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# Three new species of *Cheyletus* from Afrotropical Region and Madagascar (*Acari, Cheyletidae*)

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## ABSTRACT

Until now the genus *Cheyletus* was represented in Afrotropical Region by eight species. Three new species are described herein, two from South Africa, *Ch. mafekingensis* n. sp. and *Ch. pseudomalaccensis* n. sp. and one from Madagascar, *Ch. legendrei* n. sp. *Ch. cacahuamilpensis* Baker is recorded for the first time in Africa. A key to all the known Afrotropical species is given.

Until now eight species of *Cheyletus* had been described from Afrotropical Region (Fain, 1972; 1979; 1981a and 1981b). Two (*Ch. eruditus* (Schrank) and *Ch. malaccensis* Oudemans, 1903) are cosmopolitan, the other are endemic and confined only to some specialized habitats. *Ch. zumpti* Fain, 1972 has been found in the nests of several murids in South Africa; *Ch. rwandae* Fain, 1972 is known only from nests of a rat *Tachoryctes rwandae* in Rwanda; *Ch. nidiculus* Fain, 1972 was found from nests of passeriform birds in Central Africa; *Ch. misonnei* Fain & Lukoschus, 1981 and *Ch. gerbillicola* Fain & Lukoschus 1981 were found in the fur of rats in South Africa.

The three new species described herein were collected in the following habitats: *Ch. mafekingensis* n. sp. from a bird *Philetairus socius* (Ploceidae) and *C. pseudomalaccensis* n. sp. from a bird *Plocepasser mahali* (Ploceidae), both from South Africa. The third species *Ch. legendrei* n. sp., was collected from the nest of a bird « Foudy » in Madagascar. *Cheyletus cacahuamilpensis* Baker, so far only known from America is now recorded from South Africa.

We give here a key to all the species of *Cheyletus* represented in the Afrotropical Region.

Key to the genus *Cheyletus* in Afrotropical Region (females)

(N.B.: *Ch. punctulatus*, described from Southern Morocco  
is mentioned in this key)

1. Guard seta of tarsus I shorter than solenidion  $\omega$  1. Apical spine of palp tibia (= palp claw) with 2 basal teeth. Peritremes M-shaped ..... 2
- Guard seta of tarsus I longer than solenidion  $\omega$  1. Apical spine of palp tibia with 2-5 basal teeth. Peritremes either M-shaped or more or less in an inverted U with inner segments transverse ..... 5
2. Femur IV with 2 setae. Inner comb of palp tarsus with 15 teeth, outer comb with 13 teeth. Apical spine of palp tibia with 2 similar basal teeth. Cosmopolitan species .....  
..... *Ch. eruditus* (Schrank, 1781)
- Femur IV with 1 seta. Combs of palp tarsus with more teeth. Apical spine of palp tibia with 2 dissimilar basal teeth ..... 3
3. Peritremes short, with 5-6 links at each side. Inner comb with 19-22 teeth, outer comb with 18-24 teeth. Posterior margin of hysteronotal plate distinctly excavated. Solenidion  $\omega$  1 narrow, subcylindrical, 30-32  $\mu$  long. Propodonotal shield 120  $\mu$  long, 180  $\mu$  wide. Idiosoma 435  $\mu$  long .... *Ch. mafekingensis* n. sp.
- Peritremes longer, with 9-12 links at each side. Posterior margin of hysteronotal plate either straight or only slightly concave ..... 4
4. Inner comb of palp tarsus with 25-30 teeth, outer comb with 18-20 teeth. Palp tibial spine with 2 large teeth. Vertical, scapular, dorsal and lateral setae flattened and completely barbed. Setae *sc e*, *l 1*, and *l 3* subequal (60 to 80  $\mu$ ; setae *h* thin, 120  $\mu$  long with apex bare. Solenidion  $\omega$  1 cylindroconical, thick, tapered, and pointed, 21-23  $\mu$  long, with a very short guard seta. Propodonotal plate 150-210  $\mu$  long and 240-280  $\mu$  wide. Cosmopolitan, mainly tropical species .....  
..... *Ch. malaccensis* Oudemans, 1903

- Inner comb with 18-20 teeth, outer comb with 16-17 teeth. Palp tibial spine with 2 small basal teeth. All dorsal setae thin, barbed except on top which is bare. Setae  $h$  and  $l_3$  about twice as long (190 to 210  $\mu$ ) as  $l_1$  (105  $\mu$ ). Setae  $sc\ e$  longer (160  $\mu$ ) than  $sc\ i$  (105  $\mu$ ). Solenidion  $\omega\ 1$  narrowly cylindro-conical, 45  $\mu$  long. Propodonal plate 230-240  $\mu$  long and 320-340  $\mu$  wide. Idiosoma 570-580  $\mu$  long. *Ch. pseudomalaccensis* n. sp.
- 5. Peritremes with inner segments almost transverse. Hysteronotal plate wider than long ..... 6
- Peritremes M-shaped ..... 7
- 6. Presence of very short and thin setae  $d\ 1$  on propodonal plate and  $d\ 2$  and  $d\ 3$  on hysteronotal plate. Other dorsal setae of body and of some segments of legs spatulate with rounded apices. Dorsal plates with a well-developed network pattern. Apical spine of palp tibia with 3 basal teeth .....  
..... *Ch. misonnei* Fain & Lukoschus, 1981
- Only  $d\ 1$  is present (on propodonal plate); the  $d\ 2$  and  $d\ 3$  are lacking. Other dorsal setae very slightly enlarged in their apical half but not spatulate. Dorsal plate without a network of lines but bearing very numerous and very small tubercles placed along longitudinal or oblique lines. Apical spine of palp tibia with 2 basal teeth .... *Ch. punctulatus* Fain & Lukoschus, 1981
- 7. Hysteronotal plate bearing setae  $l\ 1$ ,  $l\ 2$ ,  $l\ 3$  and  $l\ 4$  .....  
..... *Ch. cacahuamilpensis* Baker, 1949
- Hysteronotal plate never bearing the  $l\ 1$  setae ..... 8
- 8. Setae  $d\ 1$  long, barbed, situated on propodonal plate;  $d\ 2$  similar to  $d\ 1$ , situated on striated cuticle behind propodonal shield. Hysteronotal plate slightly wider than long, bearing only the setae  $l\ 3$ . Dorsal setae thin, barbed, unequal, the  $sc\ e$ ,  $h$ ,  $l\ 1$  and  $l\ 3$  much longer than the others. Apical spine of palp tibia with 2 unequal basal teeth. Inner comb of palp tarsus with 14 teeth, outer comb with 15-16 teeth .....  
..... *Ch. legendrei* n. sp.
- Setae  $d\ 2$  absent, setae  $d\ 1$  either present but short or absent. Setae  $l\ 1$  always short ..... 9

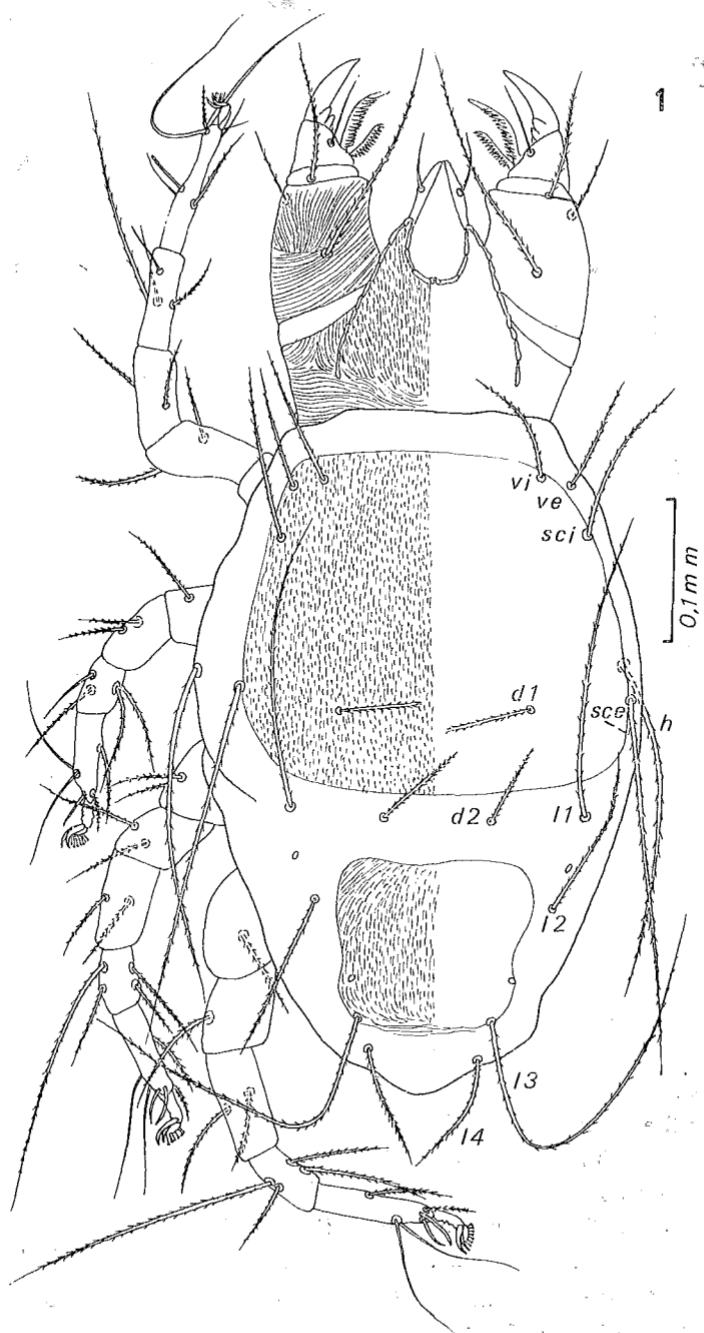


Fig. 1. — *Cheyletus legendrei* n. sp. - Holotype female in dorsal view.

9. Hysteronotal plate trapezoidal bearing only the setae *l3*.  
Setae *sc e*, *h* and *l3* distinctly longer (more than 200  $\mu$ ) than  
the other dorsal setae. Propodonotal plate with short *d1* se-  
tae. Apical spine of palp tibia with 3 unequal basal teeth .....  
..... *Ch. nidicolus* Fain, 1972
- Hysteronotal plate bearing either *l2* and *l3* setae or only *l2*  
setae. Setae *d1* absent ..... 10
10. Hysteronotal plate rounded bearing setae *l2*. Dorsal setae  
very short, thin, barbed only in their basal half. Apical spine  
of palp tibia with 2 basal teeth ..... *Ch. rwandae* Fain, 1972
- Hysteronotal plate trapezoidal bearing setae *l2* and *l3*. Dor-  
sal setae longer and completely or almost completely barbed.  
Apical spine of palp tibia with 4-5 basal teeth ..... 11
11. Setae *v i*, *v e*, *sc i* and *sc e* barbed with very thin and bare api-  
ces. Setae *l1*, *l3*, *l4* and *d5* enlarged in their apical half. Dor-  
sal plates with a network pattern. Peritremes with 10-11 links  
at each side. Inner comb of palp tarsus with 28-32 teeth, outer  
comb with 14-17 teeth. Idiosoma 345-450  $\mu$  long .....  
..... *Ch. zumpti* Fain, 1972
- All dorsal setae spatulate and completely barbed. Network  
pattern on dorsal plates absent or un conspicuous. Peritremes  
with 8-9 links. Inner comb with 24-26 teeth, outer comb with  
14-15 teeth. Idiosoma 270  $\mu$  long .....  
..... *Ch. gerbillicola* Fain & Lukoschus, 1981

1. **Cheyletus legendrei** nov. spec.

This species is named for Prof. R. Legendre, University of Mont-  
pellier (France), who collected this new species.

*Female* (holotype) (figs. 1-6): Idiosoma 480  $\mu$  long and 315  $\mu$  wide.  
*Dorsum*: Propodonotal plate without network pattern, 225  $\mu$  long and  
275  $\mu$  wide, bearing the *d1* setae, barbed and 60  $\mu$  long. Setae *d2* as  
long as *d1*, situated on soft cuticle between the two dorsal plates.  
The two plates are separated by about 60 thin cuticular striations.

Hysteronotal plate 115  $\mu$  long, 145  $\mu$  wide, bearing the *l3* setae.  
Setae *sc e*, *h*, *l1* and *l3* thin, barbed and more than twice as long  
(240 to 270  $\mu$ ) as the other dorsal setae. *Venter*: Coxae well formed  
bearing rather thin and long setae; genital setae *g1* to *g3* bare, *g4*

and  $g\ 5$  barbed. *Gnathosoma* : Peritremes M-shaped with 13 to 14 links at each side. Inner comb of palp tarsus with 14 teeth and outer comb with 15-16 teeth. Apical spine of palp tibia with 2 conical unequal teeth. *Legs* : Tarsus I with solenidion  $\omega$  thin, subcylindrical, 30  $\mu$  long with a thin and bare guard seta 42  $\mu$  long. All the leg setae thin, their number as in *Cheyletus rwandae* (see Fain, 1979).

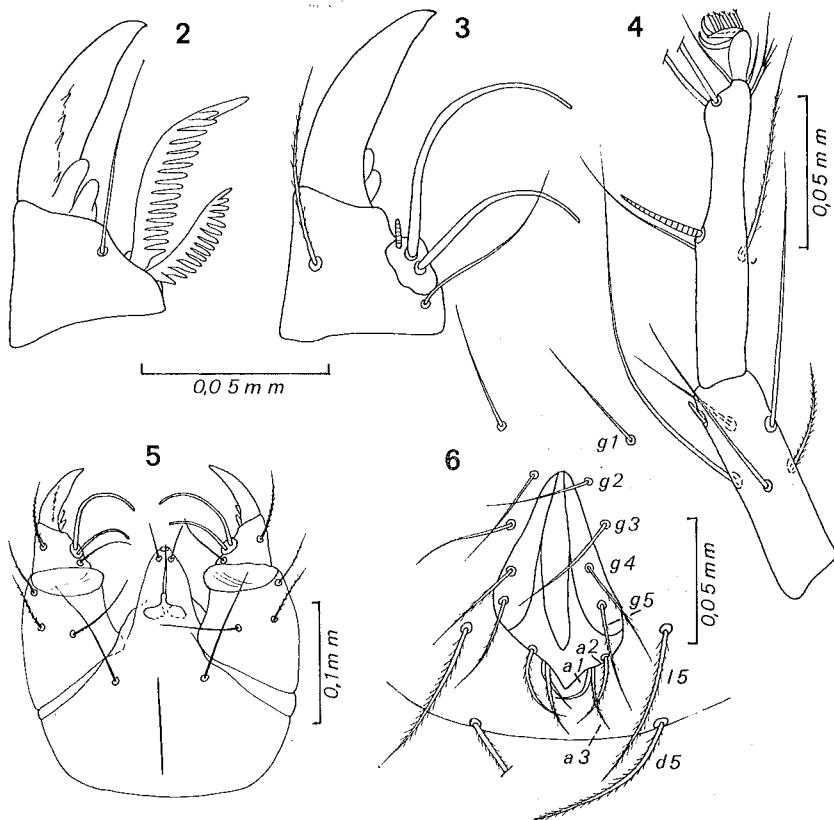


Fig. 2-6. — *Cheyletus legendrei* n. sp. - Holotype female: Palp tarsus and palp tibia in dorsal (2) and ventral view (3); tibia and tarsus I in lateral view (4); gnathosoma in ventral view (5); ano-genital area (6).

*Habitat* : Holotype and only known specimen, from the nest of a bird *Foudia madagascariensis* L. (Ploceidae), also called « Foudy », Institut Pasteur, Tananarive, Madagascar, May 1965 (Coll. R. Legembre). Holotype in Musée Royal de l'Afrique Centrale, Tervuren (MRAC 155153).

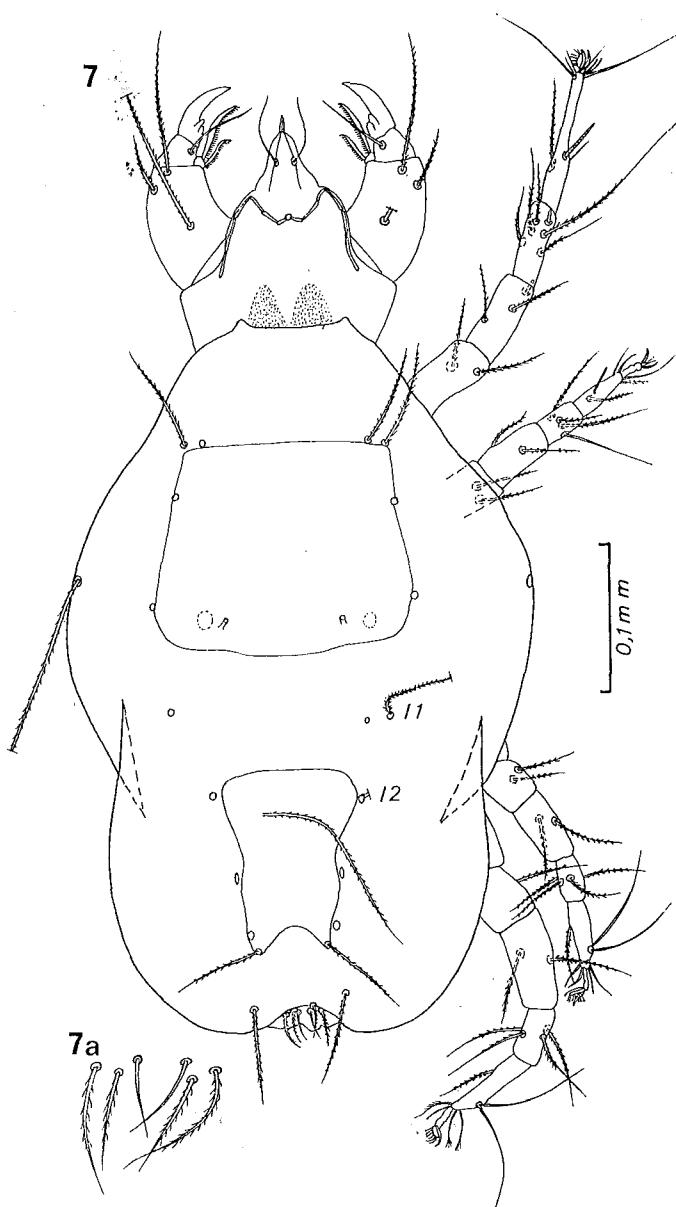


Fig. 7. — *Cheyletus mafekingensis* n. sp. - Female (holotype and paratype) in dorsal view (7); perianal setae (7a).

*Remark* : This new species differs from all the other species in the genus by the presence of long setae  $d_1$  and  $d_2$ , the latter being situated on the soft cuticle between the two dorsal plates.

2. **Cheyletus mafekingensis** nov. spec.

*Female* (figs. 7-13) : Idiosoma in holotype  $435\ \mu$  long and  $280\ \mu$  wide. In the paratype  $525 \times 300\ \mu$ . *Dorsum* : Dorsal plates without distinct pattern Propodonotal plate  $120\ \mu$  long,  $178\ \mu$  wide. Hysteronotal plate trapezoidal,  $105\ \mu$  long,  $100\ \mu$  wide, with posterior border excavated. The two plates are separated by more than 100 very thin cuticular striations. Most of the dorsal setae are lost. The  $v_i$ ,  $l_1$  and  $l_3$  are thin, barbed and  $60-70\ \mu$  long. *Venter* : genital setae relatively short, only  $g_5$  is slightly barbed. *Gnathosoma* : peritremes M-shaped, short with 5 to 6 narrow links at each side. Palp tarsus with inner comb with 19-22 teeth and outer comb with 18-24 teeth. Apical spine of palp tibia  $45\ \mu$  long, with 2 basal teeth, the apical is cylindroconical, the basal is more or less rectangulaire. *Legs* : tarsus I  $90\ \mu$  long, with solenidion  $\omega$  narrow, subcylindrical  $30-32\ \mu$  long, with a thin guard seta  $18\ \mu$  long. Number of setae on legs as in *C. rwandae*.

*Habitat* : From a ploceid bird *Philetairus socius*, Mafeking, South Africa, 15 March 1970. Holotype and 1 paratype (Coll. F. Zumpt). Holotype in Musée Royal de l'Afrique Centrale, Tervuren (MRAC 155154).

*Remark* : This species is close to *Ch. malaccensis* Oudemans. It differs from it mainly by the shape of the peritremes (with only  $2 \times 5-6$  links, for  $2 \times 10-12$  links in *malaccensis*), the smaller number of teeth on the inner tarsal comb, the smaller size of the body, the different shape of the solenidion  $\omega_1$ , longer and narrower.

3. **Cheyletus pseudomalaccensis** nov. spec.

*Female* (figs. 14-18) : Idiosoma in the holotype  $580\ \mu$  long and  $420\ \mu$  wide. In the paratype  $570\ \mu \times 400\ \mu$ . *Dorsum* : dorsal plates without pattern. Propodonotal plate  $240\ \mu$  long and  $340\ \mu$  wide (in the paratype  $230 \times 320\ \mu$ ); hysteronotal plate trapezoidal  $190\ \mu$  long,  $165\ \mu$  wide. Setae  $h$  and  $l_3$  about twice as long ( $190-210\ \mu$ ) as  $l_1$  ( $105\ \mu$ ). Setae  $v_i$ ,  $v_e$ ,  $sc_i$ ,  $sc_e$ ,  $l_2$  are 93, 105, 105, 160 and  $75\ \mu$  long respectively. All these setae are thin and barbed. *Gnathosoma* : peritremes M-shaped with 9-10 links at each side. Inner comb (of palp tarsus) with 18-20 teeth, outer comb with 16-17 teeth. Palp tibial spine with 2 small basal

teeth, the distal conical, the proximal rectangular. Legs: tarsus I 120  $\mu$  long with solenidion  $\omega$  narrowly cylindriconal, 45  $\mu$  long. Guard seta thin, half as long as  $\omega$ .

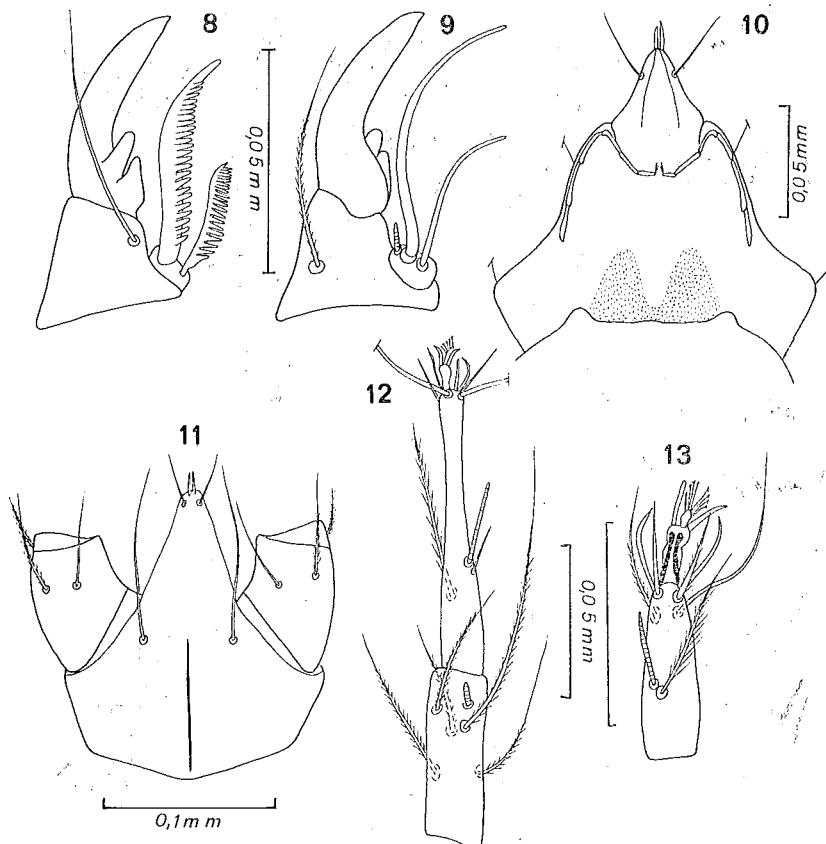


Fig. 8-13. — *Cheyletus mafekingensis* n. sp. - Female (holotype and paratype): Palp tarsus and tibia in dorsal (8) and ventral (9) view; peritreme (10); gnathosoma in ventral view (11); tarsus and tibia I in dorsal view (12); tarsus II in ventral view (13).

*Habitat:* From a bird *Plocepasser mahali*, Potchefstroom, Transvaal, 4 May 1953 (Coll. F. Zumpt). Holotype and 1 paratype females. These two slides are in the collection of the British Museum (Nat. Hist.). They had been tentatively identified as « *Cheyletus malayensis* Cunliffe ».

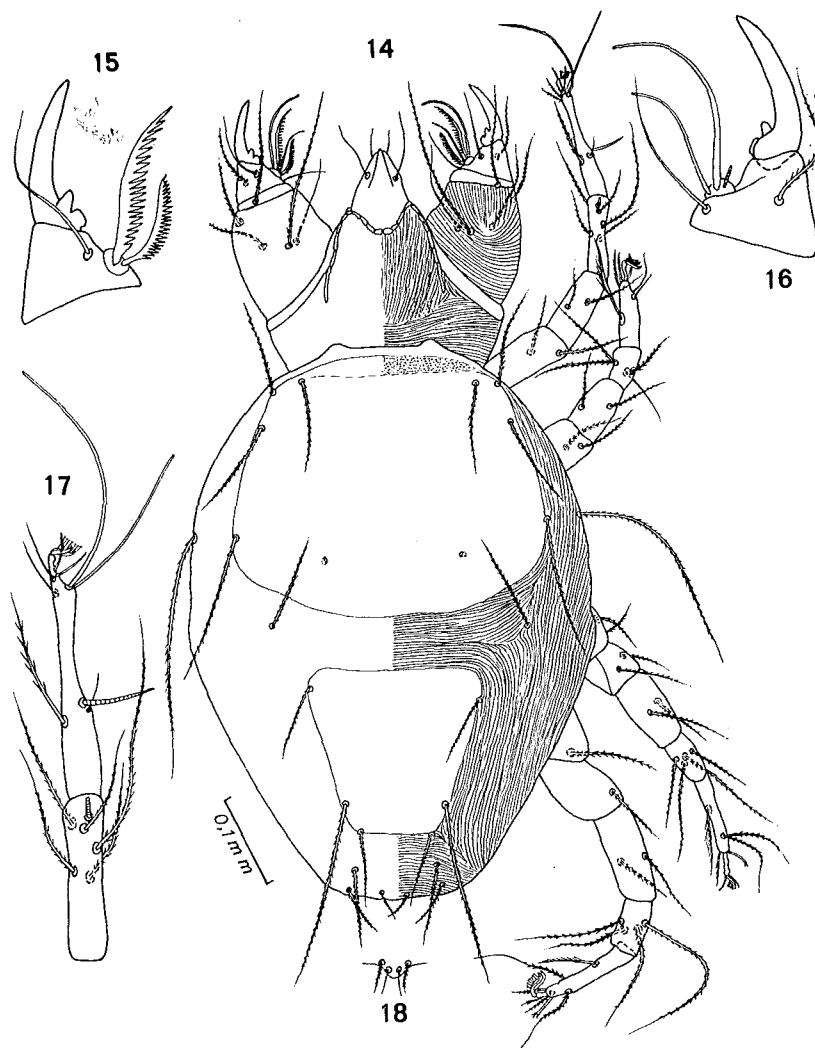


Fig. 14 - 18. — *Cheyletus pseudomalaccensis* n. sp. - Holotype female: dorsal view (14); palp tarsus and tibia in dorsal (15) and ventral view (16); tarsus and tibia I in dorsal view (17); anal setae  $a_1$  and  $a_2$  (18).

*Remark*: This new species is well distinct from *Ch. malayensis* mainly by the great distance between the two dorsal plates (those plates are almost contiguous in *malayensis*) and the different shape and the unequal lengths of dorsal setae (see Fain, 1980). It differs from *Ch. malaccensis* by the much larger size of the dorsal plates, the small number of teeth on the inner comb, the thinner aspect and the unequal length of some dorsal setae, the different aspect of sole-nidion w 1.

#### 4. **Cheyletus cacahuamilpensis** Baker, 1949

This species was known only from Mexico and U.S.A. A female specimen of that species has been found by F. Zumpt from the nest of *Cynictis penicillata*, Mafeking, South Africa (XI.1969). It corresponds perfectly with the redescription of that species by Summers & Price, 1970.

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