

Mealybug species of the genus *Paraputo* Laing, with nomenclatural changes in some species hitherto assigned to the genus *Cataenococcus* Ferris (Hemiptera, Coccoidea, Pseudococcidae)

Yair Ben-Dov, Douglas John Williams

Abstract

The 81 mealybug species, which have been described in or assigned to *Cataenococcus* and *Paraputo* are listed and placed in *Paraputo*. Fourteen of these species previously assigned to *Cataenococcus* are transferred to *Paraputo*.

Résumé

Liste des Cochenilles du genre *Paraputo* Laing, avec les modifications nomenclaturales pour les quelques espèces jusqu'alors comprises dans le genre *Cataenococcus* Ferris (Hemiptera, Coccoidea, Pseudococcidae). Les 81 espèces de Pseudococcines qui ont été décrites ou placées dans les genres *Cataenococcus* et *Paraputo* sont énumérées et toutes placées dans le seul genre *Paraputo*. Ainsi quatorze espèces auparavant placées dans le genre *Cataenococcus* sont transférées dans le genre *Paraputo*.

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Mealybug species of the genus *Paraputo* Laing, with nomenclatural changes in some species hitherto assigned to the genus *Cataenococcus* Ferris (Hemiptera, Coccoidea, Pseudococcidae)

by Yair BEN-DOV * & Douglas J. WILLIAMS **

*Department of Entomology, Agricultural Research Organization, The Volcani Center, Bet Dagan 50250, Israel

**Department of Entomology, The Natural History Museum, London SW7 5BD, UK

Résumé. – Liste des Cochenilles du genre *Paraputo* Laing, avec les modifications nomenclaturales pour les quelques espèces jusqu'alors comprises dans le genre *Cataenococcus* Ferris (Hemiptera, Coccoidea, Pseudococcidae). Les 81 espèces de Pseudococcines qui ont été décrites ou placées dans les genres *Cataenococcus* et *Paraputo* sont énumérées et toutes placées dans le seul genre *Paraputo*. Ainsi quatorze espèces auparavant placées dans le genre *Cataenococcus* sont transférées dans le genre *Paraputo*.

Summary. – The 81 mealybug species, which have been described in or assigned to *Cataenococcus* and *Paraputo* are listed and placed in *Paraputo*. Fourteen of these species previously assigned to *Cataenococcus* are transferred to *Paraputo*.

Mots clés. – Hemiptera, Coccoidea, Pseudococcidae, *Paraputo*, *Cataenococcus*, new combinations.

LAING (1929) established *Paraputo* for *Paraputo ritchiei* Laing, 1929, which he described from Tanzania in the Afrotropical Region. *Paraputo ritchiei* is a junior synonym of *Ripersia anomala* Newstead, 1908, also described from Tanzania. Since 1929, about 66 mealybug species have been described in *Paraputo* or assigned to it. The genus *Cataenococcus* was described by FERRIS (1955), in which he included the type species *Dactylopius olivaceus* Cockerell, 1896, and additional three species, all known from the Nearctic Region. FERRIS (1955) and MCKENZIE (1967) suggested that *Cataenococcus* is related to *Farinococcus* Morrison. MATILE-FERRERO (1978) and WILLIAMS & GRANARA DE WILLINK (1992) stated that *Cataenococcus* is close to *Paraputo*.

TANG (1992) synonymized *Cataenococcus* with *Paraputo*. This synonymy was accepted by WILLIAMS (2004), while revising 45 species of *Paraputo* from southern Asia.

A total of 81 species, listed below, have been described in or assigned to *Cataenococcus* or *Paraputo* (BEN-DOV, 1994 ; WILLIAMS, 2004 ; BEN-DOV, 2005). This paper is prepared in order to formally place in *Paraputo* 14 species which were described in or assigned to *Cataenococcus*.

List of *Paraputo* species

Paraputo acehicus Williams, 2004 : 491.

Paraputo albizzicola Borchsenius, 1962 : 228.

Paraputo amydrus Williams, 2004 : 493.

Paraputo anomalus (Newstead)

Ripersia anomala Newstead, 1908 : 9.

= *Paraputo ritchiei* Laing, 1929 : 473. Synonymy by WILLIAMS, 1958 : 217.

= *Paraputo multispinosa* James, 1935 : 233. Synonymy by STRICKLAND, 1947 : 512.

Paraputo anomala ; WILLIAMS, 1958 : 217. Change of combination.

Paraputo anomalus ; DE LOTTO, 1964 : 363. Justified emendation.

Paraputo aracearum Williams, 2005 : 3344.

Paraputo areolatus Williams, 2004 : 495.

Paraputo banzigeri Williams, 2004 : 497.

Paraputo barbatus De Lotto, 1964 : 363.

Cataenococcus barbatus ; MATILE-FERRERO, 1978 : 52. Change of combination.

- Paraputo capillulatus*** Williams, 2004 : 498.
- Paraputo carnosae*** (Takahashi)
Tylococcus carnosae Takahashi, 1951a : 3.
Paraputo carnosae ; TANG, 1992 : 306. Change of combination.
- Paraputo chimbuensis*** Williams, 2005 : 3346.
- Paraputo citricola*** Tang, 1992 : 598.
- Paraputo claviger*** Williams, 2004 : 503.
- Paraputo colombiensis*** (Williams & Granara de Willink) **n. comb.**
Cataenococcus colombiensis Williams & Granara de Willink, 1992 : 75.
- Paraputo comorensis*** Mamet, 1960 : 158.
- Paraputo corbetti*** (Takahashi)
Formicococcus corbetti Takahashi, 1939 : 111.
Paraputo corbetti ; WILLIAMS, 2004 : 504. Change of combination.
- Paraputo cribratus*** Williams, 2004 : 509.
- Paraputo cualatensis*** (Cockerell) **n. comb.**
Pseudococcus cualatensis Cockerell, 1903 : 47.
Farinococcus cualatensis ; FERRIS, 1953 : 352. Change of combination.
Cataenococcus cualatensis ; FERRIS, 1955 : 3. Change of combination.
- Paraputo cubicus*** Williams, 2004 : 511.
- Paraputo danzigae*** Williams, 2004 : 513.
- Paraputo domatium*** Williams, 2004 : 515.
- Paraputo drypetis*** Williams, 2004 : 517.
- Paraputo ductorum*** (Williams & Granara de Willink) **n. comb.**
Cataenococcus ductorum Williams & Granara de Willink, 1992 : 77.
- Paraputo ensete*** (Williams & Matile-Ferrero) **n. comb.**
Cataenococcus ensete Williams & Matile-Ferrero, 1999 : 146.
- Paraputo errabundus*** Williams, 2004 : 519.
- Paraputo formicarii*** (Ehrhorn) **n. comb.**
Dactylopius formicarii Ehrhorn, 1899 : 6.
Pseudococcus formicarii ; FERNALD, 1903 : 102. Change of combination.
Cataenococcus formicarii ; MILLER & MCKENZIE, 1973 : 491. Change of combination.
- Paraputo gallicolus*** Mamet, 1954 : 27.
Cataenococcus gallicolus ; MATILE-FERRERO, 1978 : 52. Change of combination.
- Paraputo gasteris*** Wang, 1982 : 317.
- Paraputo gigantechloae*** Williams, 2004 : 521.
- Paraputo glandulifer*** (Newstead)
Ripersia glandulifera Newstead, 1912 : 17.
Ripersia grandulifera ; SASSCER, 1912 : 87. Misspelling of species name.
Paraputo glandulifera ; DE LOTTO, 1964 : 363. Change of combination.
Cataenococcus glandulifera ; MATILE-FERRERO, 1978 : 52. Change of combination.
- Paraputo glycosmis*** Williams, 2004 : 523.
- Paraputo guadalcanalae*** Williams, 2005 : 3349.
- Paraputo guatemalensis*** (Ferris)
Farinococcus guatemalensis Ferris, 1953 : 354.
Cataenococcus guatemalensis ; FERRIS, 1955 : 3. Change of combination.
Paraputo guatemalensis ; MATILE-FERRERO, 1978 : 50. Change of combination.
- Paraputo humboldtiae*** (Green)
Lachnoidius humboldtiae Green, 1922 : 400.
Formicococcus humboldtiae ; GREEN, 1937 : 289. Change of combination.
Delococcus humboldtiae ; FERRIS, 1955 : 5. Change of combination.
Lachnodiopsis humboldtiae ; BORCHSENIUS, 1960 : 923. Change of combination.
Paraputo humboldtiae ; WILLIAMS, 2004 : 525. Change of combination.
- Paraputo hypogeus*** (De Lotto), 1961 : 213.
Paraputo hypogeus ; MATILE-FERRERO, 1978 : 50. Change of combination.

***Paraputo ingrandi* (Balachowsky)**

Cataenococcus ingrandi Balachowsky, 1959 : 340.

Paraputo ingrandi ; MATILE-FERRERO, 1978 : 50. Change of combination.

***Paraputo jasmini* (De Lotto)**

Cataenococcus jasmini De Lotto, 1961 : 214.

Paraputo jasmini ; MATILE-FERRERO, 1978 : 50. Change of combination.

***Paraputo kukumi* Williams, 1960 : 419.**

Cataenococcus kukumi ; MATILE-FERRERO, 1978 : 52. Change of combination.

Paraputo kukumi ; BEN-DOV, 1994 : 284. Revived combination.

***Paraputo larai* (Williams)**

Cataenococcus larai Williams, 1969 : 101.

Paraputo larai ; MATILE-FERRERO, 1978 : 50. Change of combination.

***Paraputo latebrae* Williams, 2004 : 526.**

***Paraputo leveri* (Green)**

Pseudococcus leveri Green, 1934 : 473.

Paraputo leveri ; WILLIAMS, 1960 : 421. Change of combination.

Cataenococcus leveri ; MATILE-FERRERO, 1978 : 52. Change of combination.

***Paraputo limitaneus* Williams, 2004 : 532.**

***Paraputo lisponotus* Williams, 2004 : 534.**

***Paraputo loranthei* (Strickland)**

Farinococcus loranthei Strickland, 1947 : 515.

Cataenococcus loranthei ; BALACHOWSKY, 1954 : 247. Change of combination.

Paraputo loranthei ; MATILE-FERRERO, 1978 : 50. Change of combination.

***Paraputo malaccensis* (Takahashi)**

Tylococcus malaccensis Takahashi, 1951a : 11.

Paraputo malaccensis ; TANG, 1992 : 309. Change of combination.

Paraputo malaccensis ; TANG, 1992 : 309. Misspelling of species name.

***Paraputo mangiferae* (Betrem)**

Formicococcus mangiferae Betrem, 1937 : 90.

Paraputo mangiferae ; WILLIAMS, 2004 : 540. Change of combination.

***Paraputo markhamiae* (De Lotto)**

Cataenococcus markhamiae De Lotto, 1964 : 344.

Paraputo markhamiae ; MATILE-FERRERO, 1978 : 52. Change of combination.

***Paraputo marlatti* Williams, 2004 : 540.**

***Paraputo martini* Williams, 2004 : 542.**

***Paraputo maschwitz* Williams, 2004 : 544.**

***Paraputo mazoeensis* (Hall) n. comb.**

Pseudococcus mazoeensis Hall, 1937 : 127.

Cataenococcus mazoeensis ; MATILE-FERRERO, 1978 : 52. Change of combination.

Cataenococcus mazoensis ; MATILE-FERRERO, 1978 : 52. Misspelling of species name.

Cataenococcus mazoensis ; BEN-DOV, 1994 : 72. Misspelling of species name.

***Paraputo moogi* Williams, 2004 : 546.**

***Paraputo myrmecophilus* Mamet, 1951 : 235.**

***Paraputo neonaucleae* Williams, 2004 : 548.**

***Paraputo odontomachi* (Takahashi)**

Formicococcus odontomachi Takahashi, 1951b : 15.

Paraputo odontomachi ; WILLIAMS, 2004 : 550. Change of combination.

***Paraputo olivaceus* (Cockerell)**

Dactylopius olivaceus Cockerell, 1896 : 36.

Pseudococcus olivaceus ; FERNALD, 1903 : 107. Change of combination.

= *Lachnodiella acritocera* Chaffin, 1923 : 170. Synonymy by FERRIS, 1953a : 356.

Farinococcus olivaceus ; FERRIS, 1953 : 356. Change of combination.

Cataenococcus olivaceus ; FERRIS, 1955 : 3. Change of combination.

Paraputo olivaceus ; TANG, 1992 : 304. Change of combination.

***Paraputo pahanensis* (Takahashi)**

Pseudococcus pahanensis Takahashi, 1951a : 7.

Indococcus pahanensis ; TANG, 1992 : 294. Change of combination.

Paraputo pahanensis ; TANG, 1992 : 310. Change of combination.

- Paraputo palmicola*** Williams, 2004 : 555.
- Paraputo pandanicola*** Williams, 2004 : 558.
- Paraputo phoradendri* (Cockerell) n. comb.**
Pseudococcus phoradendri Cockerell, in WHEELER, 1912 : 133.
 = *Lachnoidius salicis* Ferris, 1919a : 23. Synonymy by FERRIS, 1919b : 298.
Lachnoidius phoradendri ; FERRIS, 1919a : 298. Change of combination.
Farinococcus phoradendri ; FERRIS, 1953 : 358. Change of combination.
Cataenococcus phoradendri ; FERRIS, 1955 : 4. Change of combination.
- Paraputo podagrosus* (Green) n. comb.**
Pseudococcus podagrosus Green, 1933 : 49.
Cataenococcus podagrosus ; WILLIAMS & GRANARA DE WILLINK, 1992 : 87. Change of combination.
- Paraputo porosus*** Borchsenius, 1962 : 226.
- Paraputo ranauensis*** Williams, 2004 : 559.
- Paraputo ridleyi* (Takahashi)**
Pseudococcus ridleyi Takahashi, 1951b : 8.
Indococcus ridleyi ; TANG, 1992 : 295. Change of combination.
Paraputo ridleyi ; WILLIAMS, 2004 : 561. Change of combination.
- Paraputo riedelae*** Williams, 2004 : 563.
- Paraputo riparius*** Williams, 2004 : 565.
- Paraputo rotundus* (Morrison) n. comb.**
Pseudococcus rotundus Morrison, 1922 : 135.
Cataenococcus rotundus ; WILLIAMS & GRANARA DE WILLINK, 1992 : 89. Change of combination.
- Paraputo schellerichae*** Williams, 2004 : 567.
- Paraputo sekayuensis*** Williams, 2004 : 569.
- Paraputo sinensis*** Borchsenius, 1962 : 224.
- Paraputo sinuosus*** Williams, 2004 : 571.
- Paraputo spatholobi*** Williams, 2004 : 573.
- Paraputo specicola*** Williams, 2004 : 575.
- Paraputo subcorticis* (Morrison) n. comb.**
Ripersia subcorticis Morrison, 1922 : 141.
Cataenococcus subcorticis ; WILLIAMS & GRANARA DE WILLINK, 1992 : 91. Change of combination.
- Paraputo sugonyaevi*** Williams, 2004 : 577.
- Paraputo szemaoensis* (Borchsenius)**
Lachnodiopsis szemaoensis Borchsenius, 1960 : 923.
Paraputo szemaoensis ; WILLIAMS, 2004 : 484. Change of combination.
- Paraputo taquarae* (Hempel) n. comb.**
Ripersia taquarae Hempel, 1912 : 58.
Lachnodiella taquarae Hempel, 1920 : 345 ; WILLIAMS & GRANARA DE WILLINK, 1992 : 91. Change of combination.
Cataenococcus taquarae ; WILLIAMS & GRANARA DE WILLINK, 1992 : 92. Change of combination.
- Paraputo taylori* (Williams & Granara de Willink) n. comb.**
Cataenococcus taylori Williams & Granara de Willink, 1992 : 94.
- Paraputo theaecola* (Green)**
Dactylopius theaecola Green, in GREEN & MANN, 1907 : 347.
 = *Paraputo taraktogeni* Rao, 1950 : 15. Synonymy by WILLIAMS, 2004 : 579.
Cataenococcus theaecola ; DAS & GANGULI, 1961 : 255. Change of combination.
Paraputo theaecola ; WILLIAMS, 2004 : 579. Change of combination.
- Paraputo theobromicola* (Williams & Granara de Willink) n. comb.**
Cataenococcus theobromicola Williams & Granara de Willink, 1992 : 96.
- Paraputo villosus* (De Lotto) n. comb.**
Dysmicoccus villosus De Lotto, 1969 : 5.
Cataenococcus villosus ; MATILE-FERRERO, 1978 : 52. Change of combination.

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