

## Variability in ornamentation of adult *Dermacentor parumapertus* Neumann (Acari: Ixodidae): implications for tick identification

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### Abstract

The hard tick *Dermacentor parumapertus* is an ectoparasite commonly found on hares and rabbits and occurs over much of the western United States. These ticks are rarely encountered except by hunters or scientists collecting rabbits for study. Herein we describe 74 adult *D. parumapertus* ticks (21F, 53M) removed from 8 black-tailed jackrabbits, *Lepus californicus*, in central Utah, and 13 adult *D. parumapertus* (7F, 6M) found on 4 *L. californicus* in western Texas. The Utah ticks were barely ornamented. Females displayed only slight gray ornamentation near the posterior edge of the scutum and whitish-gray spots distally on the femur of legs II, III, and IV; males were completely devoid of any ornamentation. In contrast, Texas specimens were richly ornamented in white, closely resembling *D. variabilis*. Females were brightly marked with white (not gray) on the scutum and had white spots distally on all femurs. Males from Texas were variously ornamented along the posterolateral margins of the scutum and displayed white spots distally on all femurs. Documentation of this variability in ornamentation in *D. parumapertus* is important, particularly as white-marked specimens can easily be confused with *D. variabilis* and since both species have been reported from rabbit hosts.

**Key words:** *Dermacentor parumapertus*, sampling, identification, ornamentation, Utah, Texas

### Introduction

The hard tick *Dermacentor parumapertus* Neumann (Acari: Ixodidae) occurs throughout much of the Great Basin of the western United States. Adults are relatively host-specific and commonly found on hares and rabbits, particularly the black-tailed jackrabbit, *Lepus californicus* Gray. For this reason, these ticks are rarely encountered except by hunters or scientists collecting rabbits for study. Records of *D. parumapertus* are relatively scarce and little information is available about their taxonomy, biology, and ecology beyond the work conducted in the first half of the 20<sup>th</sup> Century (Hooker *et al.* 1912, McCampbell 1926, Cooley 1938, Fremling & Gastfriend 1955). Historically, a “variety” of *D. parumapertus* called *D. parumapertus* var. *marginatus* was reported based primarily on abundant white ornamentation on a few specimens taken from California, New Mexico, and Texas (Banks 1908, Cooley 1938, Arthur 1960). This is in contrast to gray ornamentation on most *D. parumapertus* specimens (Cooley 1938). Contemporary tick taxonomists no longer consider *D. parumapertus* var. *marginatus* as a *bona fide* variety of *D. parumapertus*.

This present study, part of a broader tick-borne disease survey, was initiated to sample ticks from *L. californicus* at two locations, one almost in the center of *D. parumapertus* geographic distribution (central Utah), and the other at the far eastern edge of its distribution (western Texas). Here we report wide variability in ornamentation among specimens collected from the two sites, including specimens displaying the white ornamentation of the previously named variety *marginatus*, which closely resembles specimens of *D. variabilis*.