Citizen Scientist Engagement in Jackson Winter Tick-Moose Project

Overview:

We are looking for residents of Jackson, WY and the surroundings towns to participate in a scientific project studying the interactions between moose, winter ticks, and climate in the area. We are specifically asking local landowners to grant researchers permission to access their properties to survey for winter ticks and collect moose samples and related data. There are two main ways to engage with the project: 1) offering researchers permission to come onto your property to observe moose, collect samples, and survey for ticks 2) granting permission to create an experimental plot with deployed live winter ticks and tools to measure relative humidity and temperature. The exact nature of these project interactions is outlined below.

Winter tick surveys and moose observations/sample collection:

Winter ticks may be affecting moose health in the region and we are interested in determining where these ticks are on the landscape and what factors, such as habitat and climate variables, may be affecting their distribution. We are also interested in how these ticks may be affecting moose health, so we are collecting data from observations of moose as well as moose urine and feces samples to measure health. This part of the project involves periodic visits between March 17th and April 15th to collect winter ticks and moose samples. Visits would last no longer than 1 hour.

* Locate sites where moose have bedded down recently and recover fed adult female winter ticks
* Collect moose feces and snow urine samples
* Observe moose and record data on behavior, nutritional status, and hair loss

We would also visit properties in the Fall, from August 1st-October 15th, to collect questing larval winter ticks.

* Use a drag cloth (1 square meter cloth) to collect ticks off vegetation
* Collect any moose feces samples if present

Winter tick experimental plot:

In order to understand what habitat features and microclimate variables may affect winter tick survival, we will erect experimental plots with 20 fed adult winter ticks in them and record temperature and relative humidity throughout the deployment period. Plots would be erected and ticks deployed between March 17th and April 15th and winter ticks would be removed and the plot collected between August 1st and October 15th. Depending on the size and habitat features in a yard, multiple plots may be deployed per property. Winter ticks represent a low risk of attaching to humans or our pets since they prefer large deer species and can not move out from the experimental plot (winter tick larvae can mostly only move up on vegetation, not across a yard). Plots would consist of 1 square meter wire mesh cage equipped with a black globe thermometer and relative humidity data logger.

Black Globe Thermometer   
and Relative Humidity Logger

.5 m

1 m

1 m

Fig 1. Diagram of wire mesh experimental plot with black globe thermometer and relative humidity logger. These plots would be placed on residential properties in Spring 2020, have 20 adult female ticks deployed in them, then removed in Fall 2020 and resampled for questing larval ticks.

Participation:

If you are interested in participating in this project, please email me, Troy Koser, at [troykoser@montana.edu](mailto:troykoser@montana.edu) or text/call me at 5013582807. Please include if you’re interested in one or both of the projects outlined above. There are appropriate USGS permission forms for each project that you either received with this message or, if you have not received them yet, please email me and I can get those out to you. If you have any further questions, please do not hesitate to contact me and thanks for your interest!

Sincerely,

Troy Koser

PhD Student at Montana State University

Bozeman Disease Ecology Lab