
A Tentative Key to the Mammalian Ectoparasites of the Wichita Mountains Wildlife Refuge¹

LESLIE L. ELLIS, JR., Mississippi State College, State College, Mississippi

INTRODUCTION

This study was motivated by the reported isolation of plague organisms from rodents in Cimarron and Texas Counties by the Western Communicable Disease Center during 1948 and 1950. An arrangement was made with C. D. C. to furnish transportation and laboratory tests for plague organisms while the University of Oklahoma furnished ectoparasite identification. Field studies started in April, 1950 and terminated in October of that year. During this period, 1638 ectoparasites representing 23 species were removed from 646 mammals, none of which were found infected with plague organisms. Supplementary collections of ectoparasites in the University of Oklahoma Museum of Zoology extended the total to 2317, representing 31 species.

SYSTEMATIC TREATMENT

In devising a tentative key for the mammalian ectoparasites of the Wichita Mountains Wildlife Refuge, free use has been made of the larger, more comprehensive keys in various publications. These included the keys by Cooley (1, 2), Cooley and Kohls (3, 4, 5), Eads (6), Ewing (7), Ferris (8), Holland (9), Hubbard (10), and Pratt and Lane (11).

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- lobe rounded at tip and appearing almost triangular
Orchopeas leucoptis
- Prolongation of eighth sternite of male covered for its entire length with hairs; seventh sternite of female with finger-like lobe which may be pointed or blunt*Orchopeas sexdentatus*
16. Longish thin bristles on inside of mid-and hind-coxae from base to apex 17
 Longish thin bristles on inside of mid-and hind-coxae mostly in apical half; eye distinctly reduced; finger of male triangular with a long spine below; seventh sternite of female with a pointed lobe in apical outline*Malariaeus sinomus*
17. Basal abdominal sternum with patch of lateral setae; labial palpi reaching to apex of fore femora*Opisocrostitis atratus*
 Basal abdominal sternum without patch of lateral setae; males with modified bristles on ninth sternite spine-like, one long and several short; seventh sternite of female with posterior margin perpendicular and undulate.
 On *Citellus**Thrassis fatus*
 On *Dipodomys**Thrassoides* spp.
18. Tracheae present; spiracular openings two, one on each side of body above or little behind 3rd or 4th coxa; spiracles on distinct stigmal plates 19
 Tracheae, if present, not opening through lateral spiracles; sides of body and legs covered with shield-like plate; pseudostigmatic organ present (Oribatidae)*Oribatella* spp
19. Hypostome large, furnished beneath with numerous recurved teeth; venter with with furrows; skin leathery (Ixodoidea) 20
 Hypostome small, without recurved teeth below; venter without furrows but frequently with a shield or shields (Parasitoidea) 37
20. Capitulum inferior; scutum absent 21
 Capitulum anterior; scutum present 24
21. With a definite sutural line separating dorsal and ventral surfaces; flattened margins with quadrangular plates; hypostome apically notched*Argas persicus*
 Without a definite sutural line separating dorsal and ventral surfaces 22
22. Adults granular integument; hypostome vestigial; pits on dorsum separated by a distance twice or more the diameter of one pit; Nymphs; with well developed hypostome; integument spiny; denticles 4/4*Otobius megnini*
 Adults and nymphs with similar integument, lacking spines; hypostome never scoop-like 23
23. Cheeks present; no dorsal humps on legs; body oval, wider behind than in front*Ornithodoros stageri*
 Cheeks absent; mammillae large, relatively few in number, not crowded*Ornithodoros turticata*
24. Anal groove in anus (following key to females only) 25
 Anal groove either behind anus, indistinct, or absent 31
25. Hypostome with only files one and two extending full length; file three never more than half the total length 26
 Hypostome with file three more than half the full length; denticles 4/4; internal spur on first coxa short or absent*Ixodes brunneus*
26. Cornua present, distinct 27
 Cornua short, indistinct, or absent 29

27. Lateral carinae on scutum faint or absent; scutum with posterior-lateral margins convex *Ixodes scapularis*
Lateral carinae on scutum distinct 28
28. Cervical grooves faint or absent; auriculae small, faint..... *Ixodes kingi*
Cervical grooves distinct; palpi short, wide *Ixodes cooki*
29. Internal spur on first coxa short or absent 30
Internal spur on first coxa long; auriculae with mild lateral extensions *Ixodes banksi*
30. Basis with a rounded hump on each side of the hypostome. *Ixodes texanus*
Basis without such a hump *Ixodes hearlei*
31. Mouthparts much longer than basis capituli; second segment of palpi twice as long as wide 32
Mouthparts as long as basis capituli; second segment of palpi as long as wide 33
32. Females with pale markings on scutum limited to a posterior spot; males with internal spur of first coxa long; nymphs with basis not pointed at sides; scutum with deep punctations *Amblyomma americanum*
Females with pale markings on scutum in an extensive pattern; males with internal spur of first coxa short; nymphs with basis pointed *Amblyomma maculatum*
33. Second segment of palpi laterally produced; ventral cornua present *Haemophysalis leporis-palustris*
Second segment of palpi not laterally produced 34
34. Sides of basis capituli laterally produced *Rhipicephalus sanguineus*
Sides of basis capituli not laterally produced 35
35. Spurs on first coxa widely divergent; scutum with deep, large punctations *Dermacentor parumapertus*
Spurs on first coxa with proximal edges parallel or only a little divergent 36
36. Spiracular plate oval, without dorsal prolongation but with a few large goblets *Dermacentor albipictus*
Spiracular plate oval, with dorsal prolongation; goblets very small, numerous *Dermacentor variabilis*
37. Spiracle and peritreme on the dorsum; first coxae separated by the rostrum; one dorsal shield present *Spinturnix* spp
Spiracle and peritreme ventral 38
38. Dorsal shield small, centrally located, not covering entire dorsum *Bdellonyssus bacoti*
Dorsal shield large, nearly covering entire dorsum 39
39. Fore tarsus without claws and caruncle *Macrocheles* spp
Fore tarsus with claws and caruncle 40
40. Setae of the dorsal shield enlarged distally so as to appear baseball bat-like *Cosmolaelaps gurabensis*
Setae of dorsal shield normal, not enlarged distally but pointed..... 41
41. Second pair of legs massive with spurs present on at least one of the leg segments *Ischyropoda armatus*
Second pair of legs normal; no spurs present 42
42. Anal plate triangular, one-half as broad as the ventral plate..... *Gymnolaelaps missouriensis*
Anal plate triangular, fully as broad as the ventral plate *Haemolaelaps glasgowi*

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