**First Off-host Survey for Winter Ticks (Dermacentor albipictus) in the Western United States

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Shiras moose (*Alces alces shirasi*) hunting success in parts of Wyoming, Idaho, and Montana has declined over the past decade indicating a potential regional population decrease. Several likely contributing factors such as increased road mortality, habitat changes, and predation have been researched, but few studies have investigated the synergistic threat from climate change and parasites. The winter tick (Dermacentor albipictus) is a well-known ectoparasite of moose which has caused population declines during epizootic years in the Northeast and Midwest, but little is known about winter tick infestation impacts on Shiras moose and which environmental variables may drive epizootics in the Rocky Mountain West. In this study we conduct the first survey for the environmentally vulnerable off-host stages of winter ticks in Shiras moose habitat in Jackson Hole, Wyoming. Our objectives were to 1) verify the efficacy of known winter tick survey techniques in the West, 2) record the questing window for host-seeking larvae, and 3) identify potential environmental correlates with winter tick distribution, abundance, and activation. Winter ticks were first detected on September 21st and remained active until survey efforts halted on November 24th. Of the more than 7,000 ticks collected, 67% came from grasses or forbs, 19.4% from non-willow shrubs, and 13.6% from willow. Larvae were found questing on vegetation protruding from deep snowpack in temperatures as low as 5º C. Data on questing window and microclimate thresholds can be used to model winter tick epizootics in the future under different climate scenarios while habitat associations can be used by moose managers to target conservation interventions.