

HAEMAPHYSALIS (RHIPISTOMA) EUPLERES (IXODOIDEA: IXODIDAE), A PARASITE OF THE MADAGASCAR FALANOU (MONGOOSE): NEW DATA AND MALE IDENTITY*

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ABSTRACT: *Haemaphysalis (Rhipistoma) eupleres* Hoogstraal, Kohls and Trapido 1965, was described and partially illustrated from a single damaged female from the falanou, or small-toothed mongoose, *Eupleres* sp., from an unstated locality in Madagascar. Data are here presented for two collections (9 males, 17 females) from two localities in Tamatave Province, one from *E. goudotii* Doyère, the other from an unstated host. The male is described and illustrated; a complete female is illustrated.

Haemaphysalis (Rhipistoma) eupleres Hoogstraal, Kohls and Trapido (1965) is a poorly known member of the *H. (R.) asiatica* group (Hoogstraal and Morel, 1970; Saito et al., 1971). Adults of this group parasitize smaller-size carnivores (mongooses, civets), hyraxes, and leporids in the Oriental, Palearctic, Malagasy, and Ethiopian Faunal Regions. *Haemaphysalis (R.) eupleres* was previously known only from the damaged, partially illustrated female holotype from a falanou, or small-toothed mongoose, from an unstated locality in Madagascar. Subsequently, we have received two collections containing 9 males and 17 females from two localities in Tamatave Province. The host of one collection was *Eupleres goudotii* Doyère; the host of the other sample was unstated. The male of *H. (R.) eupleres* is described and illustrated; a complete female is illustrated. There is only a slight degree of sexual dimorphism in the critical characters

for distinguishing this highly distinctive species. The immature stages are unknown.

Haemaphysalis (Rhipistoma) eupleres Hoogstraal, Kohls and Trapido Falanou haemaphysaline (Figs. 1-20)

Haemaphysalis (Rhipistoma) eupleres, Hoogstraal, Kohls and Trapido, 1965, p. 997-1000, Figs. 1-8, described and illustrated (except hypostome) ♀ from single specimen from *Eupleres* sp., unknown locality, Madagascar, 24 July 1931 (HH40,779); holotype deposited in the American Museum of Natural History, New York City.

DESCRIPTION

Male (Figs. 1, 2, 5-12)

Length from palpal apices to posterior body margin 2.51 to 2.81 (avg of 7, 2.68) mm, *breadth* 1.01 to 1.13 (avg 1.10) mm. *Color* yellowish to reddish brown.

Capitulum (Figs. 5-7). *Basis capituli* dorsally ca. 2 times as broad as long (including cornua); external margins diverging anteriorly; posterior margin mildly convex between cornua; cornua ca. five-sevenths as long as base of basis capituli, peg-like, apices rounded. *Basis capituli* ventrally as illustrated; setae 2 pairs (minute) posteroexternal, 1 pair posthypostomal. *Palpi* broadly salient (*asiatica* type), combined breadth ca. 1.75 times breadth of basis capituli; each palpus ca. 1.3 times as long as broad (from posterior margin of segment 2, excluding spurs, to apex). Segment 1 minute or obsolete dorsally; ventrally as narrow pedicle with 1 seta. Segment 2 ca. 1.6 times as broad as long; posterodorsal margin straight proximally, forming a strong, posteriorly directed, blunt spur adjacent to external margin of basis capituli, thence deeply indented to level of segmental mid-length (thus leaving a deep, narrow gap), thence forming a massive external spur with internal margin straight, external margin strongly convex, apex

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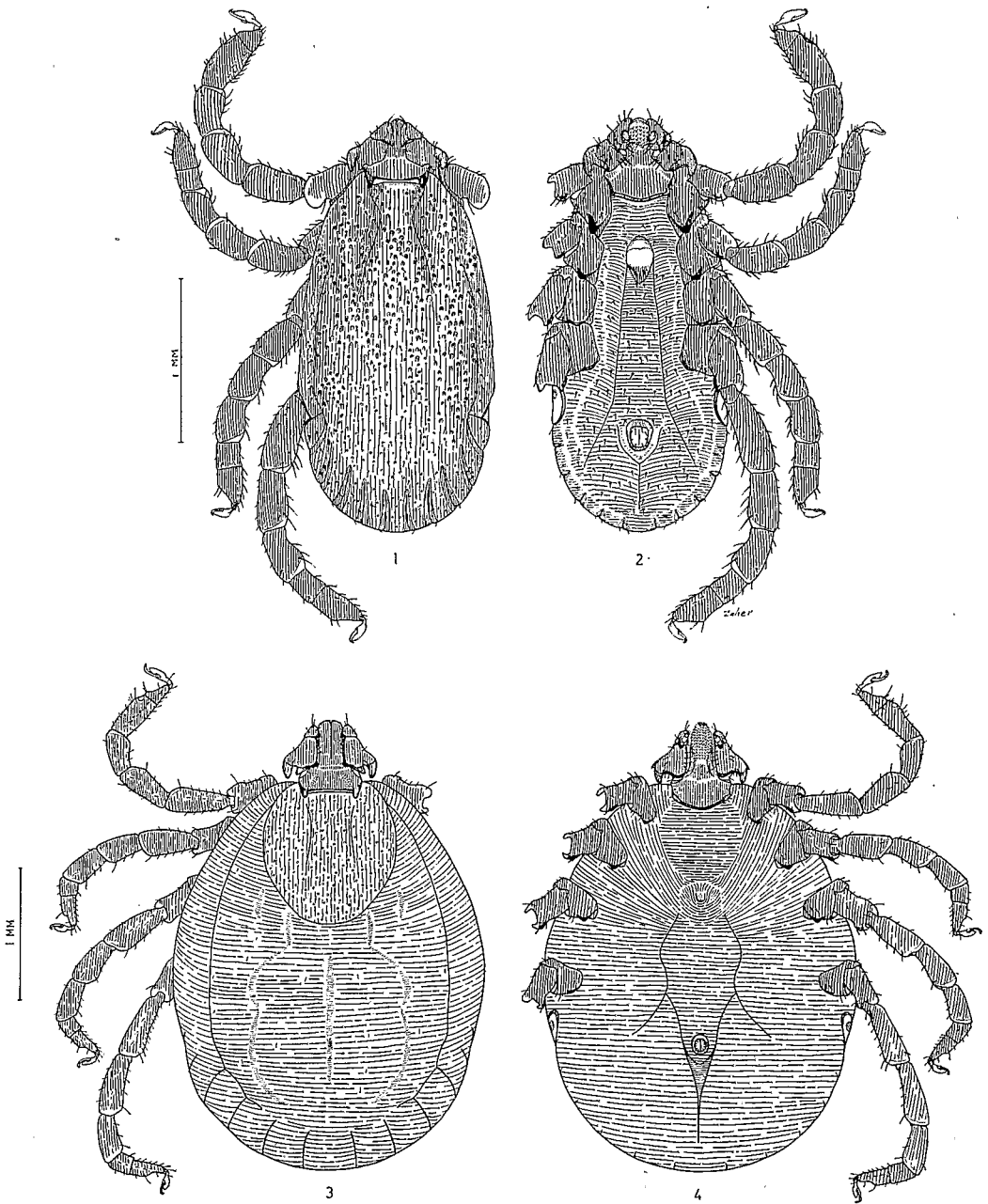
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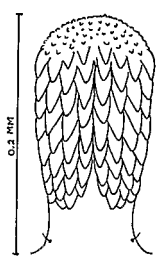
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Collection de Référence

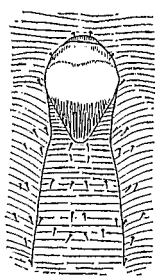
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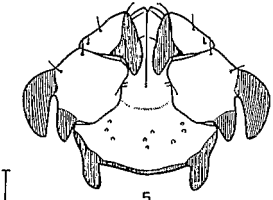
FIGURES 1-20. *Haemaphysalis (Rhipistoma) eupleres* (HH44,690) (Madagascar). 1, 2. Male, dorsal and ventral views. 3, 4. Female, dorsal and ventral views. All female details are from the replete holotype (HH40,799) except Fig. 15, which is from HH44,296; all male details are from HH44,690. 5, 6. Male capitulum, dorsal and ventral views. 7. Male hypostome, ventral view. 8. Male genital area. 9. Male spiracular plate (A = anterior, D = dorsal). 10. Male coxae and trochanters I to IV. 11. Male femur IV, internal view. 12. Male tarsi I to IV, external view. 13, 14. Female capitulum, dorsal and ventral views. 15. Female hypostome, ventral view. 16. Female genital area. 17. Female spiracular plate. 18. Female coxae and trochanters I to IV. 19. Female femur IV, internal view. 20. Female tarsi I to IV, external view.



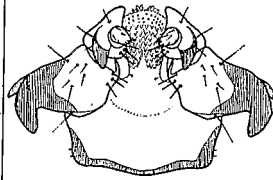
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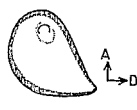
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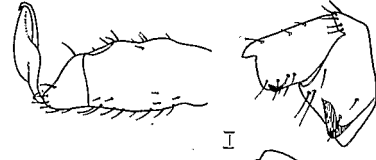
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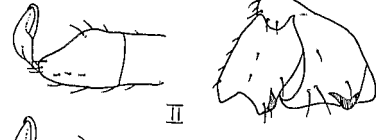
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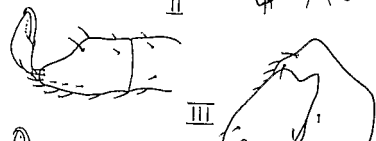
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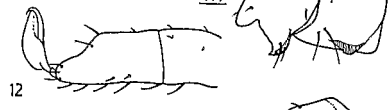
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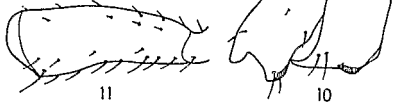
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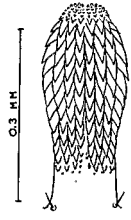


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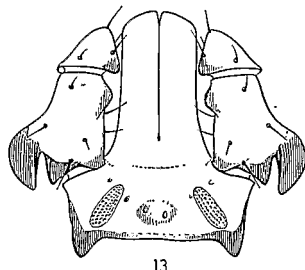


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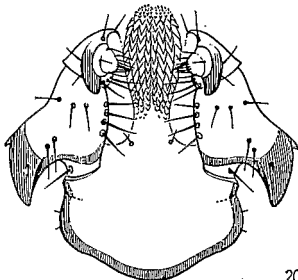


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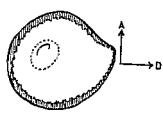
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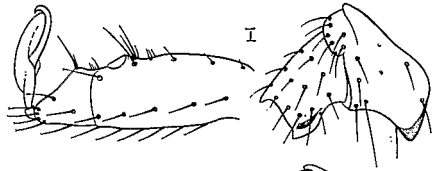
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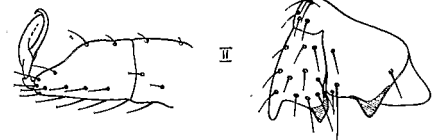
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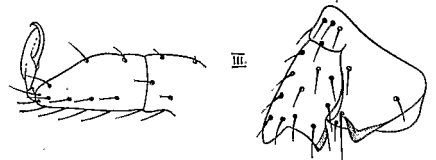
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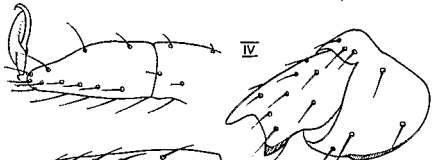
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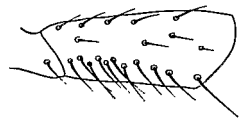


III



IV

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blunt (apices of both spurs at level of ca. anterior one-fourth of length of basis capituli); external profile from segmental midlength to anterior margin gradually converging; posteroventral margin straight or at a slight angle from insertion to external spur (form and size of external spur similar to external spur of dorsal margin); internodorsal margin bulging anteriorly; dorsointernal setae minute, number 2; ventrointernal setae number 3; setae number 2 dorsally, 5 or 6 ventrally. Segment 3 broadly triangular, ca. one-half as long as 2; posterodorsal and internodorsal margins prolonged as a conspicuous, unique, pointed spur (as illustrated); ventral spur broadly triangular, more or less pointed apex at level of intersegmental suture; setae number 2 dorsally, several dorsoapically, 4 or 5 ventrally. *Hypostome* (Fig. 7) short, broad, not so long as palpi, ca. 1.9 times as long as broad; apex broadly rounded, corona ca. one-fifth as long as denticle files, hooklets minute; dental formula 4/4, denticles in files of ca. 8.

Scutum (Fig. 1) narrowly elongate, ca. 2 times as long as broad; anterior emargination broad, moderately deep; scapulae angular; margins diverging for short distance anteriorly, thence mildly convex to level of spiracular plate apices (visible from dorsal view), posteriorly broadly rounded. *Cervical grooves* narrow; anteriorly deep, converging; posteriorly shallow, diverging. *Lateral grooves* narrow, deep, extending to level of coxa II, enclosing first festoon. *Punctations* moderately numerous, deep, medium size anteriorly and in a linear area paralleling lateral grooves; some setiferous; elsewhere few, small, shallow. *Festoons* number 11.

Venter (Figs. 2, 8, 9) as illustrated. *Genital plate* (Fig. 8) usually elongate and posteriorly narrowing. *Spiracular plates* (Fig. 9) elongate; dorsal projection elongately subtriangular.

Legs (Figs. 1, 2, 10-12). *Coxae* (Fig. 10) each with spur broadly triangular, extending only slightly beyond margin, spur size successively smaller from I to IV. *Trochanter* I dorsal shield (Fig. 1) short, broad, rounded; trochanters ventrally (Fig. 10) unarmed. *Femur* IV (Fig. 11) ventrointernal setae less than one-half as long as femur breadth, number 8. *Tarsi* (Fig. 12) moderately stout, dorsal surfaces flat proximally, tapering distally. *Claws* II to IV moderate size, I larger. *Pulvilli* large, reaching curvature of claws.

NOTES

Female (Figs. 2, 3, 13-20)

This sex was described from the engorged

holotype, in which the hypostome was broken (Hoogstraal et al., 1965). It is now reillustrated in standard format. Our one unfed specimen (HH44,690) is in poor condition; the other available females are fed (see Material Examined). The hypostome (Fig. 15) is somewhat longer than the palpi; apex blunt, corona small; dental formula 4/4, denticles in files of 12-13. Structural details for all specimens conform to those described for the holotype.

Nymph and larva

These stages are unknown.

MATERIAL EXAMINED

Total: 9 ♂♂, 17 ♀♀, all from Madagascar. From *Eupleres* sp., 24 July 1931, locality and collector unstated: 1 ♀ (HH40,779) (HOLOTYPE, deposited in the American Museum of Natural History). From *Eupleres goudotii*, Tamatave, Perinet, 6 May 1972, R. Albignac: 1 ♀ (HH44,286). From Tamatave, Manakambahiny Est, Andranomalaza, December 1956, host and collector unstated: 9 ♂♂, 15 ♀♀ (HH44,690) (ORSTOM-JLC-MD 19, from Institut français de Madagascar). Specimens are deposited in collections of ORSTOM, the American Museum of Natural History, the Rocky Mountain Laboratory, and the British Museum (Natural History).

LITERATURE CITED

- HOOGSTRAAL, H., AND P. C. MOREL. 1970. *Haemaphysalis (Rhipistoma) hispanica* Gil Collado, a parasite of the European rabbit, redescription of adults and description of immature stages (Ixodoidea, Ixodidae). *J Parasitol* 56: 813-822.
- , G. M. KOHLS, AND H. TRAFIDO. 1965. *Haemaphysalis (Rhipistoma) eupleres* sp. n. from a Madagascar carnivore and definition of the subgenus *Rhipistoma* Koch (resurrected) (Ixodoidea, Ixodidae). *J Parasitol* 51: 997-1000.
- SAITO, Y., H. HOOGSTRAAL, AND C. VASUVAT. 1971. Studies on Southeast Asian *Haemaphysalis* ticks (Ixodoidea: Ixodidae). Identity and hosts of immature stages of *H. (Rhipistoma) asiatica* (Supino) from Thailand. *J Parasitol* 57: 1099-1103.