SOME GENERIC DESCRIPTIONS AND NAME CHANGES IN THE FAMILY PHYTOSEIIDAE (ACARINA: MESOSTIGMATA)[1, 2]

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ABSTRACT

Five newly delineated genera, *Proprioseiulus*, *Noeledius*, *Chelaseius*, *Athiasia*, and *Orientiseius* are described. Four genera are synonymized: *Amblyseiulus* with *Proprioseiopsis*, *Paradromus* with *Kampimodromus*, *Cydnodromus* with *Neoseiulus*, and *Clavodromina* with *Paraseiulella*. *Ricoseius* is elevated to generic status. Systematic problems in *Phytoseius* are discussed and clarified. Type synonymy in *Clavidromus* is indicated.

During the past 5 years, the authors and Dr. Donald De Leon (until his untimely death on 8 June 1966) have been making an intensive investigation of the local phytoseiid fauna, with the expressed purpose of publishing the results as "The Phytoseiidae of Florida." This investigation has uncovered some taxonomic inadequacies and systematic errors at the generic level in Muma (1961), the taxonomic publication used as a guide.

Since Muma (1961), several workers have erected new genera, modified generic diagnoses, or redelineated genera.

De Leon (1965) relocated *Neoseiulus* Hughes from a genus in the Phytoseiinae to a subgenus of *Amblyseius* Berlese in the Amblyseiinae; erected *Typhlodromips* for species not related to the type of his subgenus *Typhlodromopsis*; and erected *Mumaseius* for previously included species not congeneric with the type of *Neoseiulus*. De Leon (1965a) erected a new genus *Nothoseius* and a new subgenus of *Amblyseius*, *Ricoseius*. De Leon (1966) indicated a new genus *Iphiseiodes* and synonymized the subgenus *Amblyseialus* Muma with *Amblyseius*. Denmark and Muma (1966) revised the genus *Proprioseius* Chant and expanded the diagnosis. Ehara (1967) erected the genus *Okiseius*. Gonzalez and Schuster (1962) erected two new genera, *Chileseius* and *Mesoseiulus*. Muma (1962) described a new genus, *Paraamblyseius*. Muma (1963) revised and expanded the diagnosis of *Galendromus* Muma and erected or recognized the subgenera *Galendromus* Muma, *Menaseius* Wainstein, and *Leonodromus* Muma. Muma (1965) elevated the subgenera of *Amblyseius* in Muma (1961) to generic status. Muma (1967) expanded the

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diagnoses of the genera *Amblyseius, Typhlodromips,* and *Cydnodromus* Muma; combined the genera *Amblydromella* Muma and *Typhlodromella* Muma under *Amblydromella*; and described a new genus *Cydnoseius.* Swirski and Schechter (1961) described a new genus, *Paraphytoseius.* These changes and additions were either systematically necessary or added to our knowledge concerning the apparent relationships among these mites. We accept these findings and, except for *Ricoseius* De Leon and *Neoseiulus* Hughes, will not deal with them further in this paper.

Pritchard and Baker (1962) recognized five described genera, *Typhlodromus* Scheuten, *Amblyseius* Berlese, *Iphiseius* Berlese, *Macroseius* Chant, Denmark, and Baker, and *Phytoseius* Ribaga; described a new genus *Chantia*; indicated five subgenera of *Typhlodromus,* i.e. *Typhlodromus* Scheuten, *Seiulus* Berlese, *Neoseiulus* Hughes, *Typhloseiopsis* De Leon, and *Metaseiulus* Muma; indicated six subgenera of *Amblyseius,* i.e. *Amblyseius* Berlese, *Amblyseiella* Muma, *Kampimodromus* Nesbitt, *Proprioseius* Chant, *Phytoseiulus* Evans, and *Asperoseius* Chant; erected a new subgenus of *Amblyseius, Ptenoseius*; and indicated two subgenera of *Iphiseius,* i.e. *Iphiseius* Berlese, and a new subgenus *Trochoseius.* Gonzalez and Schuster (1962) combined *Metaseiulus* Muma and *Galendromus* Muma under *Metaseiulus.* Schuster and Pritchard (1963) proposed 17 genera, many of them the subgenera of Pritchard and Baker (1962). Chant (1965) treated the family as a subfamily, recognized nine described genera, described a new genus *Gigagnathus,* and synonymized four of the genera proposed by Chant (1959) and 35 of the genera proposed by Muma (1961). Most of the changes in these reports were either not systematically necessary or represent confusion of species-group delineations, diagnoses or combinations and are not acceptable. The new species-group category, *Ptenoseius,* as pointed out by De Leon (1965a) is a subjective synonym of *Paraphytoseius* Swirski and Schechter. The new genera, *Chantia* and *Gigagnathus,* and the subgenus *Trochoseius,* seem to be valid and merit no further discussion in this paper.

For some time, there has been a systematic problem involving the subgenera and subgeneric names in the genus *Phytoseius* Ribaga. Wainstein (1959) erected two subgenera, *Phytoseius* Ribaga, and *Dubininellus* Wainstein. Since that time, Chant (1959), Chant and Athias-Henriot (1960), Chant (1965), and Denmark (1966) have discussed the systematic problem involving the type but have maintained the species-groups and subgenera essentially as they were delineated and diagnosed by Wainstein. Muma (1961) recognized these species-groups but elevated them to generic rank. Pritchard and Baker (1962) synonymized *Dubininellus* with *Phytoseius,* and renamed the other subgenus *Pennaseius.* Muma (1963a) reviewed the problem and accepted the names *Pennaseius* and *Phytoseius.* Schuster and Pritchard (1963) elevated the subgenera to genera, recognizing *Phytoseius* and *Pennaseius,* but De Leon (1965b) considered them subgenera. Since confusion still exists, this problem is discussed in detail below.

The purpose of the present paper is to diagnose newly delineated genera and make necessary systematic changes in the names of previously described genera. This information will then be available for use in our proposed faunal study.

For ease of reference, the generic treatments are systematically organized under their respective subfamilies as in Muma (1961). The terminology of setae is that of Muma (1964), of spermatodactyls De Leon (1961), and of spermathecae Schuster and Smith (1960).

Subfamily Amblyseiinae Muma

Amblyseiinae Muma, 1961: 273.

Genus *Proprioseiulus* new name

Proprioseiopsis Muma, 1961: 277 (in part, not type species).

DIAGNOSIS: Setal characters are three pairs of dorsal setae, two pairs of median setae, eight pairs of lateral setae with some elongate and weakly plumose, two pairs of sublateral setae, three pairs of sternal setae, three pairs of ventrianal setae, and three pairs of ventrolateral setae excluding caudal setae. Scutal characters are one dorsal scutum, sternal scutum longer than wide with concave posterior margin, ventrianal scutum roughly pentagonal and about equal to genital scutum in width, and primary metapodal scutum normal in size and ovate in outline. Peritremal and stigmatal scuta indistinguishably fused; peritreme extending forward between vertical setae. Spermathecal cervix tubular but slightly flared internally; atrium undifferentiated but valve distinct. Spermatodactyl with foot terminal, and heel and lateral process subequal and distinct. Chelicerae normal in size with one or more denticules on the movable finger and ten or more on the fixed finger. Legs ranked in size 1423, respectively, with leg I much longer than others, leg I with eight to twelve macrosetae, leg II with one macrosetae, leg III with two macrosetae, and leg IV with three macrosetae with that on genu longest.

TYPE SPECIES: *Proprioseiopsis paxi* Muma, 1965.

DISCUSSION: The renaming of this genus became necessary when an examination of the type species of *Proprioseiopsis* Muma (1961) showed it to be congeneric with species of *Amblyseiulus* Muma (1961). The type of *Typhlodromus sandersi* Chant, the other species originally included in *Proprioseiopsis*, has not been examined so its generic placement is uncertain. *Proprioseiopsis macrosetae* (Muma), has many characters in common with *Proprioseiulus paxi* (Muma) and may later prove to belong here.

Genus *Proprioseiopsis* Muma

Proprioseiopsis Muma, 1961: 277 (in part, type species only).

Amblyseiulus Muma, 1961: 278 (New Synonymy).

DIAGNOSIS: Setal characters revised from Muma (1961), p. 278, are three pairs of dorsal setae, three pairs of median setae, eight pairs of lateral setae with some elongate and weakly plumose, two pairs of sublateral setae, three pairs of sternal setae, three pairs of ventrianal setae,

and three pairs of ventrolateral setae excluding caudal setae. Scutal characters are one dorsal scutum, sternal scutum with length equal to, or less than, width and with concave posterior margin, ventrianal scutum roughly pentagonal and equal to genital scutum in width, primary metapodal scutum normal in size and ovate to elongate in outline. Peritremal and stigmatal scuta separated by a suture; peritreme extending forward to or between vertical setae. Spermathecal cervix fundibuliform, poculiform or saccular with the atrium undifferentiated or nodular. Spermatodactyl with foot terminal or subterminal, and heel and lateral process distinct to obscure. Chelicerae normal in size with zero to three denticules on the movable finger and three to twelve on the fixed finger. Legs ranked in size 1423, respectively, with leg I only slightly longer than others, leg I with no macroseta, leg II with zero to one macroseta, leg III with zero to two macrosetae, and leg IV with three macrosetae.

TYPE SPECIES: *Typhlodromus terrestris* Chant, 1959.

DISCUSSION: The above indicated synonymy is a systematic necessity owing to the page priority of *Proprioseiopsis* over *Amblyseiulus* after an examination of the type of *P. terrestris* showed it to be congeneric with the species originally placed in *Amblyseiulus*.

Noeledius new genus

DIAGNOSIS: Setal characters are three pairs of dorsal setae, three pairs of median setae, eight pairs of lateral setae of which some are elongate, two pairs of sublateral setae with S_2 on dorsal scutum, three pairs of sternal setae, three pairs of preanal ventrianal setae, and three pairs of ventrolateral setae excluding caudal setae. Scutal characters are one dorsal scutum, sternal scutum wider than long with a concave posterior margin, ventrianal scutum pentagonal and distinctly narrower than swollen genital scutum, and primary metapodal scutum normal in size, elongate and slender but smaller than secondary metapodal scutum; peritremal and stigmatal scuta divided by a suture; peritremal scutum extending posteriorly to leg IV exopodal scutum, and peritreme extending forward between vertical setae. Spermathecal cervix saccular but flared at vesicle; atrium elongate. Spermatodactyl unknown. Chelicerae normal in size; movable finger without denticules; fixed finger with three terminal denticules. Legs ranked in size 1423, respectively, with leg I distinctly longer than others, and no macrosetae on legs I, II, and III but three macrosetae on leg IV with that on basitarsus longest.

TYPE SPECIES: *Amblyseiulus iphiformis* Muma, 1962

DISCUSSION: This genus is closely related to *Proprioseiopsis* Muma, from which it differs by reduced cheliceral dentition, S_2 on the dorsal scutum in females, greatly swollen genital scutum, and oddly proportioned metapodal scuta.

Chelaseius new genus

DIAGNOSIS: Setal characters are four pairs of dorsal setae, three pairs of median setae, eight pairs of lateral setae some of which are elongate and weakly plumose, two pairs of sublateral setae, three pairs of

sternal setae, three pairs of ventrianal setae, and three pairs of ventrolateral setae excluding caudal setae. Scutal characters are one dorsal scutum, sternal scutum wider than long, ventrianal scutum pentagonal and wider than genital scutum, and primary metapodal scutum normal in size and elongate in outline. Peritremal and stigmatal scuta indistinguishably fused and with a reinforced secondary pore; peritreme extending forward between vertical setae. Spermathecal cervix saccular with an undifferentiated to nodular atrium. Spermatodactyl with foot terminal, heel obscure, and lateral process distinct. Chelicerae very large with no denticules on the movable finger and two to four denticules and basal *pilus dentilis* on the fixed finger. Legs ranked in size 1423, respectively, with leg I only slightly longer than others, leg I with one macroseta and an erect seta on the tarsus, leg II with one macroseta, leg III with two macrosetae, and leg IV with three macrosetae, that on genu longest.

TYPE SPECIES: *Amblyseiopsis floridanus* Muma, 1955.

DISCUSSION: This genus has been confused in the past with *Amblyseius* Berlese. Two recently described species *Chelaseius austrellus* (Athias-Henriot) and *Chelaseius schusterellus* (Athias-Henriot), and the discovery of an undescribed species from forest litter in South Carolina first indicated the existence of an undelineated species-group.

Chelaseius new genus is distinguished from *Amblyseius* by massive chelicerae with few denticules, a basal *pilus dentilis*, the terminal foot of the spermatodactyl, the saccular spermathecal cervix, and the almost exclusive restriction of its species to forest floor leaf litter.

Since it has greater affinity with this genus, *Chelaseius vicinus* (Muma) is also included here even though it has slightly smaller chelicerae, shorter dorsal scutal setae, and no distinct macroseta or erect seta on leg I.

Genus *Ricoseius* De Leon

Amblyseius (*Ricoseius*) De Leon, 1965: 128.

TYPE SPECIES: *Amblyseius* (*Ricoseius*) *loxocheles* De Leon, 1965.

DISCUSSION: All previously delineated subgenera of *Amblyseius* Berlese except *Ricoseius* have been elevated to generic status; it also merits generic status. Examination of the type has revealed several striking characters, elongate whip-like capitate dorsal scutal setae, three pairs of sublateral setae, large multidentate chelicerae, four pairs of ventrolateral setae excluding the caudal setae, an extreme length to leg IV, and a curious combination of capitate and setiform macrosetae on leg IV.

Genus *Athiasia* new genus

DIAGNOSIS: Setal characters are four pairs of dorsal setae, three pairs of median setae, eight pairs of lateral setae with some somewhat longer than others, two pairs of sublateral setae, three pairs of sternal setae, three pairs of ventrianal setae, and three pairs of ventrolateral setae

excluding the caudal setae. Scutal characters are one dorsal scutum, sternal scutum wider than long with a concave posterior margin, ventrianal scutum pentagonal but equal to, or wider than, the wide genital scutum, and primary metapodals normal in size and elongate. Peritremal and stigmatal scuta separated by a suture, peritremal scutum completely enclosing ectal margin of leg IV exopodal scutum, and peritreme extending forward to, or between, vertical setae. Spermathecal cervix fundibuliform; atrium ovate. Chelicerae normal in size with no denticules on the movable finger and two to four on the fixed finger. Legs rank in size 1423, respectively, with leg I only slightly longer than others, legs I, II and III without macrosetae, leg IV with three macrosetae, that on basitarsus longest.

TYPE SPECIES: *Typhlodromips cesi* Muma, 1965.

DISCUSSION: This genus includes, in addition to the type, four species, *Athiasia hystrix* (Muma), *A. arenicola* (Muma), *A. gonzalesi* (Athias-Henriot) and an undescribed sibling species of *A. arenicola*. *Amblyseius lecanis* Schuster and Pritchard may also belong in this genus.

Athiasia is closely related to *Iphiseiodes* De Leon from which it is distinguished by reduced cheliceral dentition, the lack of macrosetae on legs I, II, and III, and the posterior narrow extension of the peritremal scutum around leg IV expodal scutum.

Genus *Kampimodromus* Nesbitt

Kampimodromus Nesbitt, 1951: 52.
Paradromus Muma, 1961: 286 (New Synonymy).

TYPE SPECIES: *Typhlodromus aberrans* Oudemans, 1930.

DISCUSSION: Muma (1961) inadvertently omitted this genus, although he placed several of the included species in other genera. *Typhlodromus heveae* Oudemans, was designated as the type of *Amblyseiulella* Muma. *Typhlodromus aberrans* Oudemans was designated as the type of *Paradromus* Muma. *Kampimodromus transvaalensis* Nesbitt was placed in *Neoseiulus* Hughes. *Kampimodromus australicus* Womersley was designated as the type of *Australiseiulus* Muma.

Nesbitt (1951) designated *Typhlodromus elongatus* Oudemans as the type of this genus. Chant (1955) discovered that *T. elongatus* and *Typhlodromus vitis* Oudemans were junior synonyms of *T. aberrans*. This synonymy was overlooked by Muma (1961) when he designated *T. aberrans* as the type of *Paradromus*, which must automatically become a synonym of *Kampimodromus*.

The present placement of the other species originally included in *Kampimodromus* is as follows: *Amblyseiulella heveae* (Oudemans), *Clavidromus transvaalensis* (Nesbitt), and *Australiseiulus australicus* (Womersley). The placement of *Kampimodromus hevearum* (Oudemans) is uncertain.

Genus *Neoseiulus* Hughes

Neoseiulus Hughes, 1948: 141; De Leon, 1965: 23; Muma, 1965: 254. (Not *Neoseiulus* of other authors.)
Amblyseius, Athias-Henriot, 1957: 336 (in part).
Typhlodromus (*Typhlodromus*) Chant, 1959: 49 (in part).
Typhlodromus (*Typhlodromopsis*) De Leon, 1959: 113 (in part).
Amblyseius (*Typhlodromopsis*) Muma, 1961: 287 (in part).
Cydnodromus Muma, 1961: 290; De Leon, 1962: 15; Muma, 1967: 273. (New Synonymy).
Typhlodromus, Chant, 1965: 368 (in part).
Amblyseius, Chant, 1965: 371 (in part).

DIAGNOSIS: Setal characters are four pairs of dorsal setae, three pairs of median setae, eight pairs of lateral setae that are subequal in size or slightly longer posteriorly, two pairs of sublateral setae on the interscutal membrane (on the dorsal scutum in males), three pairs of sternal setae, three pairs of preanal ventrianal setae, and three pairs of ventrolateral setae excluding the caudal setae. Scutal characters are one dorsal scutum, sternal scutum as long as, or longer than wide, with a straight or concave posterior margin; ventrianal scutum elongate pentagonal to nearly quadrate and about equal to the genital scutum in width; primary metapodal scutum ovate to elongate; peritremal and stigmatal scuta indistinguishably fused, scutum extending posteriorly to and along leg IV exopodal scutum and peritreme extending forward beyond L_1. Spermathecal cervix tubular, saccular, or poculiform. Spermatodactyl with foot or heel terminal and lateral process distinct to obscure. Chelicerae small to normal in size; movable finger with zero to two denticules; fixed finger with four to six denticules. Leg ranking variable from 1423 to 1432, respectively, with no macrosetae on legs I, II, and III, and zero to three macrosetae on leg IV; when present, the macrosetae on the genu and tibiae are frequently slender and difficult to distinguish.

TYPE SPECIES: *Neoseiulus barkeri* Hughes, 1948.

DISCUSSION: An examination of a metatype has revealed that it is a typical amblyseiine mite with four pairs of anterior lateral setae, and a total of eight (nine of other authors) lateral setae. The unfortunate erroneous interpretations of ten lateral setae by Nesbitt (1951) and five pairs of anterior lateral setae by Chant (1959) have clouded the identity of this genus. Since examination of a metatype has proved the interpretations of Athias-Henriot (1957) and De Leon (1965) to be correct, the above cited synonymy is indicated. A complete discussion of the controversy was given by Muma (1967).

Subfamily Phytoseiinae Berlese, 1916

Phytoseiinae Berlese, 1916: 33.

Genus *Phytoseius* Ribaga, 1904

Phytoseius Ribaga, 1904: 177.

TYPE SPECIES: *Gamasus plumifer* Canestrini and Fanzago, 1876.

DISCUSSION: The primary systematic problem that involves this genus is the identity of the type species. Ribaga (1904) clearly stated "Scuto anale feminae subpentagono, angulis anticis evanidis, margin rotundato, pilorum pari unico." in his description of his specimen of *Phytoseius plumifer* (Canestrini and Fanzago) which Vitzthum (1941) subsequently designated as the type of *Phytoseius* Ribaga. At the present time, it is impossible to determine whether or not Ribaga incorrectly identified his specimen since neither the types of Canestrini and Fanzago nor Ribaga are available for study. Chant (1957) assumed that labeled specimens in the Berlese collection were correctly identified, but it is just as likely that Athias-Henriot (1957) correctly identified her specimens. Under the circumstances, the species identified by Ribaga as *Phytoseius plumifer* must be considered to be correctly identified and the type of the genus. If, sometime in the future, it can be ascertained that Ribaga did indeed incorrectly identify his material, the case must be referred to the International Commission on Zoological Nomenclature as stipulated in Article 70a of the International Code of Zoological Nomenclature. A type cannot be arbitrarily assigned as in Chant and Athias-Henriot (1960).

A secondary systematic problem involves the selection of a subgeneric species-group to which the typical subgeneric name, *Phytoseius,* can be assigned. As indicated by Prichard and Baker (1962), Muma (1963a), and De Leon (1965a), the problem has already been solved by the synonymizing of *Dubininellus* Wainstein under *Phytoseius* Ribaga and the erection of *Pennaseius* Pritchard and Baker.

Although Denmark (1966) examined and discussed Ribaga's generic and type species descriptions critically, he conservatively retained the older subgeneric names *Phytoseius* and *Dubininellus* as used by Chant and Athias-Henriot (1960). However, the type, (*Phytoseius plumifer*) was described by Ribaga (1904) as having one pair of anal setae, and all known species with one pair of anal (preanal) setae have only one pair of sublateral setae (Denmark 1966) so it is very likely that the *plumifer* identified by Ribaga also had only the anterior pair of sublateral setae. This leaves little doubt that the species described by Ribaga is a member of the subgenus previously referred to as *Dubininellus* but which now should be referred to as *Phytoseius.*

The third problem involving this genus deals with the ranking of the generic, subgeneric, and other species-group categories. Most authors up to and including Denmark (1966) have considered the included species to be members of a single genus separable into two subgenera on the basis of one or two sometimes variable characters. Only Muma (1961, 1963a) and Schuster and Pritchard (1963) have indicated that two genera were involved. It is interesting to note from Denmark (1966) that of the 22 species that would be included in *Phytoseius* Ribaga, 22 have one pair of sublateral setae, 22 have three pairs of dorsal setae, 20 have L_7 and L_8 separated by less than two diameters of a setal socket, 10 have only one

or two pairs of preanal ventrianal setae, and 21 have the longest macroseta on leg IV tibia; whereas, of the 19 species that would be included in *Pennaseius* Pritchard and Baker, 19 have two pairs of sublateral setae, 17 have four pairs of dorsal setae, 17 have L_7 and L_8 separated by more than two diameters of a setal socket, 16 have three pairs of preanal, ventrianal setae, and only two have leg IV macrosetae longest on the tibia. Also Denmark (1966) delineated eight species-groups in *Dubininellus* (here *Phytoseius*) and six in *Phytoseius* (here *Pennaseius*) indicating that the then recognized subgenera were composed of groups of species. There are then at least four known relatively consistent morphological differences between the two now recognized subgenera and an indication of species-groupings below the subgeneric level. However, subdivision of the genus at this time would not significantly add to our knowledge of the family, so for the present the above indicated generic, subgeneric, and species-group categories are recognized.

Genus *Paraseiulella* Muma

Paraseiulella Muma, 1961: 294.
Clavidromina Muma, 1961: 296 (New Synonymy).

TYPE SPECIES: *Typhlodromus ellipticus* De Leon, 1958.

DISCUSSION: An examination of the type of *Typhlodromus burrelli* Chant, the type species of *Paraseiulella* Muma, has revealed that it is a junior synonym of *Typhlodromus ellipticus* DeLeon, the type of *Clavidromina* Muma. *Paraseiulella* has page priority and is, therefore, the valid generic name for mites congeneric with *P. ellipticus*. These include only the type and *P. corna* DeLeon at the present time.

The species formerly included in the genus *Paraseiulella* have been reassigned. Examination of the type of *Typhlodromus perplexus* Chant, has revealed that this name is also a junior synonym of *C. elliptica* (DeLeon). A study of the type also has shown that *Typhlodromus tropicus* Chant is congeneric with *Typhlodromina conspicua* (Garman).

Clavidromus Muma, 1961

Clavidromus Muma, 1961: 296; Muma, 1936a; 395; Muma, 1963b: 13.
Typhlodromus Scheuten, 1857; Chant, 1965: 369.

DIAGNOSIS: Setal characters are four pairs of dorsal setae, two pairs of median setae, ten pairs of lateral setae with five pairs anterior to D_3, two pairs of sublateral setae on the interscutal membrane, one pair of vertical setae, and one pair of caudal setae; all dorsal setae are knobbed and plumose except L_9; two or three pairs of sternal setae, three pairs of preanal ventrianal setae, and three pairs of ventrolateral setae excluding the caudal setae. Scutal characters are one lightly reticulated dorsal scutum, sternal scutum longer than wide with a straight or convex posterior margin; ventrianal scutum nearly quadrate and as wide as the posterior margin of genital scutum; primary metapodal scutum ovate; peritremal and stigmatal scuta indistinguishably fused, scutum extending posteriorly

to and along leg IV expodal scutum, and peritreme extending forward to leg I. Spermatheca has fundibuliform cervix and hooked atrium. Chelicerae small, movable finger with zero to one denticule and the fixed finger with one to two denticules. Leg ranking 4123 with three macrosetae on leg IV.

Males are unknown.

TYPE SPECIES: *Typhlodromus jackmickleyi* De Leon, 1958 (=*Kampimodromus transvaalensis* Nesbitt, 1951).

DISCUSSION: An examination of the types has revealed that *Clavidromus jackmickleyi* (DeLeon) and *Clavidromus pectinatus* (Athias-Henriot) are synonyms of *C. transvaalensis* (Nesbitt). *C. transvaalensis* and *C. hartlandrowei* (Evans) are the only species represented in this genus and can be easily separated. *C. hartlandrowei* has three pairs of sternal setae, and D_1, D_2, and D_3 reach the base of D_2, D_3, and D_4, respectively, whereas *transvaalensis* has only two pairs of sternal setae, and D_1, D_2, and D_3 do not reach the base of D_2, D_3, and D_4, respectively.

Genus *Orientiseius* new genus

Amblydromella Muma, 1961: 294 (in part, *A. rickeri* (Chant) 1960).

Amblydromella Muma, 1967: 276 (in part, *A. rickeri* species-group).

DIAGNOSIS: Setal characters are four pairs of dorsal setae, two pairs of median setae, eight pairs of lateral setae with some much shorter than others, two pairs of sublateral setae on the interscutal membrane, three pairs of sternal setae, four pairs of ventrianal setae, and three pairs of ventrolateral setae excluding caudal setae. Scutal characters are one dorsal scutum, sternal scutum longer than wide with posterior margin straight or excavated, ventrianal scutum pentagonal but elongate and broad anteriorly, and primary metapodal scuta normal in size, elongate, and slender. Peritremal, stigmatal, and leg IV exopodal scuta fused with secondary pore large and kidney-shaped; peritreme extending forward to L_1. Spermathecal cervix saccular; atrium tiny but nodular with valve indistinct. Spermatodactyl with heel terminal and lateral process indistinct. Chelicerae normal in size with one or two denticules on the movable finger and two or three distal of the medially located *pilus dentilis* on the fixed finger. Legs ranked in size 4123, respectively, with leg IV distinctly longer and no macrosetae on legs I, II, and III, but three on leg IV.

TYPE SPECIES: *Typhlodromus rickeri* Chant, 1960.

DISCUSSION: Muma (1967) combined *Amblydromella* Muma and *Typhlodromella* Muma under *Amblydromella* and tentatively retained *A. rickeri* (Chant) and *A. hadii* (Chaudri) there, although they differed considerably from the typical congeners.

Additional study has revealed that these two species have the sternal

scutum straight or excavated posteriorly rather than lobate, have the peritremes extending forward to L_1 rather than to the verticals, have alternating long and short anterior lateral setae rather than subequal sized anterior lateral setae, and have three elongate macrosetae on leg IV rather than none or one.

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