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A REVIEW OF THE CHIRODISCINAE WITH DESCRIPTIONS OF NEW TAXA (ACARINA : LISTROPHORIDAE)

(Part two)

BY

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Genus Alabidocarpus Ewing.


Type species. Labidocarpus megalonyx Trouessart, 1895.

Diagnosis. Body strongly compressed laterally. Propodosomal shield extending posteriorly to or beyond level of leg II, and lateral margins extending ventrally between coxae I and II. With minute setae immediately posterior to propodosomal shield. Legs I and II strongly enlarged distally and with broad blunt tips. Leg III with 4 segments; tarsus with 1 anteriorly curved claw and 2 large denticulated spurs. Leg IV with 4 segments; tarsus with 1 anteriorly curved claw and 1 large denticulated spur. Legs III and IV closely adjoining legs I and II.

Eight species are recorded.

Key to the species of Alabidocarpus.

1. Propodosomal shield with acute postero-lateral projections....................... 2
   Propodosomal shield without acute postero-lateral projections.................. 5
2. Without setae between coxae IV. Female with 75 annulations on dorsum.........
   A. diceratops Lawrence
   With setae between coxae IV. Female with 52-66 annulations on dorsum...... 3
3. Male posterior end with 3 pairs of setae; middle pair slightly longer than other pairs. Female 900 microns long, with 66 annulations on dorsum.................................
   A. megalonyx (Trouessart)

Male posterior end with 3 pairs of setae; middle pair about twice as long as other pairs. Female about 620-770 microns long, with 52-65 annulations on dorsum.

4. Pair of minute setae located between lateral setae and dorsal margin. Spur of tarsus IV with 5 or 6 denticulations. $A. recurvus$ (Womersley)

Without minute setae located between lateral setae and dorsal margin. Spur of tarsus IV with about 11 denticulations. $A. nasicolus$ (Lawrence)

5. Posterior margin of propodosomal shield on each side of mid-line smooth and convex. Setae between coxae IV of female spur-like. $A. longispilus$ n. sp.

Posterior margin of propodosomal shield on each side of mid-line irregular. Setae between coxae IV not spur-like. $A. calcaratus$ Lawrence

6. In female, longer of 2 pairs of lateral setae much longer than longest pair of setae of posterior end. $A. longipilus$ n. sp.

In female, longer of 2 pairs of lateral setae shorter than longest pair of setae of posterior end. $A. furmani$ n. sp.

7. Large species, female 653-903 microns long, male 592-671 microns long. Posterior end of female with 1 pair of long setae. $A. furmani$ n. sp.

Small species, female 300-317 microns long, male 207-280 microns long. Posterior end of female with 2 pairs of setae. $A. minor$ (Rollinat and Trouessart)

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$Alabidocarpus megalonyx$ (Trouessart).

(Figs. 7, 8).


$Alabidocarpus megalonyx$, Ewing, 1929, A manual of external parasites, p. 188; Lawrence, 1948, Jour. Parasitol. 34 : 374.

Diagnosis. Female: length 900 microns, greatest depth (at level of leg IV) 348 microns; 66 annulations on dorsum.

Male: length 372-550 microns, greatest depth (at level of leg III) 158 microns; 41 annulations on dorsum. Propodosomal shield extending posteriorly to or beyond level of leg II, with acute postero-lateral projections. Two pairs of lateral setae just antero-dorsal to coxae III; dorsal pair long, ventral pair minute and very close to bases of dorsal pair. With pair of minute setae between lateral setae and dorsal margin. Pair of setae between coxae IV not spur-like. Spur of tarsus IV with about 6 denticulations. Male posterodistal seta of tarsus IV about 1/2 as long as claw. Posterior end of female with 2 pairs of setae; ventral pair about 1/5 as long as dorsal pair. Posterior end of male with 3 pairs of setae; middle pair slightly longer than other pairs.

Type host. Bat: $Rhinolophus ferrum-equinum$ Schreber.

Type locality. France.

Distribution. France: from Rhinolophus ferrum-equinum collected by Rollinat, 1895, recorded by Trouessart, 1895.

Material examined. Type series including 1 female, 1 male and 2 nymphs.

Alabidocarpus minor (Rollinat and Trouessart)

(Figs. 9, 10).

Diagnosis. Female: length 300-317 microns, greatest depth (at level of leg III) 79 microns; 39 annulations on dorsum. Male: length 207-280 microns, greatest depth (at level of leg III) 92 microns; 20 annulations on dorsum. Propodosomal shield extending to anterior margin of coxa II, without acute postero-lateral projections; posterior margin on each side of mid-line irregular. Two pairs of lateral setae just anterior to coxae III; dorsal pair long, ventral pair minute and very close to bases of dorsal pair. Pair of minute setae between lateral setae and dorsal margin found only in male. Pair of setae between coxae IV not spur-
FIG. 9: Alabidocarpus minor (Rollinat and Trouessart), lateral view of female. — Fig. 10: Alabidocarpus minor (Rollinat and Trouessart), lateral view of male. — Fig. 11: Alabidocarpus longipilus n. sp., lateral view of female.
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like. Spur of tarsus IV with about 6 denticulations. Male postero-distal seta of tarsus IV much shorter than 1/3 of claw length. Posterior end of female with 2 pairs of setae; ventral pair about 1/5 as long as dorsal pair. Posterior end of male with 2 pairs of setae; ventral pair about 1/6 as long as dorsal pair.

Type host. Bat: Rhinolophus ferrum-equinum Schreber.

Type locality. France.


Distribution. France: from Rhinolophus ferrum-equinum recorded by Rol-linat and Trouessart, 1897.

Material examined. Type series including 1 female and 1 male.

Alabidocarpus nasicolus (Lawrence).

Alabidocarpus nasicolus Lawrence, 1938, Parasitol. 30 : 309.

Diagnosis. Female: length 630-770 microns, depth 230-240 microns; 55-65 annulations on dorsum. Male: length 465 microns; 40 annulations on dorsum. Propodosomal shield extending to level of leg II, with acute postero-lateral projections. Pair of long lateral setae just antero-dorsal to coxae III, with or without minute setae very close to bases. Without pair of minute setae between lateral setae and dorsal margin. Pair of setae between coxae IV not spur-like. Spur of tarsus IV with about 17 denticulations. Male postero-distal seta of tarsus IV subequal in length to claw. Posterior end of female with 2 pairs of setae; ventral pair about 1/3 as long as dorsal pair. Posterior end of male with 3 pairs of setae; middle pair much longer than twice length of other pairs.

Type host. Bat: Rhinolophus clivosus Cretzschmar.

Type locality. Noodsberg Cave, Wartburg, Natal, South Africa.

Deposition of types. Unknown.

Distribution. Natal, South Africa: several females from Rhinolophus clivosus, May 1937, recorded by Lawrence, 1938; near Krugersdorp, Transvaal: 1 female from Rhinolophus clivosus, 28 July 1947, recorded by Zumpt, 1950; Natal, South Africa: from Rhinolophus clivosus recorded by Zumpt, 1950; Natal, South Africa: 3 females and 1 male from Rhinolophus clivosus, February 1951, recorded by Lawrence, 1952.

Material examined. No specimens were available for study.
Alabidocarpus recurvus (Womersley)
(Figs. 12, 13).


Diagnosis. Female : length 620-637 microns, greatest depth (at level of leg III) 207 microns ; 52-58 annulations on dorsum. Male : length 441 microns, greatest depth (at level between legs III and IV) 104 microns ; 36-38 annulations on dorsum. Propodosomal shield extending posteriorly beyond level of leg II, with acute postero-

Fig. 12 : Alabidocarpus recurvus (Womersley), lateral view of female.
Fig. 13 : Alabidocarpus recurvus (Womersley), lateral view of male.

lateral projections. With 2 pairs of lateral setae just antero-dorsal to coxae III ; dorsal pair long, ventral pair minute and very close to bases of dorsal pair. With pair of minute setae between lateral setae and dorsal margin. Pair of setae between coxae IV not spur-like. Spur of tarsus IV with 5 or 6 denticulations. Male pos-
tero-distal seta of tarsus IV subequal in length to claw. Posterior end of female with 2 pairs of setae; ventral pair about 1/5 as long as dorsal pair. Posterior end of male with 3 pairs of setae; middle pair slightly longer than twice length of other pairs.

_type host._ Unidentified bat.

_type locality._ Bathurst, New South Wales.

_deposition of types._ The South Australian Museum, Adelaide, South Australia.

_distribution._ Bathurst, New South Wales: from unidentified bat collected by A. S. Allman, 13 April 1934, recorded by Womersley, 1943; Yandina, Australia: 1 female and 1 male from Rhinolophus megaphyllus, 10 April 1958 and Palmerston, Australia: 1 female and 1 male from Rhinolophus megaphyllus, 28 May 1958, recorded by R. Domrow, 1958.

_material examined._ One female and 1 male in Domrow's collection, collected from Palmerston on 28 May 1958.

_Alabidocarpus calcaratus_ Lawrence.


_diagnosis._ Female: length 730 microns; 60 annulations on dorsum. Male: length 380 microns; 39-41 annulations on dorsum. Propodosomal shield extending to anterior margin of coxae II, without acute postero-lateral projections; posterior margin on each side of mid-line smooth and convex. Two pairs of lateral setae just dorsal to coxae III; in female, dorsal pair slightly shorter than longest pair of setae of posterior end; ventral pair minute and very close to bases of dorsal pair. With pair of minute setae between lateral setae and dorsal margin. In female, pair of setae between coxae IV spur-like; in male, pair of setae between coxae IV not spur-like. Spur of tarsus IV with about 9 denticulations. Male postero-distal seta of tarsus IV subequal in length to claw. Female opisthosoma about 1/2 total length, ending with 3 pairs of setae; dorsal pair minute, ventral pair about 1/4 as long as middle pair. Posterior end of male with 3 subequal pairs of setae.

_type host._ Bat: _Myotis tricolor_ (Temminck).

_type locality._ Town Bush Cave, Pietermaritzburg, South Africa.

_deposition of types._ Unknown.

_distribution._ Pietermaritzburg, South Africa: several females, males, and immature stages from _Myotis tricolor_, November 1950, recorded by Lawrence, 1952.

_material examined._ No specimens were available for study.
Alabidocarpus diceratops Lawrence.


Diagnosis. Female: length 600 microns, depth 174 microns; 75 annulations on dorsum. Propodosomal shield extending posteriorly beyond level of leg II, with acute postero-lateral projections. Two pairs of lateral setae just dorsal to coxae III; dorsal pair long, ventral pair minute and very close to bases of dorsal pair. With pair of minute setae between lateral setae and dorsal margin. Pair of setae between coxae IV absent. Spur of tarsus IV with 6 or 7 denticulations. Posterior end of female with 2 pairs of setae; ventral pair about 1/7 as long as dorsal pair.

Type host. Bat: Rhinolophus capensis Lichtenstein.

Type locality. Table Mt., Cape Town, South Africa.

Deposition of types. Unknown.

Distribution. Cape Town, South Africa: 2 females from Rhinolophus capensis collected by Zumpt, September 1957, recorded by Lawrence, 1959.

Material examined. No specimens were available for study.

Alabidocarpus furmani new species
(Figs. 14-17).

Female.

Idiosoma stout and strongly compressed laterally. Dorsal margin strongly convex. Length 830 microns (653-903), greatest depth (at level between legs III and IV) 345 microns (305-390).

Dorsum. Propodosomal shield extending to level of leg II; with 2 acute postero-medial projections, without acute postero-lateral projections; posterior margin on each side of mid-line irregular. Two pairs of minute setae immediately posterior to propodosomal shield. With pair of minute setae on mid-dorsum at level between legs III and IV. With 74 (56-101) annulations posterior to propodosomal shield.

Venter. Two pairs of lateral setae just dorsal to coxae III; dorsal pair long, ventral pair minute and very close to bases of dorsal pair. With pair of minute setae between lateral setae and dorsal margin. Pair of setae of moderate length between coxae III and similar pair between coxae IV not spur-like. Opisthosoma slightly less than 1/2 total length, with about 39 annulations. Posterior end with pair of long setae.

Legs. Legs I and II each with 2 setae on posterior margin of terminal segment. Leg III with 4 segments; 2 distal setae on penultimate segment, 1 anterior and
I posterior; spurs each with about 6 denticulations. Leg IV subequal in length to leg III, with 4 segments; I distal seta on posterior margin of penultimate segment; spur with about 6 denticulations; postero-distal seta of tarsus about 1/2 as long as claw.

Gnathosoma without setae.

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**Male.**

Idiosoma stout and strongly compressed laterally. Dorsal margin slightly convex. Length 645 microns (592-671), greatest depth (at level between legs III and IV) 300 microns (275-336).
**Dorsum.** Propodosomal shield and setation as in female but without minute setae on mid-dorsum at level between legs III and IV. With 40 (35-44) annulations posterior to propodosomal shield.

**Venter.** Setation as in female. Opisthosoma about 1/4 total length, without annulations. Posterior end with 2 pairs of setae; ventral pair about 1/7 as long as dorsal pair.

**Legs.** Legs as in female.

**Gnathosoma.** Without setae.

**Type host.** Bat: *Anoura geoffroyi geoffroyi* Gray.

**Type locality.** Tamana Cave, Mount Tamana, Trinidad, West Indies.

**Deposition of types.** Holotype female, allotype male, and 11 paratypes deposited in the United States National Museum, Washington, D.C., and 17 paratypes in the University of California’s Department of Entomology and Parasitology, Berkeley.

**Distribution.** Trinidad, West Indies: 15 females, 9 males and several immature stages from a collection of 100 specimens of *Anoura geoffroyi geoffroyi*, Trinidad Department of Agriculture No. 57-2180-2279, collected by T. H. G. AITKEN, 20 November 1957.

**Discussion.** This species is named after Dr. D. P. FURMAN, Professor of Parasitology at the University of California, Berkeley, who provided generous guidance during the course of this study. The mite may be differentiated from the closely related species, *A. minor*, by the much larger size and more numerous body annulations of both sexes and only 1 pair of setae on posterior end of female.

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**Alabidocarpus longipilus** new species

(Figs. 11, 18, 19).

**Female.**

Idiosoma stout and strongly compressed laterally. Dorsal margin convex. Length 421 microns, greatest depth (at level of leg IV) 146 microns.

**Dorsum.** Propodosomal shield extending to level of leg II, without acute postero-lateral projections; posterior margin on each side of mid-line smooth and convex. Two pairs of minute setae immediately posterior to propodosomal shield. Without minute setae on mid-dorsum at level between legs III and IV. With 49 annulations posterior to propodosomal shield.

**Venter.** Two pairs of lateral setae just dorsal to coxae III; dorsal pair much longer than longest pair of setae of posterior end, ventral pair minute and very close to bases of dorsal pair. With pair of minute setae between lateral setae and dorsal margin. Pair of setae between coxae III not spur-like. Pair of setae between
coxae IV spur-like. Opisthosoma 1/3 total length, with 23 annulations. Posterior end with 3 pairs of setae; dorsal pair minute, ventral pair 1/4 as long as middle pair.

**Legs.** Legs I and II each with 2 setae on posterior margin of terminal segment. Leg III with 4 segments; 2 distal setae on penultimate segment, 1 anterior and posterior; spurs each 1/2 as long as claw, with about 9 denticulations. Leg IV longer but weaker than leg III, with 4 segments; 1 distal seta on posterior margin of penultimate segment; spur about 1/3 as long as claw, with 7 denticulations; postero-distal seta of tarsus subequal in length to claw.

Gnathosoma without setae.
Type host. Bat : *Myotis yumanensis saturatus* Miller.

Type locality. Lucern, Lake County, California, U.S.A.


Discussion. Known from only 2 females. This species differs from *Alabidocarpus calcaratus* Lawrence in its smaller size, fewer body annulations, shorter opisthosoma, and a very long dorsal pair of lateral setae.

Genus *Schizocoptes* Lawrence.


Type species. *Schizocoptes conjugatus* Lawrence, 1944.

Diagnosis. Body dorso-ventrally compressed. Propodosomal shield not extending to level of leg II. One pair of setae of moderate length immediately posterior to propodosomal shield. Legs I and II strongly enlarged distally and with broad blunt tips. Leg III with 5 segments ; tarsus with caruncle, without claws. Leg IV subequal in length to leg III in female but distinctly shorter than leg III in male, with 5 segments ; tarsus similar to that of leg III. Legs III and IV distinctly separated from legs I and II. Monotypic.

*Schizocoptes conjugatus* Lawrence.


Diagnosis. Female : length 320-360 microns, width 180-220 microns ; about 32 annulations on dorsum. Male : length 320-370 microns ; width 190-250 microns ; about 14 annulations on dorsum. Propodosomal shield W-shape, not completely separated on mid-dorsum. Pair of lateral setae just anterior to coxae III. With pair of setae of moderate length between lateral setae and mid-line. Posterior end of female with pair of setae of moderate length. Posterior end of male with 3 pairs of setae ; dorsal and ventral pairs subequal in length, middle pair much longer than other pairs. Tarsi III and IV each with very long seta on latero-distal end.

Type host. Golden mole : *Chrysospalax villosus* Smith.

Type locality. Pietermaritzburg, South Africa.

Deposition of types. Unknown.
Distribution. Pietermaritzburg, South Africa: several females, males, and immature stages from *Chrysospalax villosus*, August 1943, recorded by Lawrence, 1944; Pietermaritzburg, South Africa; several specimens from *Amblysomus hottentolus* (Smith), recorded by Lawrence, 1948; Cape Province, South Africa: several females from *Chrysospalax trevelyani* Gunther, recorded by Lawrence, 1951.

Material examined. No specimens were available for study.