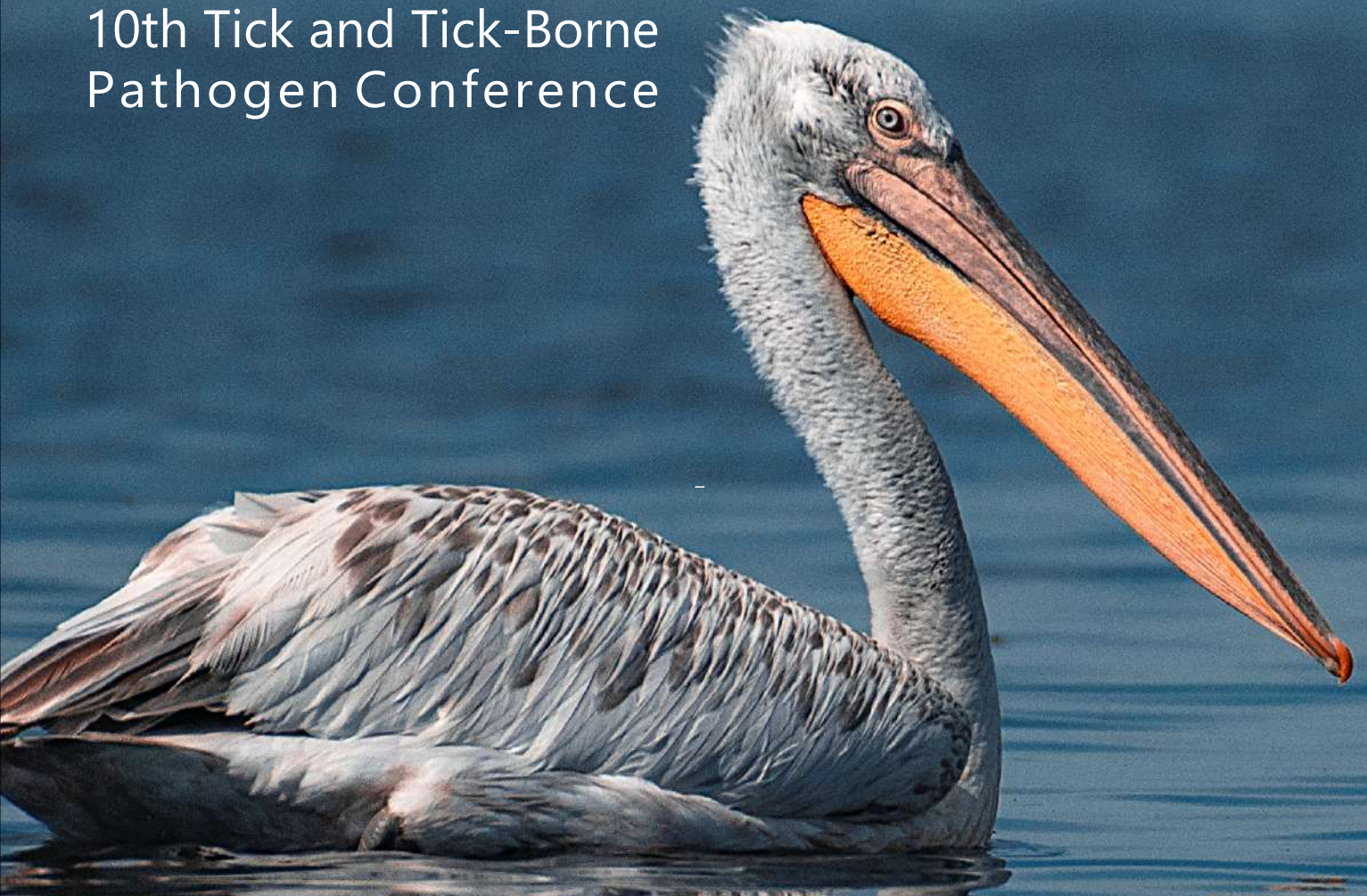


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EE40 Zoonotic tick-borne pathogens in ticks from vegetation and Alpine ibex (*Capra ibex*) in the Maritime Alps, Italy

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As part of a project aimed to conservation of the Alpine ibex (*Capra ibex*), we assessed the presence of ticks in the Natural Park of the Maritime Alps (Piedmont, Italy), by collecting them from vegetation and ibex, captured in late spring and early summer. *Ixodes ricinus* was the most abundant and widespread questing species (94.5% of 658 collected ticks), followed by *Haemaphysalis punctata* and *Dermacentor marginatus*. The former was collected from 780 up to 1824 m a.s.l. Beechwoods were the tick preferred habitat, followed by firwoods and stone-pinewoods. Tick abundance significantly decreased with altitude. Twenty-eight of 72 ibexes were infested by *I. ricinus* (87.4% of 143 collected ticks), *H. punctata* (10.5%) and *Haemaphysalis sulcata* (2.1%). By molecular analysis, *Borrelia burgdorferi* s.l. was identified in questing *I. ricinus* (28.3%; 95%CI: 19.4-38.6), namely *B. afzelii*, *B. garinii*, *B. valaisiana* and *B. lusitaniae*. The pathogen was not present in *I. ricinus* collected on animals. *Rickettsia* spp. (*R. helvetica* and *R. monacensis*) was detected in both questing *I. ricinus* (20.6%; 95%CI: 12.9-30.3) and ticks from ibex (30.2%; 95%CI: 21.2-40.4). *Rickettsia monacensis* was identified in questing *H. punctata*. Finally, *Anaplasma phagocytophilum* was detected in 4.3% (95%CI: 1.2-10.8) of questing *I. ricinus*, and in 45.3% (95%CI: 34.6-56.4) of *I. ricinus* collected from ibex. *Ixodes ricinus* females collected from animals were significantly more infected by *A. phagocytophilum* than females collected from vegetation (OR=11.7; 95%CI: 3.8-48.1). Ecotype I was detected in ticks from animals, ecotype II in questing ticks. Our study indicates that different tick-borne zoonotic agents are present in the Park territory with a wide altitudinal range, as confirmed by ticks found on a typical mountain-dwelling mammal. The significantly higher prevalence of *A. phagocytophilum* in ticks from ibex compared to questing ticks suggests that ibex could have a reservoir role, similar as other wild ungulate species; ecotype I, prevalent in our sample, is considered zoonotic. On the other hand, the detection of *B. burgdorferi* s.l. limited to questing ticks suggests that ibexes, as other wild ruminants, are not competent hosts for this bacterium. Our results confirm the presence of *I. ricinus*, *H. punctata* and *D. marginatus* in the study area, where they had been already reported 30 years ago, and signal *H. sulcata* as an additional species. Moreover, the study further documents the expansion of ticks and associated pathogens to high altitudes in the Alps. Tourists visiting the park and all professionals operating in the investigated area should be made aware of the existing hazard.