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A NEW PYROGLYPHID MITE  
FROM AUSTRALIA  
(ACARINA : SARCOPTIFORMES,  
PYROGLYPHIDAE)

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A NEW PYROGLYPHID MITE FROM AUSTRALIA  
(ACARINA : SARCOPTIFORMES, PYROGLYPHIDAE)

BY

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So far 10 genera and 24 species have been recognized in the family Pyroglyphidae CUNLIFFE. Most of these mites live in house dust or in nests of birds or mammals. The other species are known from various habitats, mostly dried skins and stored food. At the end of this paper we give a list of all the valid species in this family together with their main habitats.

Some of these mites (e.g. *Dermatophagoides pteronyssinus*) are cosmopolitan and have been found in house dust in every parts of the world (FAIN, 1965a, 1966a, 1966b, 1967a, 1967b, 1969, etc...). It has been proved that these mites are important producers of lung allergy in man and probably the most frequent agents of house-dust asthma (VOORHORST et al., 1964, SPIEKSMAN, 1967).

FAIN (1967b) has split the Pyroglyphidae into two subfamilies : Pyroglyphinae CUNLIFFE and Dermatophagoidinae FAIN. The first subfamily is characterized by the strong sclerotization of the cuticle, the presence of a distinct tegmen partly covering the chelicerae dorsally and in the female by the sclerotization and generally greater development of the posterior vulvar lip and the very poor development of the epigynium. In the second group the cuticle is soft and striated, there is no tegmen, the posterior vulvar lip is short and soft and in all the genera, except one (*Malayoglyphus*), the epigynium is well developed and strongly sclerotized. The new genus and species that we describe here belongs to the first subfamily. It has been found by the junior author in Weelawadji cave, Western Australia.

We agree here with GAUD (1968) who has revalidated the genus *Hirstia* HULL, 1931. The same author has included in the subfamily Dermatophagoidinae several genera and species which are true parasites of birds. We think that these taxa do not belong to the Pyroglyphidae.

FAMILY PYROGLYPHIDAE CUNLIFFE, 1958

SUBFAMILY PYROGLYPHINAE (CUNLIFFE, 1958) FAIN, 1967

Genus **Weelawadji** gen. nov.

*Definition* : In both sexes there is a short but distinct tegmen. Dorsally the propodosoma and the hysterosoma are nearly completely covered with punctate shields. Ventrally all the coxae carry large shields. The striation separating these shields is rather thick.

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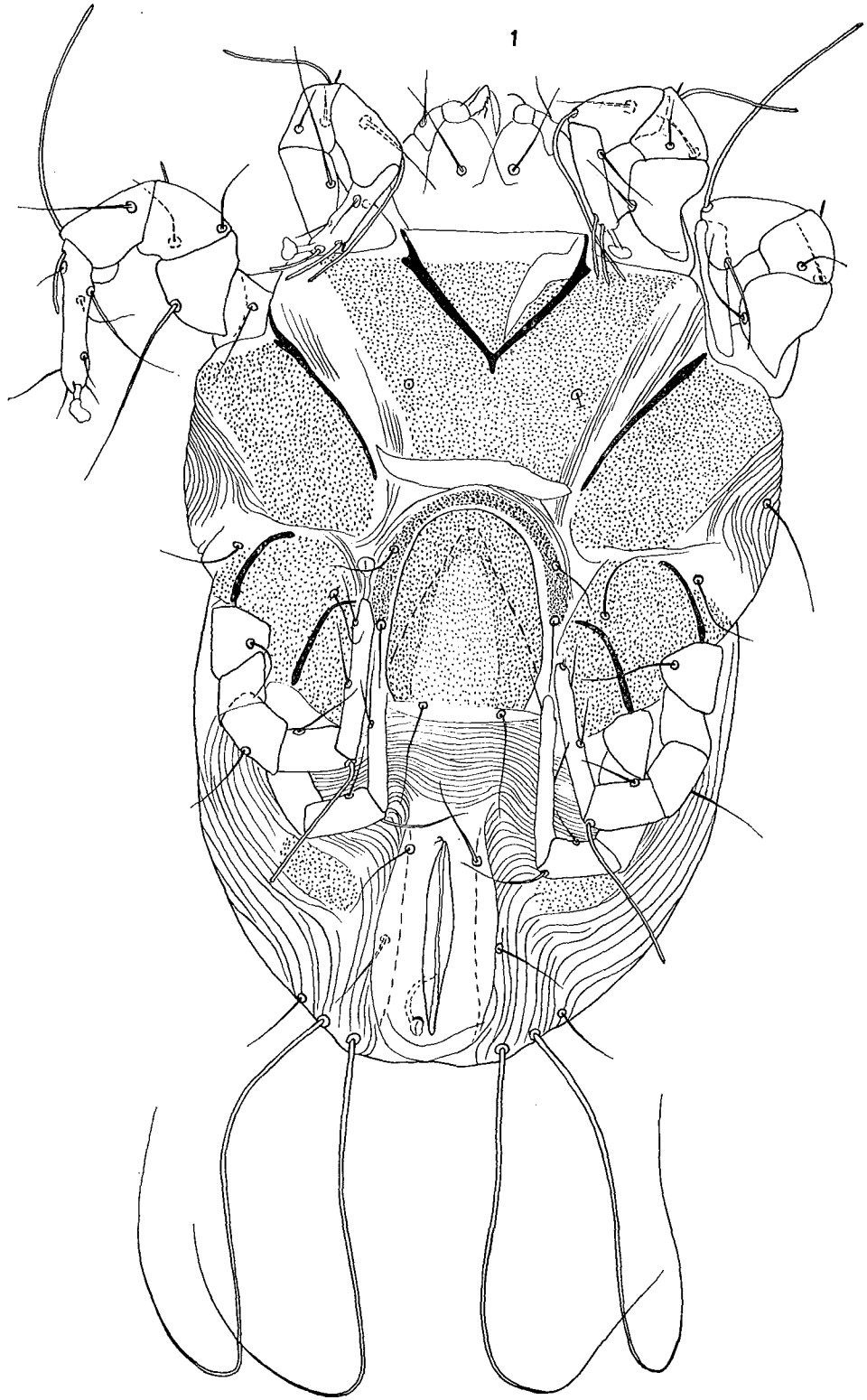
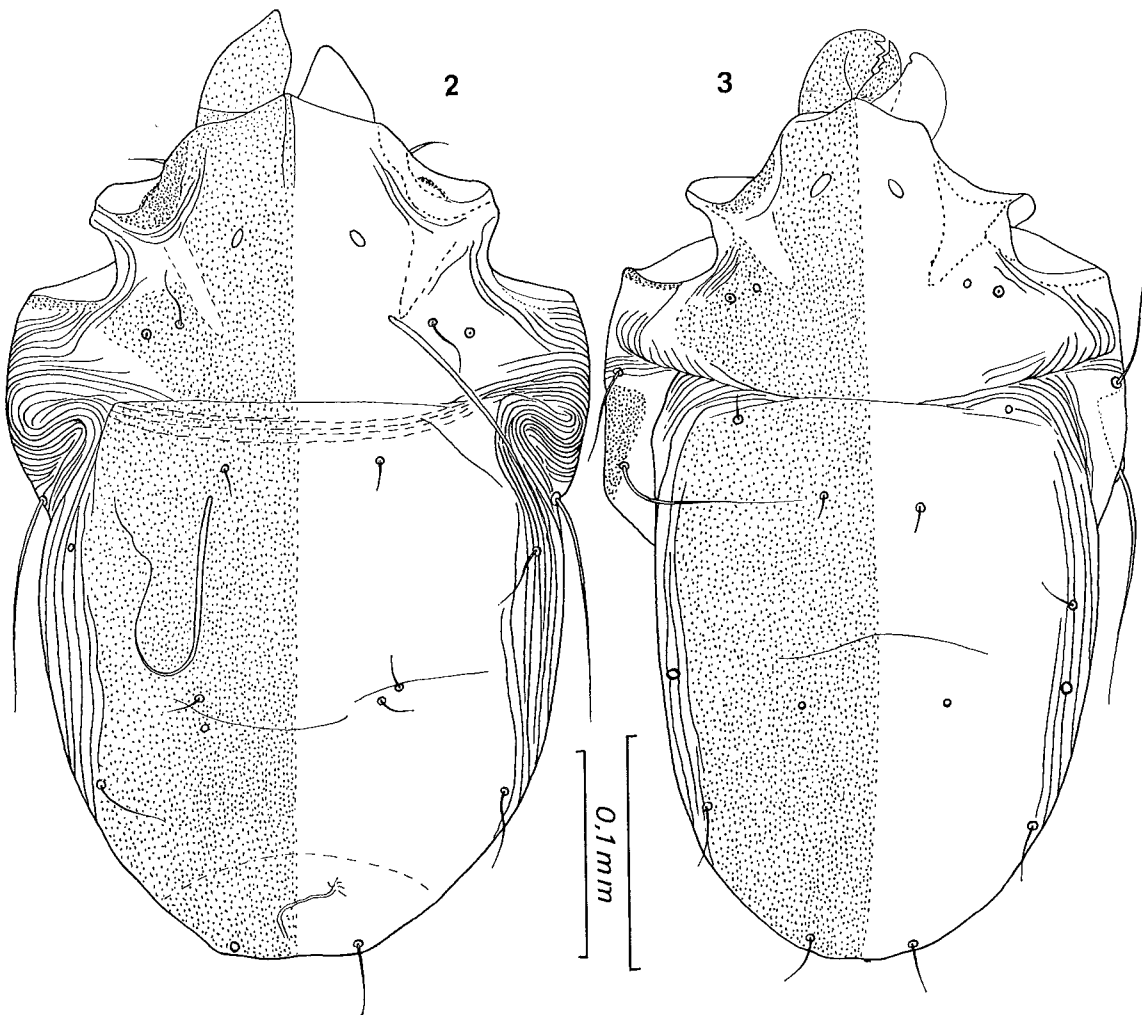


FIG. 1. — *Weelawadjia australis* sp. n. Female (holotype) ventrally.

*Female* with the posterior vulvar lip very long covering completely the vulvar slit ; epigynum not observed ; copulatory orifice opening ventrally close to the posterior extremity of the anus ; epimera I fused in a Y with a very short sternum ; anterior legs with a small apical process (= "ongle") ; legs III and IV subequal, the tarsi IV being slightly longer than tarsi III, both tarsi with a pair of rather thick preapical short spines, unequal on tarsi III ; tarsus I with a small preapical ventral process, a similar process is present on tarsus II but it is a little larger. *Male* : abdomen rounded ; presence of a pair of well-formed adanal suckers ; epimera I fused in Y with a distinct sternum ; legs I-II subequal ; legs IV distinctly shorter and thinner than legs III, tarsus IV with 3 simple hairs and 2 small suckerlike modified hairs ; tarsi I-II as in the female.

*Chaetotaxy* : the *sc e* are broken, their bases are relatively large which indicates that these hairs are long. In the female the *a i* and *a e* are present and the tarsi I-IV carry 7-8-6-5 hairs respectively (famulus not counted).



FIGS. 2-3. — *Weelawadja australis* sp. n. Female (holotype) (fig. 2) and male (allotype) (fig. 3) in dorsal view.

*Types species* : *Weelawadjia australis* spec. nov.

*Systematic position of the genus Weelawadjia* g. n.

This genus is distinguished from the other genera of the Pyroglyphinae, in both sexes by the great length of the *sc e* setae, the fusion of the epimera I with production of a short sternum, in the female by the spinous aspect of some tarsal hairs and in the male by the presence on tarsi IV of two modified suckerlike hairs instead of simple or cylindrical hairs.

**Weelawadjia australis** spec. nov.

FEMALE (holotype) (fig. 1, 2, 6-9) : Length of idiosoma 405  $\mu$ , maximum width 279  $\mu$ . In the paratype 450  $\mu$   $\times$  340  $\mu$ . Tegmen triangular, clearly distinct in the paratype, (fig. 2) less developed in the holotype probably because this specimen is a little contracted. The epigynum is replaced by a cuticular punctate band horseshoe shaped.

*Chaetotaxy* : The *sc e* setae are broken. In the holotype there are two long hairs (180  $\mu$  long) lying free on the dorsal surface of the body at some distance from the *sc e* bases, they probably are the *sc e* (fig. 2). Setae *d 5* and *l 5* long (270  $\mu$  and 300  $\mu$  respectively). Genu I with two solenidia, one very short and thin, the other long and thicker.

MALE (allotype) (fig. 3, 4) : Length of idiosoma 360  $\mu$ , maximum width 219  $\mu$ . *Chaetotaxy* : setae *sc e* broken ; the *d 5* and *l 5* long and situated on sclerotized bases. Tarsi I-IV with 7-8-6-5 hairs.

*Habitat* :

1. From drifts of bat guano, on cave floor in Weelawadji Cave, near Eneabba, Western Australia. Coll. J. LOWRY, 8.X.1972 (holotype ♀ and allotype ♂).
2. From Swallow nest material, on floor, rich with various guano, from floor of cave Coll. J. LOWRY, in same cave and on same date as above (1 paratype ♀).

Weelawadji Cave, is developed in a belt of coastal eolian limestone, at Lat. 29° 48' s ; long. 115° 05' E, near the townsite of Eneabba, Western Australia. The climate here is semi-arid, with an annual evaporation of 1,520 mm to 1,780 mm, and an annual rainfall of 510 mm to 630 mm, which falls mainly in winter. Mean daily temperatures are, in January, a maximum of 30°C and a minimum of 18°C, and in July, a maximum of 17°C and a minimum of 10°C.

Although the entrance of Weelawadji Cave, is very large, climatic conditions are less severe immediately inside the cave. Temperatures fluctuate less widely, and the humidity is generally markedly higher. Even in the regions of twilight, long before the very stable interior, temperatures and humidity tend to be stable over a period of days and weeks, altering only gradually with the seasons.

The cave is inhabited by the Chocolate bat, *Chalinolobus morio*, which not only leaves accumulated piles of guano under its roosting sites, but also a thin spread of faecal pellets on the floor, throughout the cave. Sample I, containing the holotype ♀, and the allotype ♂ came from one such thin drift, in the twilight region.

Welcome Swallows, *Hirundo neoxena*, permanently use the ceiling close to the entrance as

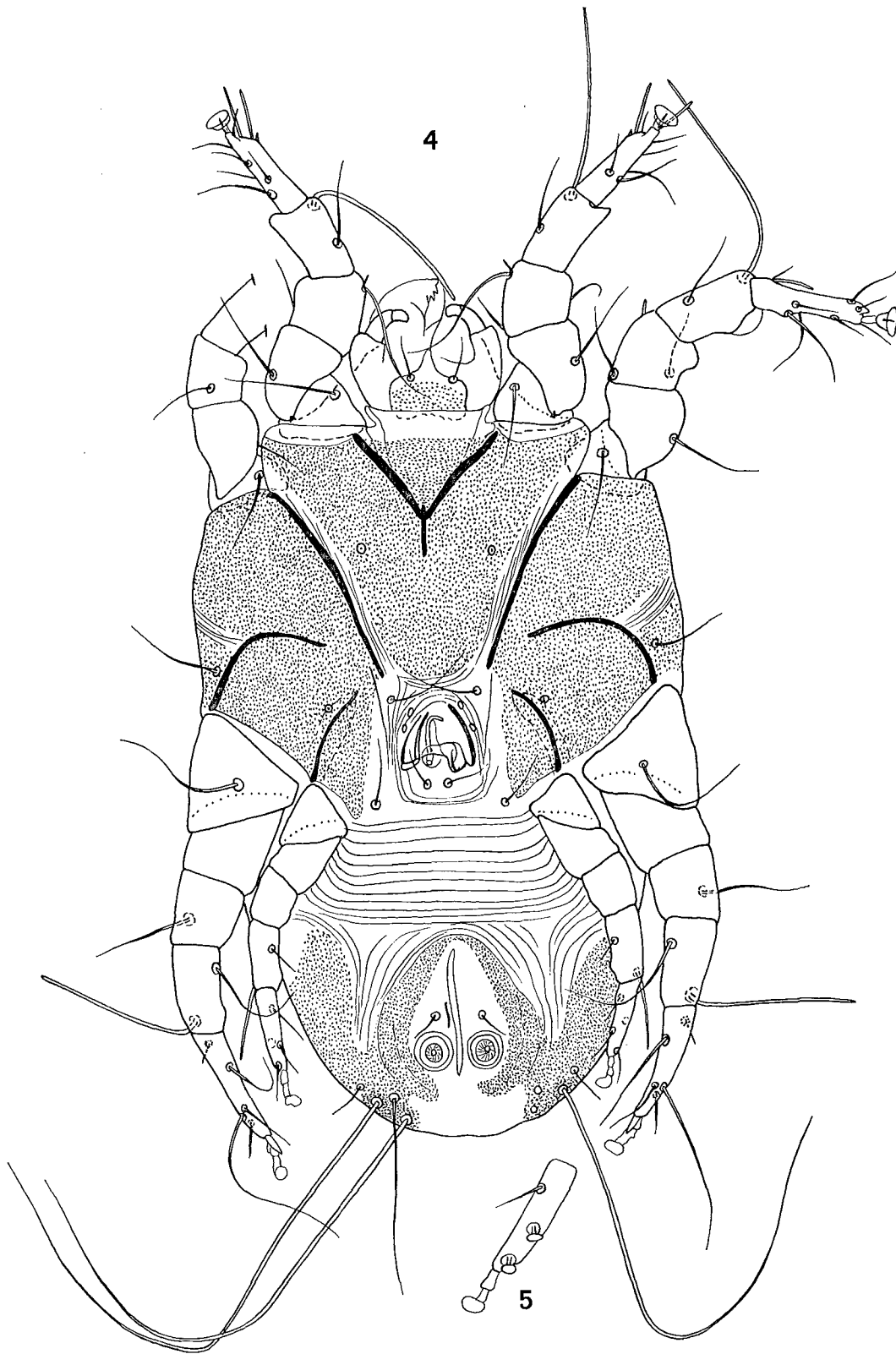
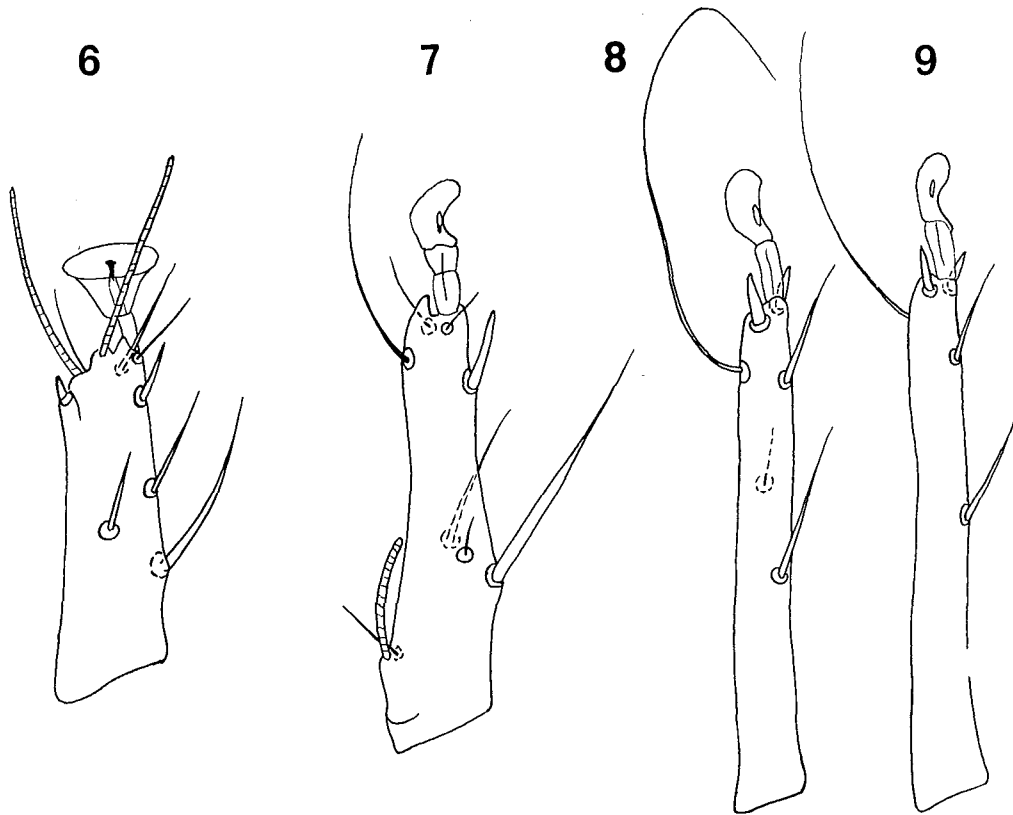


FIG. 4-5. — *Weelawadjia australis* sp. n. Male (allotype) ventrally (fig. 4). Tarsus IV of male dorsally (fig. 5).

nesting sites. Their guano also tends to accumulate under nests and ledges used for resting, as well as being scattered on the floor near the entrance. Right at the entrance, the Honey Bee, *Apis mellifera*, builds hives, and dead bodies of this insect are included in the debris on the floor in this region.



FIGS. 6-9. — *Weelawadjia australis* sp. n. Female (paratype) : tarsi I to IV, in lateral view (fig. 6 to 9).

Two mammals use the entrance and twilight regions of Weelawadji Cave for temporary shelter. They are the fox, *Vulpes vulpes*, which leaves coprolites scattered throughout both regions, and feral goats, *Capra hircus*, whose droppings are thickest closer to the entrance. Sample 2, containing the paratype ♀, came from close to the entrance from material that included Swallow nest material, and was rich with the various guanos from the floor—Swallow, bat, and goat, as well as Bee bodies.

Holotype and allotype in the Australian National Insect Collection, CSIRO division of Entomology, Canberra. One female paratype in the collection of A. FAIN.

LIST OF THE SPECIES OF PYROGLYPHIDAE

N.(B. : r) (n) = new localities observed by the senior author

2) ? = probably the normal habitat

3) \* = Typical habitat = from which the species has been described at first

\*\* = Normal habitat = where the species is usually found)

Species	Typical and normal habitat	Locality
A. PYROGLYPHINAE		
Genus <i>Pyroglyphus</i> , subg. <i>Pyroglyphus</i> CUNLIFFE, 1958		
1. <i>P. (P.) morlani</i> CUNLIFFE, 1958	*Nest of a rat, <i>Neotoma albigula</i> , Cricetidae	New Mexico (U.S.A.)
Genus <i>Pyroglyphus</i> , subg. <i>Hughesiella</i> FAIN, 1965		
2. <i>P. (H.) africanus</i> (HUGHES, 1954)	*Fish meal	Angola
Genus <i>Bontiella</i> FAIN, 1965		
3. <i>Bontiella bouilloni</i> FAIN, 1965	*Nest of birds, mainly Ploceidae	Zaire (ex Congo)
Genus <i>Euroglyphus</i> subg. <i>Euroglyphus</i> FAIN, 1965		
4. <i>E. (E.) maynei</i> (COOREMAN, 1950)	*Cotton-seed cake **House dust	Belgium Cosmopolitain
Genus <i>Euroglyphus</i> subg. <i>Gymnoglyphus</i> FAIN, 1965		
5. <i>E. (G.) longior</i> (TROUESSART, 1897)	*On dried skins **(?) Grain débris	France England, Sweden
6. <i>E. (G.) osu</i> FAIN and JOHNSTON, 1973	*Dry debris on barn floor	U.S.A.
Genus <i>Weelawadjia</i> g. n.		
7. <i>W. australis</i> sp. n.	*Guano of a cave	Western Australia
A. DERMATOPHAGOIDINAE		
Genus <i>Dermatophagoides</i> BOGDANOV, 1864		
8. <i>D. scheremetewskyi</i> BOGDANOV, 1864	*On the skin of men infected with <i>Sarcoptes scabiei</i>	U.S.S.R.



- |   |   |   |
|---|---|---|
| 9. <i>D. pteronyssinus</i><br>(TROUSSERT, 1897)                         | *On dried skins   | France                                  |
|   | **House dust  | Cosmopolitan                            |
| 10. <i>D. farinae</i><br>HUGUES, 1961                                   | *Poultry and pig-rearing meal   | England                                 |
|   | **House dust  | Cosmopolitan                            |
| 11. <i>D. evansi</i><br>FAIN, HUGHES and JOHNSTON, 1967                 | *Feather pillow   | Ghana                                   |
|   | **(?) Nests of birds  | U.S.A.                                  |
| 12. <i>D. rwandae</i><br>FAIN, 1967                                     | *Nest of a Sturnidae  | Rwanda                                  |
| 13. <i>D. aureliani</i><br>FAIN, 1967                                   | *Nest of <i>Passer griseus ugandae</i>  | Rwanda                                  |
|   | **Nests of swallows, swifts, sparrows   |   |
| 14. <i>D. halterophilus</i><br>(FAIN and FEINBERG, 1970)                | *House dust   | Singapour                               |
| 15. <i>D. microceras</i><br>GRIFFITHS and CUNNINGTON, 1971              | *House dust   | England                                 |
| 16. <i>D. neotropicalis</i><br>FAIN and BRONSWIJK, 1973                 | *In dust of bed-mattresses  | Surinam                                 |
| Genus <i>Hirstia</i><br>HULL, 1931                                      |   |   |
| 17. <i>H. chelidonis</i><br>HULL, 1931                                  | *Nest of a House Martin   | England                                 |
|   | **Nests of birds, mainly swallows, swifts and sparrows. Rarely in house-dust) | Europe, Africa, Asia                    |
| Genus <i>Sturnophagoides</i> subg. <i>Sturnophagoides</i><br>FAIN, 1967 |   |   |
| 18. <i>S. (S.) bakeri</i><br>FAIN, 1967                                 | *On starlings   | U.S.A.                                  |
| 19. <i>S. (S.) brasiliensis</i><br>FAIN, 1967                           | *House dust   | Brasil, Singapore, Djakarta, (n) France |
| Genus <i>Sturnophagoides</i> subg. <i>Kivuicola</i><br>FAIN, 1971       |   |   |
| 20. <i>S. (K.) kivuana</i><br>FAIN, 1971                                | *On a dry skin of a Lorisidae   | Kivu, Zaïre                             |
| Genus <i>Hullia</i><br>GAUD, 1968                                       |   |   |
| 21. <i>H. anisopoda</i><br>GAUD, 1968                                   | *On <i>Agapornis pullaria</i>   | Cameroun                                |
| Genus <i>Malayoglyphus</i><br>FAIN, CUNNINGTON and SPIEKSM, 1969        |   |   |
| 22. <i>M. intermedius</i><br>FAIN, CUNNINGTON and SPIEKSM, 1969         | *House dust   | Singapore, Djakarta, (n) South Africa   |
| 23. <i>M. carmelitus</i><br>SPIEKSM, 1973                               | *In house   | Israël                                  |

Genus *Guatemalichus*

FAIN and WHARTON, 1970

24. *G. bananae*

\*On bananas

Guatemala

FAIN and WHARTON, 1970

Genus *Pottocola*

FAIN, 1971

25. *P. scutata*

\*On dry skin of a  
Lorisidae

Kivu, Zaïre

FAIN, 1971

SUMMARY

The authors describe a new mite *Weelawadja australis* g. n., sp. n. family Pyroglyphidae CUNLIFFE, 1958, from the soil of a cave in Western Australia.

RÉSUMÉ

Les auteurs décrivent un nouvel acarien *Weelawadja australis* g. n., sp. n., famille Pyroglyphidae CUNLIFFE, 1958, découvert sur le sol d'une caverne en Australie Occidentale.

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