OMB Control Number:

One Health Messaging about Perceived Risk of Ticks and Tick-borne Disease

Recruiter Script for in person interview

Hello, I am _____ from the Maine Medical Center and the National Park Service. We are conducting this survey to learn more about what visitors know about ticks and tick-borne diseases. Your participation in the study is voluntary. It should take about 15 minutes of your time to complete using this iPad/questionnaire. There are no penalties for not answering some or all questions, but because each participant will represent many others who will not complete the questionnaire, your input is extremely important. The answers you provide will remain anonymous. Our results will be summarized so that the answers you provide cannot be associated with you or anyone in your group or household. Before we start, are you at least 18 years old?

Please check the box below to indicate that you are at least 18 years old or older and understand the information above.

❍

PAPERWORK REDUCTION and PRIVACY ACT STATEMENT: The Paperwork Reduction Act requires us to tell you why we are collecting this information, how we will use it, and whether or not you have to respond. We are authorized by the National Park Service Protection Interpretation and research in System (54 USC §100702) to collect this information. The routine uses of this information will be for the benefit of NPS Managers and planning staff of Acadia National Park in future initiatives related to the visitor use and resource management within the site. The data collected will be summarized to evaluate visitor uses and expectations during their visit at JICA. Your responses to this collection are completely voluntary and will remain anonymous. You can end the process at any time and will not be penalized in any way for choosing to do so. All contact information collected for the purpose of the follow-up survey will be destroyed at the end of the collection period and no personal identifiable records will be maintained or stored for any purposes. Data collected will only be reported in aggregates and no individually identifiable responses will be reported. A Federal agency may not conduct or sponsor, and you are not required to respond to, a collection of information unless it displays a currently valid OMB Control Number (1024-0224). We estimate that it will take about 10 minutes to complete and return this on-site questionnaire. You may send comments concerning the burden estimates or any aspect of this information collection to: Dr. Danielle Buttke, One Health Coordinator, National Park Service, 1201 Oakridge Drive, suite 200, Fort Collins, CO, 80524 or Danielle_buttke@nps.gov (email); or Phadrea Ponds NPS Information Collection Coordinator at pponds@nps.gov (email).

One Health Messaging about Ticks and tick-borne Diseases

Once the respondent consents to participate in the survey, one of five prepared messages (see appendix for Messages 1-5) will be randomly selected and presented by the survey software. The respondent will read the message and then answer the questions that follow. If the respondent receives the "no message" treatment (or Message #6), that respondent will start the survey without reading a message.

Message 1

- Lyme disease and other tick-borne diseases are on the increase in the northeastern United States. These diseases are spread by the bite of infected ticks, particularly the black-legged (or deer) tick, which is the only tick that transmits Lyme disease in the eastern US.
- Black-legged ticks need to be attached for 36-48 hours to transmit Lyme disease to people and pets,
- Black-legged ticks are not found universally across the landscape, but tend to be more abundant in wooded areas and areas with dense shrubbery.
- You can protect yourself, children and pets by performing regular ticks when coming in from outdoors. Repellents applied to clothing or skin and wearing light-colored clothing to easily detect and remove ticks can also help to reduce your exposure to ticks.

Message 2: Focus on local risk of acquiring Lyme disease

- Lyme disease and other tick-borne diseases are on the increase in the northeastern United States. These diseases are spread by the bite of ticks, particularly the black-legged (or deer) tick *Ixodes scapularis*.
- Black-legged ticks need to be attached for 36-48 hours to transmit Lyme disease to people and pets.
- Black-legged ticks are not found universally across the landscape, but tend to be more abundant in wooded areas and areas with dense shrubbery.
- A recent study found about 18% of ticks in Acadia National Park were infected with Lyme disease while another study found a nearby site contained ticks with Powassan encephalitis virus.
- You can protect yourself, children and pets by performing regular ticks when coming in from outdoors. Repellents applied to clothing or skin and wearing light-colored clothing to easily detect and remove ticks can also help to reduce your exposure to ticks.

Message 3: Focus on Powassan virus

- Lyme disease and other tick-borne diseases are on the increase in the northeastern United States. These diseases are spread by the bite of ticks, particularly the blacklegged (or deer) tick Ixodes scapularis. All bacterial diseases spread by ticks, such as Lyme disease, anaplasmosis, and babesiosis, are treatable with antibiotics.
- Blacklegged ticks need to be attached for 36-48 hours to transmit Lyme disease to people and companion animals.
- Blacklegged ticks are not found universally across the landscape, but tend to be more abundant in wooded areas and areas with dense shrubbery.
- Powassan encephalitis virus is a new, emerging disease that is spread by ticks. Powassan virus may cause long-term neurologic consequences, if contracted. Recently, a fatality from Powassan was reported from Maine's coast. As a virus, Powassan is not treatable with anti-biotics and may be transmitted in under 12 hours following tick attachment.
- You can protect yourself, children and pets by performing regular ticks when coming in from outdoors. Repellents applied to clothing or skin and wearing light-colored clothing to easily detect and remove ticks can help to reduce your exposure to ticks.

Message 4: Focus on local risk of Lyme disease and One Health message

- Lyme disease and other tick-borne diseases are on the increase in the northeastern United States. These diseases are spread by the bite of ticks, particularly the black-legged (or deer) tick Ixodes scapularis.
- Black-legged ticks need to be attached for 36-48 hours to transmit Lyme disease to people and companion animals.
- Black-legged ticks are not found universally across the landscape, but tend to be more abundant in wooded areas and areas with dense shrubbery. Areas with shrubs like the non-native Japanese barberry, are particularly problematic.
- A recent study found about 18% of ticks in Acadia National Park were infected with Lyme disease while another study found a nearby site contained ticks with Powassan encephalitis virus.
- While ticks acquire the Lyme bacterium from rodents and birds, ticks need white-tailed deer as a food source to lay their eggs and make more ticks. Some studies have found that deer overpopulation due to the loss of predators and forest changes has in part driven the increase in tick numbers. Recent studies have found that healthier forests with more natural predators have lower rates of tick-borne disease.
- You can protect yourself, children and pets by performing regular ticks when coming in from outdoors. Repellents applied to clothing or skin and wearing light-colored clothing to easily detect and remove ticks can also help to reduce your exposure to ticks.

Message 5: Focus on Powassan plus One Health message

- Lyme disease and other tick-borne diseases are on the increase in the northeastern United States. These diseases are spread by the bite of ticks, particularly the black-legged (or deer) tick Ixodes scapularis. All bacterial diseases spread by ticks, such as Lyme disease, anaplasmosis, and babesiosis, are treatable with antibiotics.
- Black-legged ticks need to be attached for 36-48 hours to transmit Lyme disease to people and companion animals.
- Black-legged ticks are not found universally across the landscape, but tend to be more abundant in wooded areas and areas with dense shrubbery. Areas with shrubs like the non-native Japanese barberry, are particularly problematic.
- Powassan encephalitis virus is a new, emerging disease that is spread by ticks. Powassan virus may cause long-term neurologic consequences, if contracted. Recently, a fatality from Powassan was reported from Maine's coast. As a virus, Powassan is not treatable with anti-biotics and may be transmitted in under 12 hours following tick attachment.
- While ticks acquire the Powassan virus primarily from rodents, ticks need white-tailed deer as a food source to lay their eggs and make more ticks. Some studies have found that deer overpopulation due to the loss of predators and forest changes has in part driven the increase in tick numbers. Recent studies have found that healthier forests with more natural predators have lower rates of tick-borne disease.
- You can protect yourself, children and pets by performing regular ticks when coming in from outdoors. Repellents applied to clothing or skin and wearing light-colored clothing to easily detect and remove ticks can also help to reduce your exposure to ticks

Thank you for helping us with this study. The National Park Service is interested in understanding how people respond to materials that are used to communicate information about the risk of tick-borne disease and what people find most useful to make informed decisions about healthy activities. Your responses will help us to design better public health prevention materials. Below is a short message about the risk of ticks. We would like for you to read the message and answer the questions that follow.

1 How likely are you to engage in the following actions related to ticks in the next year?

	Very Unlikely	Unlikely	Neutral	Likely	Very Likely	Not applicable
Gardening or landscaping at my residence.	❍	❍	❍	❍	❍	❍
Hiking and walking out of doors.	❍	❍	❍	❍	❍	❍
Use some method of tick management around my home.	❍	❍	❍	❍	❍	❍
Seek out more information about ticks.	❍	❍	❍	❍	❍	❍
Talk to others about ticks.	❍	❍	❍	❍	❍	❍
Attend an informational meeting about tick-borne disease.	❍	❍	❍	❍	❍	❍
Avoid going places where I might encounter ticks.	❍	❍	❍	❍	❍	❍
Use bug spray to reduce contact with ticks.	❍	❍	❍	❍	❍	❍
Perform tick checks to reduce contact with ticks.	❍	❍	❍	❍	❍	❍

2 (Similar to RecEXP3): How likely are you to engage in the following behaviors in the next year?

	Very Unlikely	Unlikely	Neutral	Likely	Very Likely	Not applicable
Volunteer to reduce my use of a favorite spot in a park or natural area if it needs to recover from environmental damage	❍	❍	❍	❍	❍	❍
Participate in a public meeting about managing a park or natural area	❍	❍	❍	❍	❍	❍
Write letters in support of a park or natural area	❍	❍	❍	❍	❍	❍
Volunteer my time to projects that help a park or natural area	❍	❍	❍	❍	❍	❍

3 Please rate your level of concern for tick borne disease. (Select one number).

	Not all concerned	Slightly concerned	Moderately concerned	Very Concerned	Extremely Concerned	Not applicable
Lyme disease	1	2	3	4	5	0

Anaplasma	1	2	3	4	5	0
West Nile Virus	1	2	3	4	5	0
Powassan Virus	1	2	3	4	5	0

4. (How often would you say you protect yourself against tick bites when ticks are out?

	Always	Sometimes	Never
Avoid activities that might expose me to ticks	❍	❍	❍
Avoid recreating outside	❍	❍	❍
Use personal insect repellent (bug spray)	❍	❍	❍
Tuck pants into socks	❍	❍	❍
Wear light-colored clothing	❍	❍	❍
Perform tick checks after being outside	❍	❍	❍

5. In this section, we'd like to know how you feel in general about wildlife issues. Below are statements representing different ways that people might think about wildlife. Even if you don't know or care much about wildlife, we are interested in your opinions. (Select one number for each statement.)

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
All animals have a right to live.	❍	❍	❍	❍	❍
As humans, we have a moral obligation to ensure that we do not cause the extinction of other species.	❍	❍	❍	❍	❍
The Earth's fragile ecosystems can be disrupted by very small changes in the balance of species.	❍	❍	❍	❍	❍
Losing one species will have far-reaching effects on the ecosystem as a whole.	❍	❍	❍	❍	❍
The Earth's remaining ecosystems should be conserved at all costs.	❍	❍	❍	❍	❍
Plants and animals exist primarily to be used by humans.	❍	❍	❍	❍	❍
Every species has equal value and an equal right to exist.	❍	❍	❍	❍	❍

6. Would you agree or disagree that the risks that ticks pose to humans are:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Controllable	❍	❍	❍	❍	❍
Immediate	❍	❍	❍	❍	❍
Known to science	❍	❍	❍	❍	❍
Increasing	❍	❍	❍	❍	❍
Avoidable	❍	❍	❍	❍	❍
Visible	❍	❍	❍	❍	❍
Dreadful	❍	❍	❍	❍	❍

7. Concern about tick borne disease has caused me to:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Change my outdoor behavior	❍	❍	❍	❍	❍
Stop recreating outdoors	❍	❍	❍	❍	❍
Keep my family out of tick-prone areas	❍	❍	❍	❍	❍
Reduce my outdoor activity	❍	❍	❍	❍	❍
Change where and when I recreate outdoors	❍	❍	❍	❍	❍
Change my feelings about wildlife	❍	❍	❍	❍	❍
Increase personal protection activities against ticks	❍	❍	❍	❍	❍

8. Of the following, which factors would you say are causing the greatest increase in ticks and tick-borne disease?

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Climate change	❍	❍	❍	❍	❍
Overabundant white-tailed deer	❍	❍	❍	❍	❍
Increased rodent populations	❍	❍	❍	❍	❍
Human development of landscapes	❍	❍	❍	❍	❍
Available tick habitat	❍	❍	❍	❍	❍
Not sure	❍	❍	❍	❍	❍
Other	❍	❍	❍	❍	❍

9. Prior to this visit, were you aware that some ticks carry diseases?

- O Not aware
- O Somewhat aware
- O Very aware

10 (Similar to GROUP8): Have you, or a close family member, ever been diagnosed with the following tick-borne disease?

	Yes	No	Don't Know
Lyme disease	❍	❍	❍
Anaplasma	❍	❍	❍
Babesia	❍	❍	❍
Other	❍	❍	❍

11. Have you found ticks while visiting Acadia National Park?

- O Yes
- O No

11b. If yes, which region of the park were ticks found (check all that apply):

- O Hull's Cover
- O Sieur de Monts
- O Jordan Pond
- O Sand Beach
- O Cadillac Mountain
- O Echo Lake
- O Beech Mountain
- O Blackwoods Campground
- O Seawall Campground
- O Other_____
- O Not Sure

12. Recalling the message you read, what habitats were you most likely to find deer ticks in? Please select one response.

- O Forests
- O Grassy meadows
- O Beaches
- O Ticks are not present

13. Recalling the message you read, is Lyme disease or Powassan virus more common in Maine?

- O Lyme
- O Powassan
- O Neither is present

14. Recalling the message you read, how long does a tick need to be attached to transmit Lyme disease? Please select only one response.

- O 1-12 hours
- O 13-24 hours
- O >24 hours
- O These ticks do not transmit Lyme disease

15. What did you think about the message you read at the beginning of the survey?

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The message I read was clear.	❍	❍	❍	❍	❍
The message I read was informative.	❍	❍	❍	❍	❍
This message I read was persuasive.	❍	❍	❍	❍	❍

16. What is your gender? Please select one.

- O Male
- O Female

17. What is your age (in years)?

18. Are there children in your home?

19 (What is the highest level of school you have completed?

- O Grade 8 or lower
- O Some high school, no diploma
- O High school diploma or equivalent
- O Some college, no degree
- O Associate degree
- O Bachelor's degree
- O Master's degree
- O Professional degree
- O Doctorate degree

20. Which category best represents your annual household income? Please mark only one.

- O Less than $24,999
- O $25,000 to $34,999
- O $35,000 to $49,999
- O $50,000 to $74,999
- O $75,000 to $99,999
- O $100,000 to $149,999
- O $150,000 to $199,999
- O $200,000 or more

21. Are you Hispanic or Latino?

- O No
- O Yes

22. Which of these categories best indicates your race?

- O American Indian or Alaska Native
- O Asian
- O Black or African-American
- O Native Hawaiian or other Pacific Islander
- O White

23. What language is most frequently spoken in your home?

- O English
- O Other

25. Have you visited an NPS site before today?

- O Yes
- O No

26. If yes, how many times have you visited an NPS site in the past year?

- O This is first visit to an NPS site
- O Once
- O 2-5 times
- O 6-10 times
- O More than 10 times

27. On this visit, what kind of personal group (not guided tour/school group) are you with?

- O Alone
- O Family
- O Friends
- O Family and friends
- O Others (please specify) _____

28. Which of the following best describes your residency on Mount Desert Island? Check one.

- O Permanent Resident
- O Summer Resident (returning annually for 1-6 months)
- O Not a Resident

29. Which region of the country do you live in? (Please select one response)

- O Midwest –(IA, IL, IN, KS, MI, MN, MO, ND, NE, OH, SD, WI)
- O Northeast – (CT, DC, DE, MA, MD, ME, NH, NJ, NY, PA, RI, VT)
- O Southeast – (AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, VA, WV)
- O Southwest – (AZ, NM, OK, TX)
- O West – (AK, CA, CO, HI, ID, MT, NV, OR, UT, WA, WY)
- O Other

30. Which of these activities did you participate in on this trip?

- O Fishing
- O Hiking on trails
- O Speed hiking
- O Hiking in a trail-less area (i.e., cross-country)
- O Technical mountain climbing (i.e., using ropes and special gear)
- O Non-technical mountain climbing (i.e., without using ropes and special gear)
- O Kayaking
- O Trail running

31. Does concern about ticks make you hesitate to recreate outdoors?

- O Yes
- O No
- O Unknown

Thank you for participation in this study about ticks and tick-borne diseases.