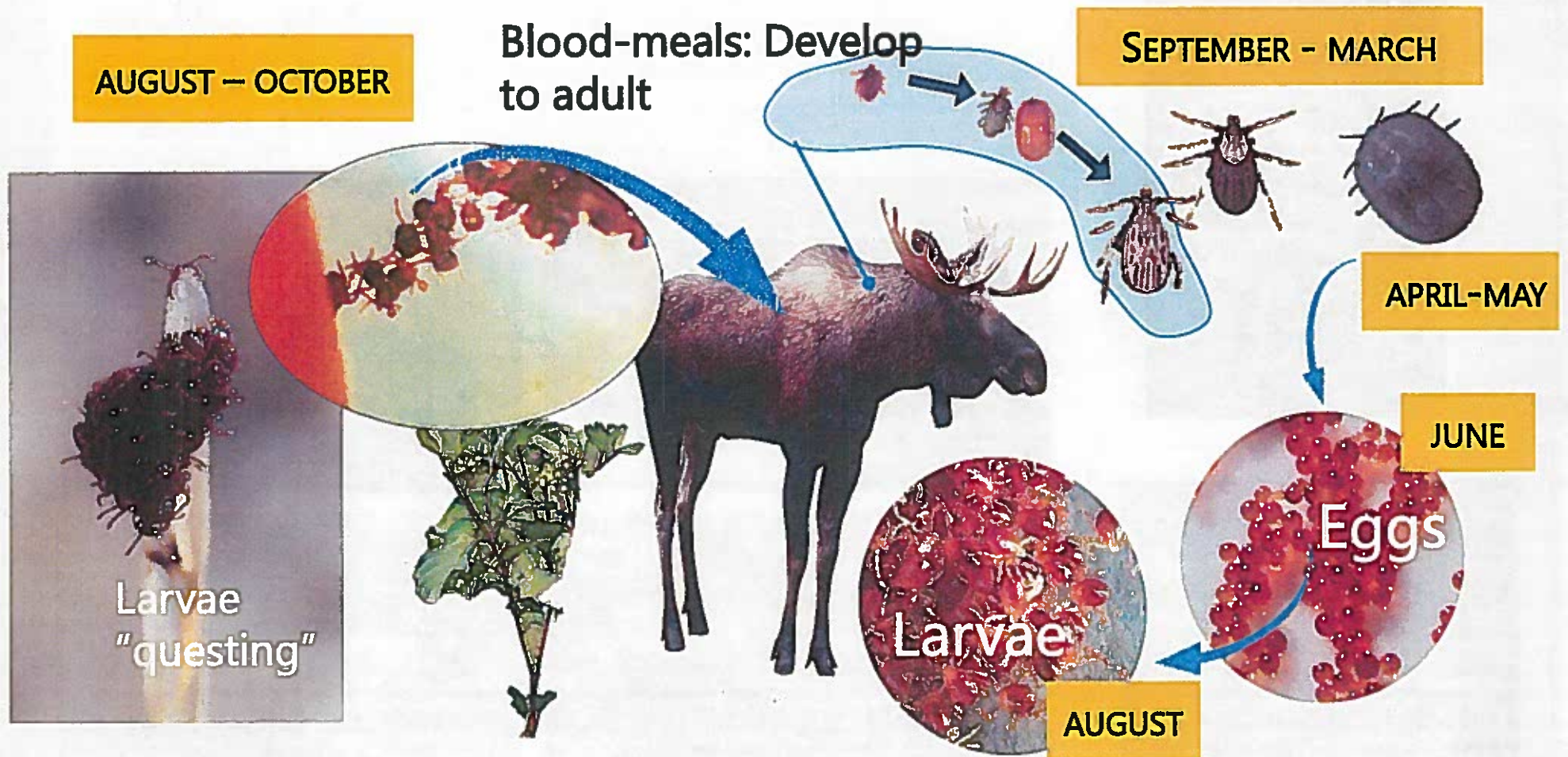
Blood feeding parasite with entire lifecycle on one host

Found on members of the deer family (deer, elk, moose, caribou)

Doesn't spread other pathogens, but can have severe health effects on host

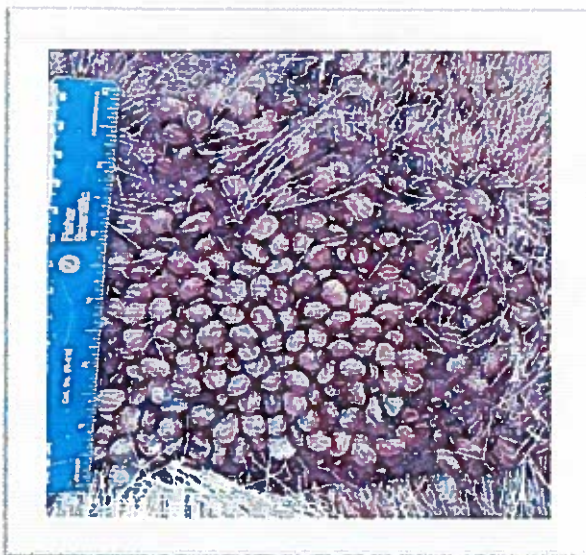
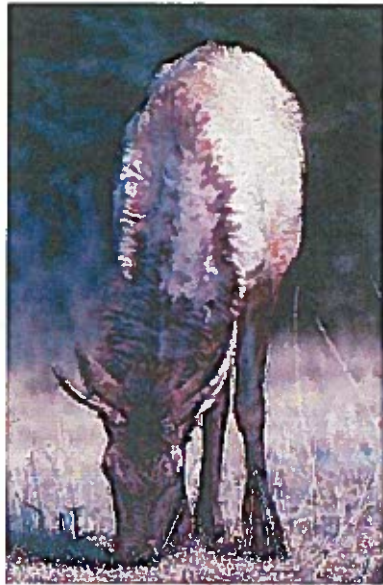


Winter Tick Life Cycle





Impacts on Hosts



Winter Ticks in Yukon

- Found throughout North America
- First report in Yukon in 1990s
- Introduced with elk from Alberta
- Also expanding range northwards from BC





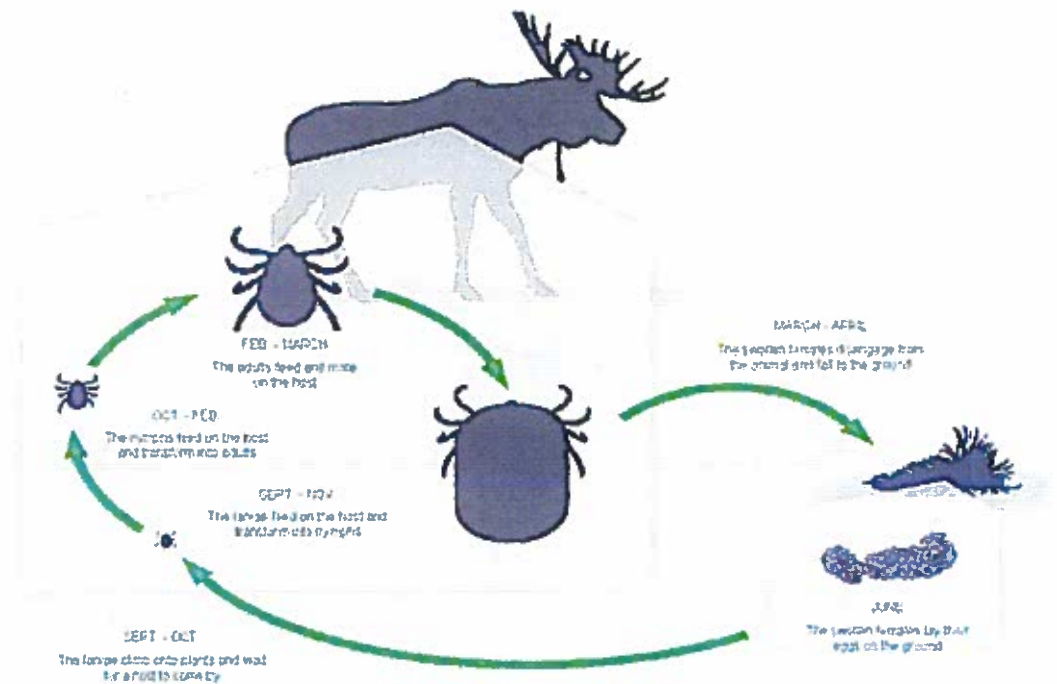
**Yukon
Winter Tick
Monitoring Project**

Yukon Winter Tick Monitoring Project

- **Winter ticks present in Yukon, here to stay**
- **What are effects on hosts, and how may things change with changing climate?**
 - **Expect a warmer, wetter climate to increase tick survival**
- **4 year collaborative project to study:**
 - **Where are ticks on the landscape?**
 - **How are hosts affected?**
 - **How are ticks affected by climate/temperature?**
 - **Use data to build models to estimate future scenarios**
 - **Use information from models to inform management**

Hunting Ticks

- On host – present and feeding on a host animal (Sept/Oct through to April/May)
- Off host – juvenile life stages, eggs and larvae, present in the environment on vegetation (May-Sept)

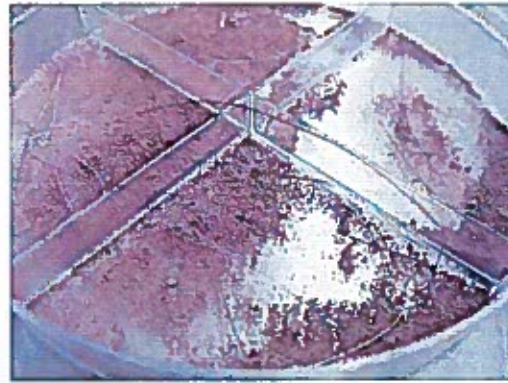


Winter Ticks on Host

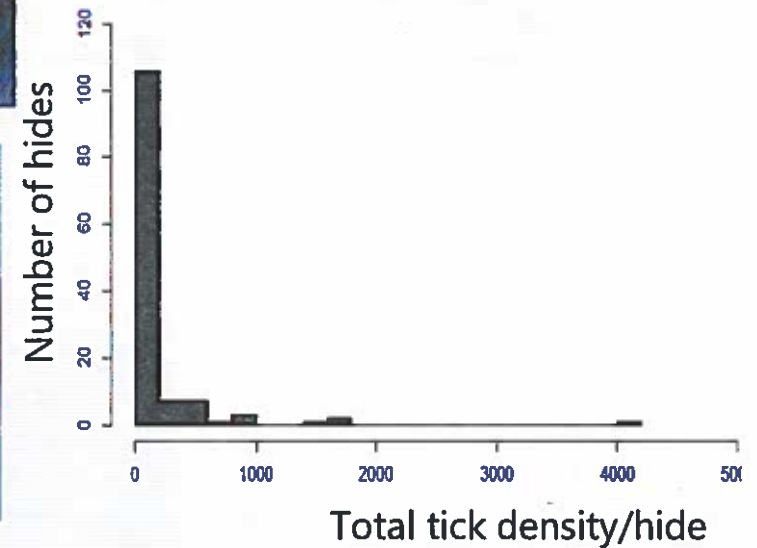
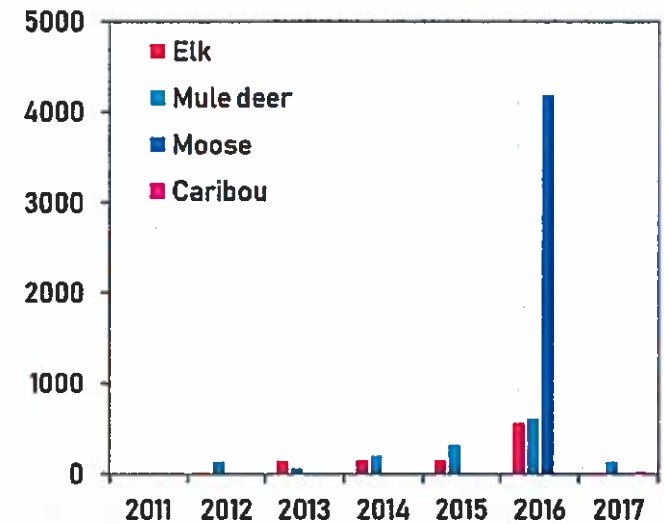




Winter Ticks on Host

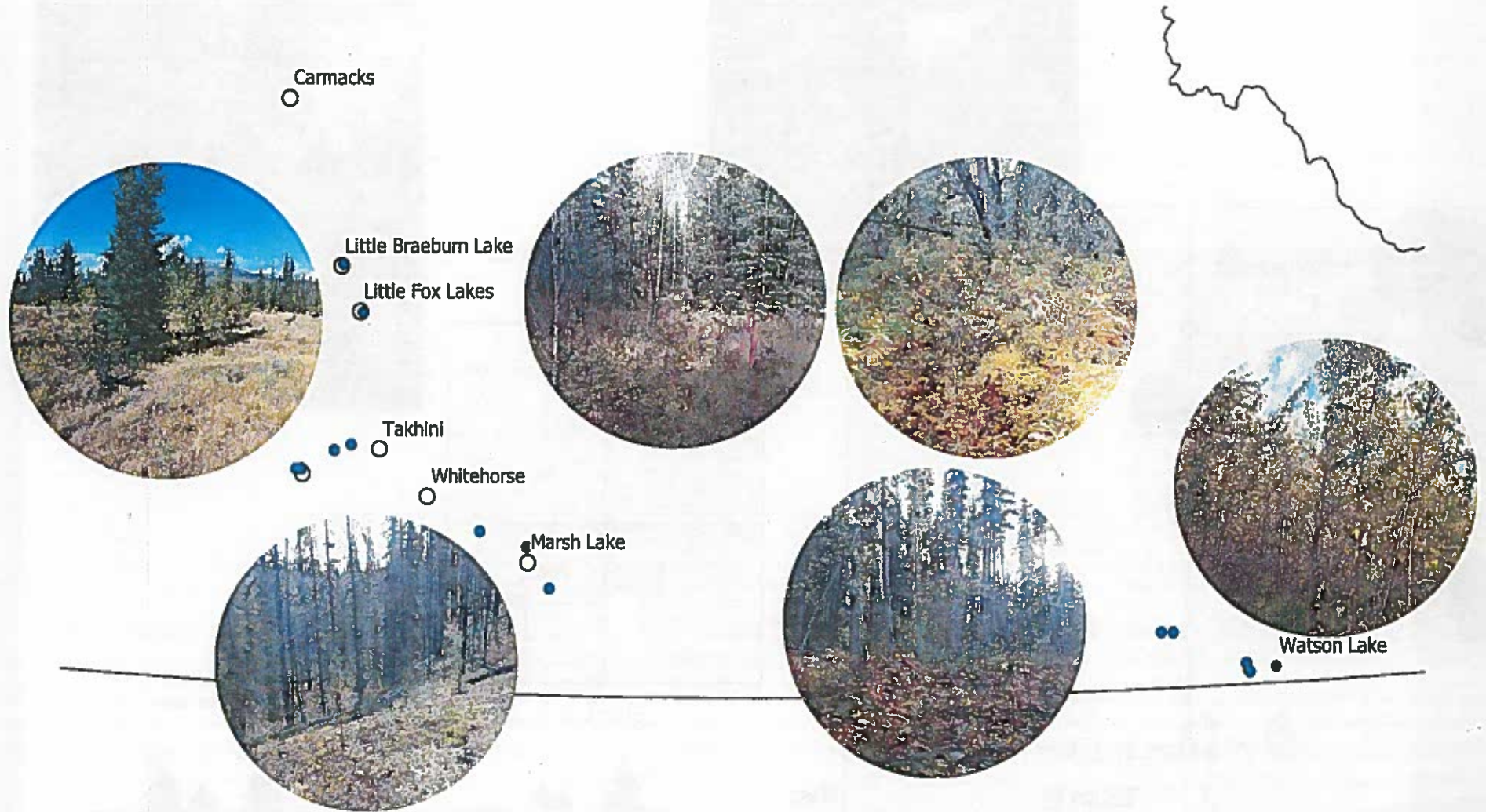


Estimated total winter tick density, based on tick count per hide





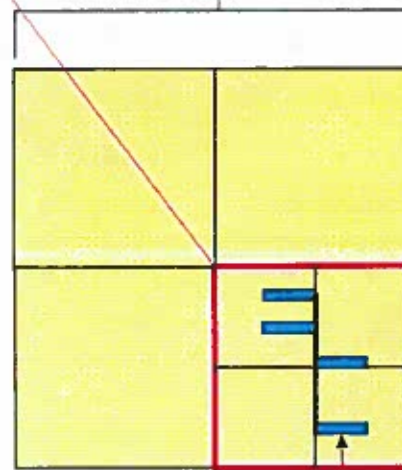
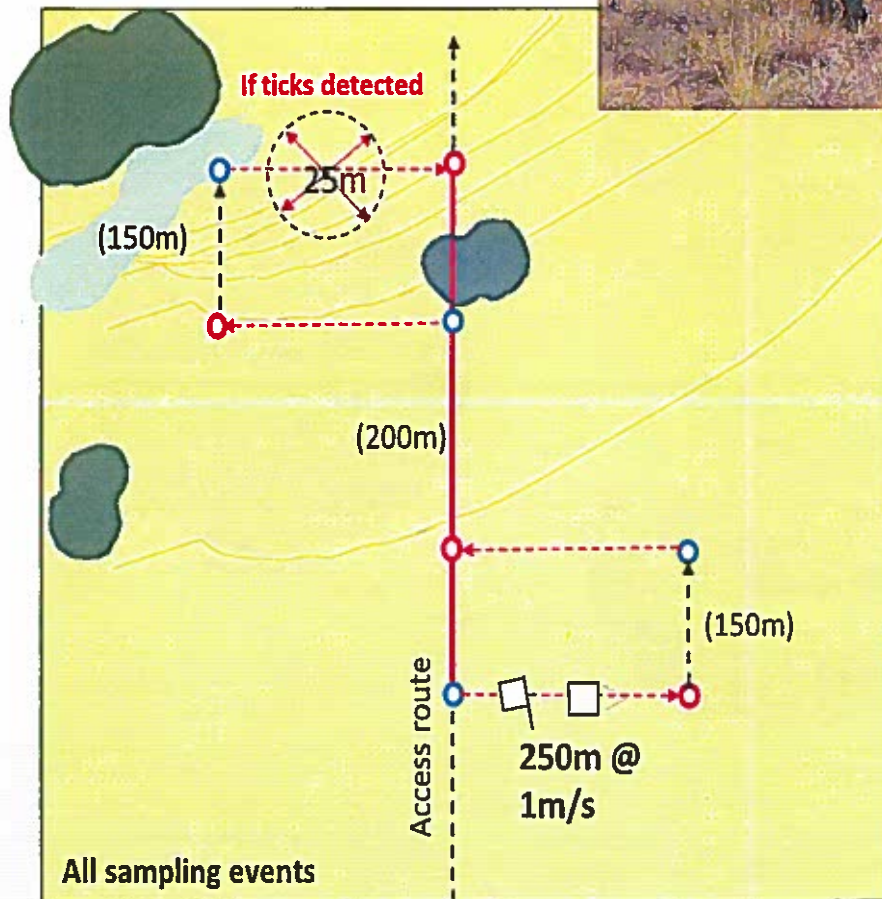
Winter Ticks off Host



Larval Sampling: Flag and Drag



4km Sampling area



1km sub-plot

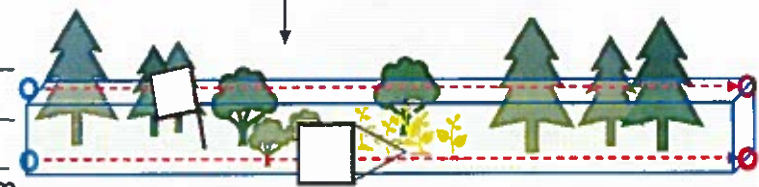
→ 500m access line from which 4 sub-transects taken

Flag:

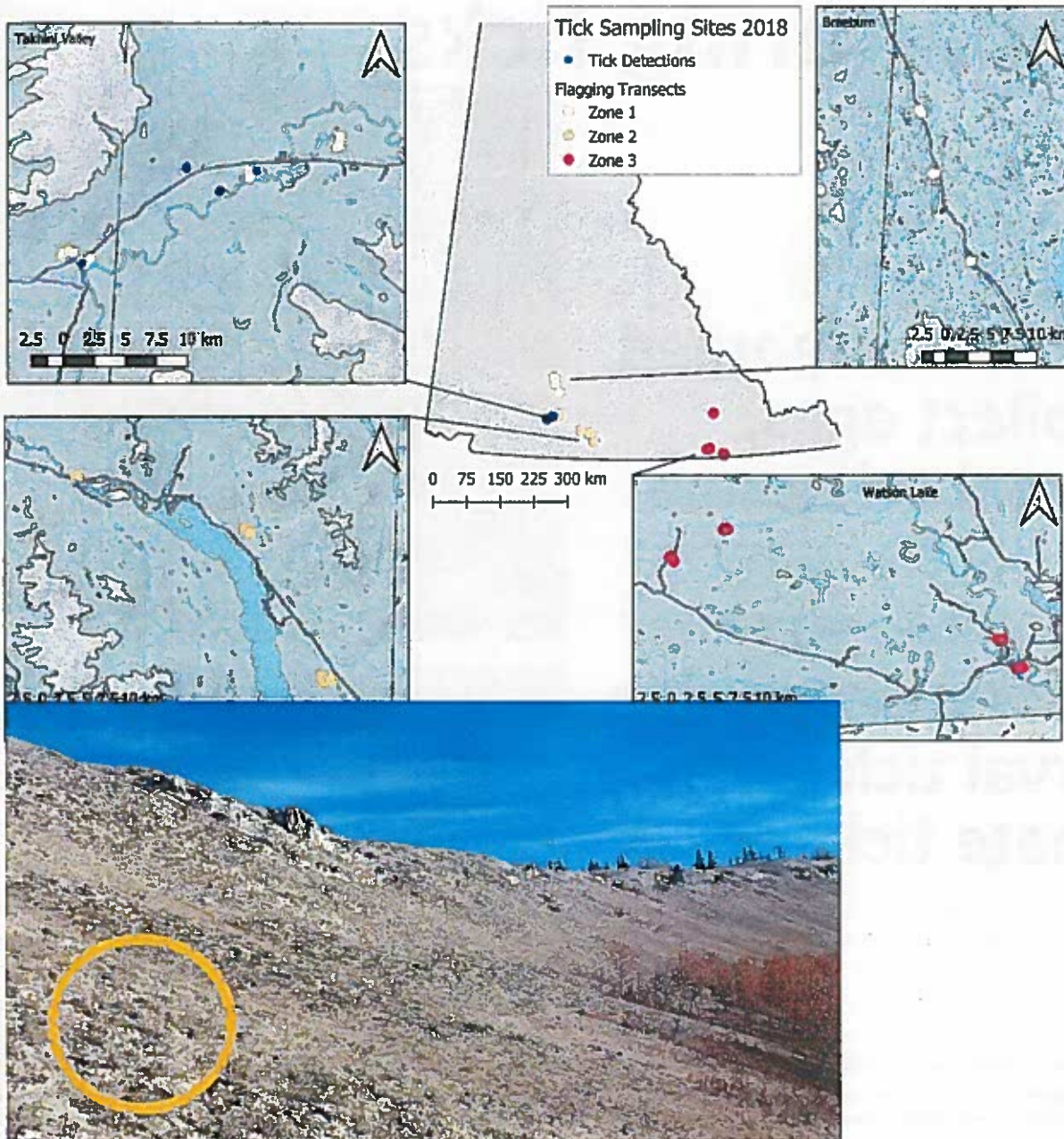
0.5-1.5m high

Drag:

below 0.5m



Results to date



- Larvae detected in four areas in Takhini elk core
- Average of 1,700 larvae collected per area
- All detections were within 1m of high-use game trails on south-facing slopes
- Aspen and grassland type vegetation
- Larvae detected on elk hide from Braeburn, mid-September



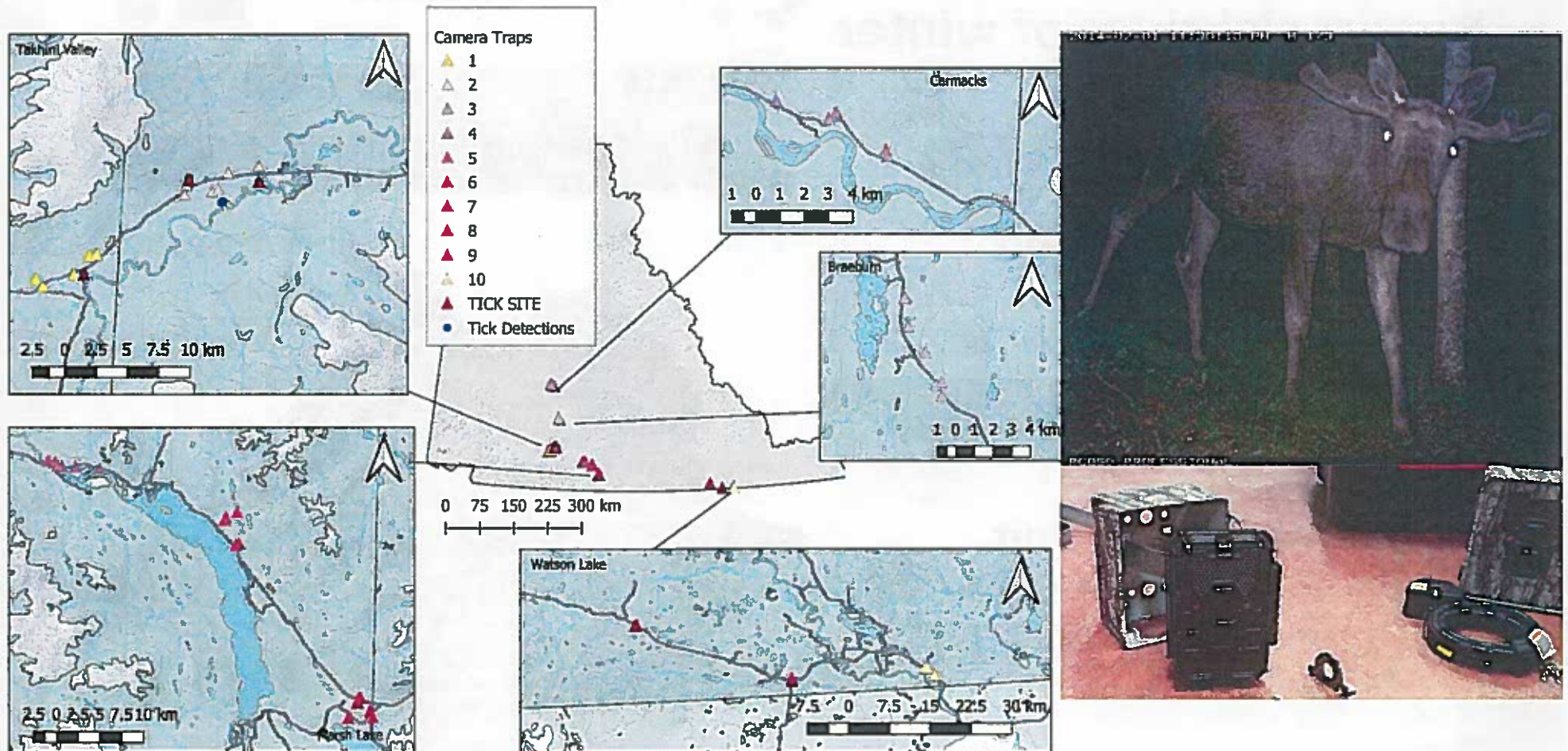
Next steps- Monitoring ticks

Collecting ticks in 2019

- April/May: Collection of engorged adult female ticks, collect eggs, hatch larvae for thermal tolerance experiments
- Fall: Collect larval ticks, determine spatial extent of larval tick presence and estimate tick densities



Next steps – Monitoring hosts



How you can help

- Report sightings of winter tick

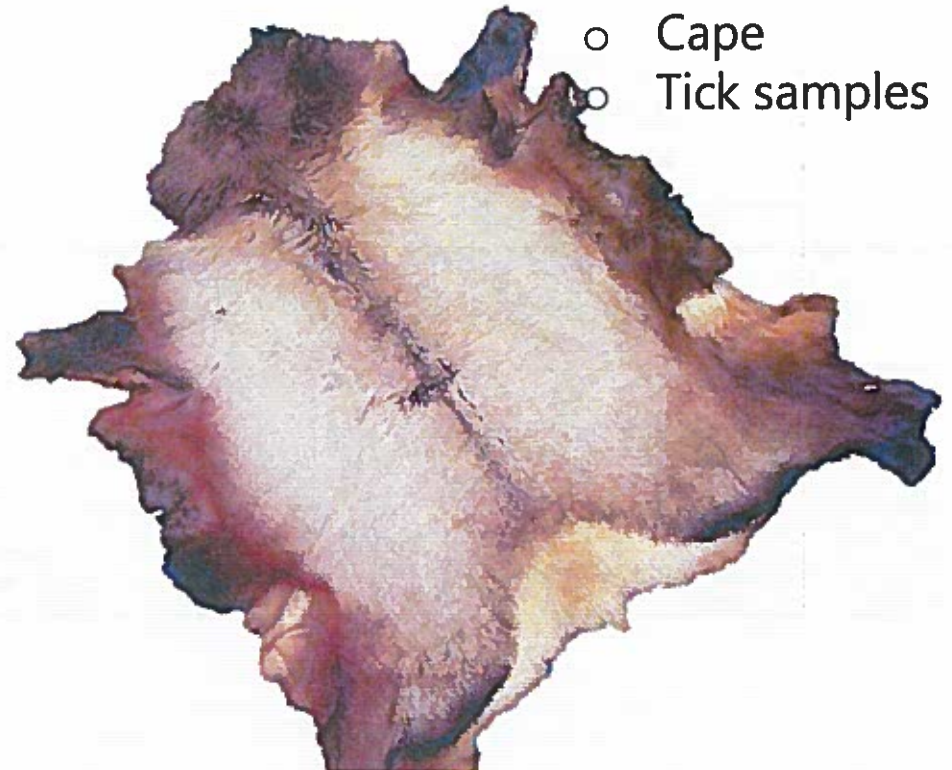
- iNaturalist
- Facebook
- Animal Health Unit
 - 867-667-5600
 - animalhealth@gov.yk.ca

- Submit hides for winter tick checks

- Animal Health Unit (Whitehorse)
- Regional Environment Offices



- Whole hide
- Cape
- Tick samples



Thank you!



@emilychenery

Animal Health Unit
867 – 667- 5600
animalhealth@gov.yk.ca

Support for research from:



Indigenous and
Northern Affairs Canada



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**Yukon
Winter Tick
Monitoring Project**

Wanted

- **Hides** (whole or cape)
 - Moose, deer, caribou
- **Photos**
 - Hair loss on animals
 - Ticks of any life stage



**As of
Oct 1st**

**SUBMIT A HIDE,
RECEIVE A GIFT!**

For every moose,
caribou or deer hide
you submit, that has
been hunted after Oct
1st, receive your choice
of a top quality **thermos**
or **2x game bags!**

Hides are not damaged &
can be returned to you.



Hide submissions to: Environment Yukon

- Animal Health Unit
(Whitehorse), OR
- Your Regional Environment
Office.



Scan me!

**Find out
more:**

iNaturalist.ca Yukon Winter Tick Monitoring Project
Call the Animal Health Unit 867-667-5600

 Follow us!

The Yukon Winter Tick Monitoring Project: Understanding the impacts of climate change on a wildlife parasite

Presenter: Jane Harms, Program Veterinarian, Environment Yukon Government

Co-authors:

Emily Chenery, Peter Molnar: University of Toronto

Meghan Larivee, Michelle Thompson, Julianna Campbell: Environment Yukon

Winter ticks (*Dermacentor albipictus*) are blood-feeding parasites of moose, elk, caribou and deer. Although winter ticks are naturally present throughout North America, they are relatively new to Yukon. Large numbers of ticks can have a negative effect on wildlife health, resulting in hair loss, blood loss, and possibly death of the host. Presently, winter ticks in Yukon are thought to be in low numbers, and no major impacts on moose or other hosts have been reported to date. However, the changing climate is resulting in warmer, wetter conditions with shorter winters in Yukon which could impact winter tick survival and impacts on hosts. This multi-year project will examine the current distribution of ticks in Yukon, determine the potential impact of *D. albipictus* on various cervid hosts, and describe ways in which climate change may alter these interactions in future. The first field season of this project found the presence of larval ticks in the environment for the first time in Yukon, and established a set of wildlife cameras in multiple locations in Yukon to monitor host animal movement and assess winter tick-induced patterns of hair loss. This project relies on collaboration with Yukoners to report hair loss in cervids and provide hides from harvested animals for analysis. Ongoing research will support our understanding of winter ticks in Yukon and will support strategies for future management.

ENVIRONMENT YUKON

Government of Yukon [Home](#) [About the Government](#) [State of the Environment Report: Fish and Wildlife](#) [Winter tick surveillance](#)

CAMPING & PARKS	HUNTING, FISHING & TRAPPING	ANIMALS & HABITAT	MANAGING AIR, WATER & WASTE	ENVIRONMENT & YOU	PUBLICATIONS & MAPS
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Yukon State of the Environment

Reporting on environmental indicators - 2018

HOME	CLIMATE CHANGE	AIR	WATER	LAND	FISH AND WILDLIFE	DOWNLOAD REPORTS
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MAMMALS

WINTER TICK SURVEILLANCE

[SIGNIFICANCE](#) [WHAT IS HAPPENING?](#) [TAKING ACTION](#)

Significance

Winter ticks (*Dermacentor albipictus*) are one-host external parasites that can be found on cervids such as elk, mule deer and moose in Yukon. These parasites can negatively affect host health when present in large numbers. Moose are especially vulnerable because they do not groom off larval stages of ticks. In some regions of Canada, winter ticks can be responsible for severe disease and mortality in moose.

To date, data suggests that winter ticks are not a major disease concern for Yukon cervids. By studying the distribution and occurrence of winter ticks in Yukon, we are monitoring how these parasites may affect Yukon's wild cervid populations and how their geographical distribution may change over time. This is especially important for species such as moose, which are a key harvest species in Yukon.

Winter ticks do not carry diseases of concern to humans or wildlife, nor do they negatively affect the meat of harvested animals. Winter ticks do not feed on people and are rarely found on domestic animals.



Weather may be an important factor in the tick-cervid relationship. Warmer temperatures in the summer and winter may support larger populations of cervids that carry ticks, and allow larval ticks to survive longer in the environment. A changing climate could influence vegetation patterns and winter temperatures, thereby influencing the distribution and presence of wildlife parasites like winter ticks.

What is happening?

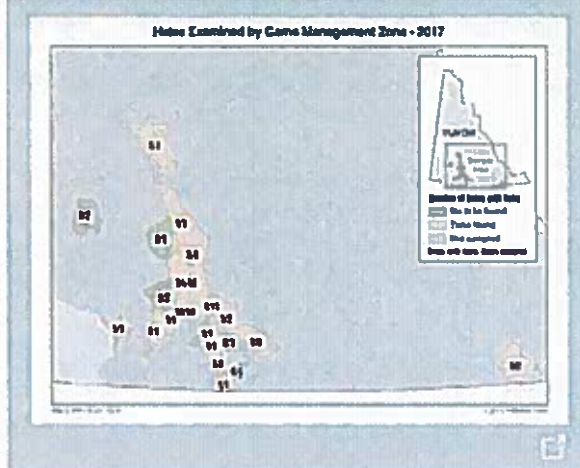
Winter ticks affect different species in different ways.

- In early autumn, elk and deer groom off larval ticks, which reduces tick numbers and minimizes negative health impacts.
- Moose only begin to groom off ticks once adult ticks are present (late winter), which can lead to high numbers of ticks on individual moose.
- Moose can experience severe disease associated with blood and hair loss from heavy tick burdens.

Since 2012, the Animal Health Unit has examined cervid hides to monitor winter tick geographical presence over time (Figure 1).

Hides examined for winter ticks between 2011 and 2017		
Species	Number of samples	Hides found with winter ticks
Mule deer	48	60% (29)
Moose	6	16% (1)
Elk	51	73% (35)
Caribou	8	13% (1)

FIGURE 1: The known distribution of winter ticks based on hides examined to date (collected between 2011-2017)



- Winter ticks are established on elk in Yukon. Winter ticks likely originated in Yukon from translocation of elk from central Alberta, and/or by range expansion from northern British Columbia and Alberta (Leo et al. 2014).
- Winter ticks have been found on harvested cervids in 15 out of the 21 Game Management Zones where hides have been examined.
- The Animal Health Unit uses an Index from 0 - 10 to describe the severity of winter tick burdens on the hides that are sampled. While the majority of hides have light burdens (indexed from 1 - 2) some have heavier burdens (indexed from 3 - 8), with one moose hide having 543 ticks, which corresponds to a burden ranging from 4,000 - 8,000 ticks (index of 8).

Taking action

The **Animal Health Unit** continues to monitor for winter ticks through assessment of cervid hides. Elk hides are a mandatory harvest submission, while deer, caribou and moose hides are submitted voluntarily.

So far, all of the hides examined have been from Southern Yukon (Figure 1), which has provided good baseline data on winter ticks in this region. In order to understand what is happening in other parts of Yukon, more hides from other areas are needed for this surveillance. Hunters from all over Yukon are encouraged to contact the Department of Environment to submit cervid hides for examination.



Data quality

The Animal Health Unit uses a standardized hair transect method to evaluate the level or severity of tick burden. The method can be used on hides, unsinned animals or live animals, which increases the number of animals that can be examined. The Animal Health Unit has used the adapted hair transect protocol on hides collected since 2011.

References

Leo, S., W. Samuel, M. Pybus, and F. Sperling. 2014. Origin of *Dermacentor Albipictus* (Acari:Ixodidae) on Elk in the Yukon, Canada. *Journal of Wildlife Diseases* 50(3):544-551.

[^ BACK TO TOP](#)