

TWO NEW SPECIES OF THE SUPERFAMILY PHTHIRACAROIDEA
(ACARI, ORIBATIDA) FROM THE SEYCHELLES AND THE USA
WITH NOTES ON OTHER PTYCTIMOUS MITES
FROM DIVERSE COUNTRIES

WOJCIECH NIEDBAŁA¹ and JOSEF STARÝ²

¹Department of Animal Taxonomy and Ecology, Faculty of Biology, Adam Mickiewicz University in Poznań, Umultowska 89, 61-614 Poznań, Poland; E-mail: wojciech.niedbala@amu.edu.pl

²Biology Centre, Academy of Sciences of the Czech Republic v.v.i., Institute of Soil Biology Na Sádkách 7, CZ-37005 České Budějovice, Czech Republic; E-mail: jstary@upb.cas.cz

Two new species of the family Phthiracaridae, *Arphthycarus paratinctus* sp. n. from the Seychelles, and *Atropacarus (Atropacarus) paraclavigerus* sp. n. from California, USA are described and figured. A comparison of morphological similarities with the most closely related species is presented. Additional descriptions, morphological remarks and taxonomical notes for seven ptyctimous species: *Arphthycarus sculptilis* (Niedbała, 1988), *Austrophthycarus diazae* (Ojeda, 1985), *Mesoplophora (Mesoplophora) parabacilla* Niedbała, 2006, *Notophthycarus lienhardi* Mahunka, 1996, *N. stenotus* Niedbała et Corpuz-Raros, 1998, *Plonaphycarus semiaciculatus* (Mahunka, 2008), and *Steganacarus (Rhacaplacarus) brasiliensis* (Pérez-Iñigo et Baggio, 1980) were added. In total, 105 species of ptyctimous oribatid mites were determined in material of 1910 specimens from 15 countries – Bangladesh, Brazil, Canada, Colombia, Cuba, Galapagos, Gough Island, Indonesia (Irian), Jamaica, Kenya, Malaysia, Reunion, Seychelles, Tanzania and the USA. Fauna of ptyctimous mites of Bangladesh, Colombia and Gough Island was studied for the first time. New records of ptyctimous mites for Brazil, Canada, Cuba, Jamaica, Malaysia, New Guinea (Indonesia, Irian), Reunion, Tanzania and the USA are also presented. A replacement name for the junior homonym *Austrophthycarus longisetosus* Niedbała et Starý, 2015, *A. longisetus* nom. n. is proposed.

Key words: ptyctimous mites, new species, taxonomy, new records, distribution, oribatid mites.

INTRODUCTION

Many interesting findings from different zoogeographical regions were recorded during the study of a large number of ptyctimous mites deposited at the Institute of Soil Biology, BC ASCR, České Budějovice, Czech Republic. Two new species were identified in the material collected in leaf litter in mixed forest from Mahé Island, Seychelles and in the spruce litter in Patrick's Point State Park, California, USA. The description of two new species of ptyctimous mites is the subject of this contribution. Both these regions (Californian Floristic Province and Seychelles together with Madagascar) are included among the most important biodiversity hotspots in the world characterized by a high

concentration of endemic taxa (MYERS *et al.* 2000). Our knowledge on the fauna of ptyctimous mites of the Seychelles is incomplete. NIEDBAŁA (2010) summarized the ptyctimous fauna of the Seychelles and recorded from there nine species in total; one species from the family Mesoplophoridae, two species from the family Oribotritiidae, one species from the family Euphthiracaridae, two species from the family Phthiracaridae and three species from the family Steganacaridae. More species of ptyctimous mites were recorded from California, USA. NIEDBAŁA (2002) surveyed the fauna of ptyctimous mites from the Nearctic Region and recorded one species from the family Protoplophoridae, two species from the family Mesoplophoridae, and 11 species from the superfamily Phthiracaroida in California. Also 16 species of the superfamily Euphthiracaroida were recorded from Californian soils and nine species from them were described by WALKER (1965).

MATERIAL AND METHODS

Leaf litter and soil samples were extracted by using modified Tullgren funnels. All the extracted mite specimens were preserved in 85% ethanol, then cleared in 80% lactic acid on temporary cavity slides and mounted on temporary slides with glycerol. The determined material was preserved in vials with 80% ethanol. Observations, figures, and measurements were made using a standard light microscope equipped with a drawing attachment. All the measurements are given in micrometres. The terminology used is based on that of NIEDBAŁA (2000). Type material is partly deposited at the Department of Animal Taxonomy and Ecology, Poznań, Poland (DATE) and partly at the Institute of Soil Biology BC ASCR, České Budějovice, in the Czech Republic (ISB), and partly at the Natural History Museum, Geneva, Switzerland (NHMG).

DESCRIPTION OF NEW SPECIES

Arphthycarus paratinctus sp. n. (Figs 1A–E)

Material examined – Holotype deposited at DATE from the locus typicus: SEY-005, Seychelles, Mahé, Morne, 3.XII.1975, 750 m, deciduous forest, leaf litter sample, leg A. Fjellberg.

Etymology – The name of the species, *paratinctus*, alludes to the similarity of the new species to *Arphthycarus tinctus* Niedbała, 2000.

Measurements of holotype – Prodorsum: length 202, width 134, height 73, sensillus 20, length of prodorsal setae: interlamellar (*in*) 28, lamellar (*le*) 20, rostral (*ro*) 35; notogaster: length 343, width 227, height 217, length of notogastral setae: *c*₁ 61, *h*₁ 51, *ps*₁ 48; genitoaggenital plate 88 × 73, anoanal plate 126 × 76.

Description – Colour light brown. Cuticle well sculptured with weak concavities.

Prodorsum with sigillar fields not very distinct, median field large. Lateral carinae absent. Sensilli with short, narrow pedicel and globular head, rough. Prodorsal setae very short, spiniform, rough, rostral setae (*ro*) the longest.

Notogaster with 15 pairs of short spiniform, rough notogastral setae tapering distally, $c_1/c_1-d_1 = 0.75$. Setae c_1 near anterior border, setae c_3 slightly remote and setae c_2 far from anterior notogastral border. Vestigial setae invisible. Three pairs of lyrifissures *im*, *ip* and *ips* present.

Ventral region. Setae *h* of mentum slightly longer than distance between them.

Genitoaggenital plates with nine pairs of genital setae with arrangement: 4+2: 3. Anoadanal plates each with five pairs of setae, setae ad_3 smallest, setae ad_2 longest and situated near setae ad_1 and near paraxial border of plate.

Legs. Formulae of setae and solenidia of complete type. Setae *d* of femora I long and considerably remote from distal end of article, setae *l''* situated near distal end.

Comparison – The new species is slightly similar to *Arphtthicarus tinctus* Niedbala, 2000 from New Caledonia in the shape of the sensilli, length of prodorsal setae, implantation and arrangement of setae of femora I, but is distinguishable by the shape of the notogastral setae and the arrangement of genital, anal and adanal setae (NIEDBAŁA 2000).

***Atropacarus (Atropacarus) paraclavigerus* sp. n.**

(Figs 2A–I)

Material examined – Holotype deposited at DATE from the locus typicus: USA-195, California, Humboldt County, Patrick's Point State Park, 21.VI.1991, 41°08'N, 124°10'W, coniferous forest with spruce *Picea sitchensis*, sample of coniferous litter and soil, leg K. Horner.

Etymology – The specific epithet, *paraclavigerus*, alludes to the resemblance of the new species to *Atropacarus (Atropacarus) clavigerus* (Berlese, 1904).

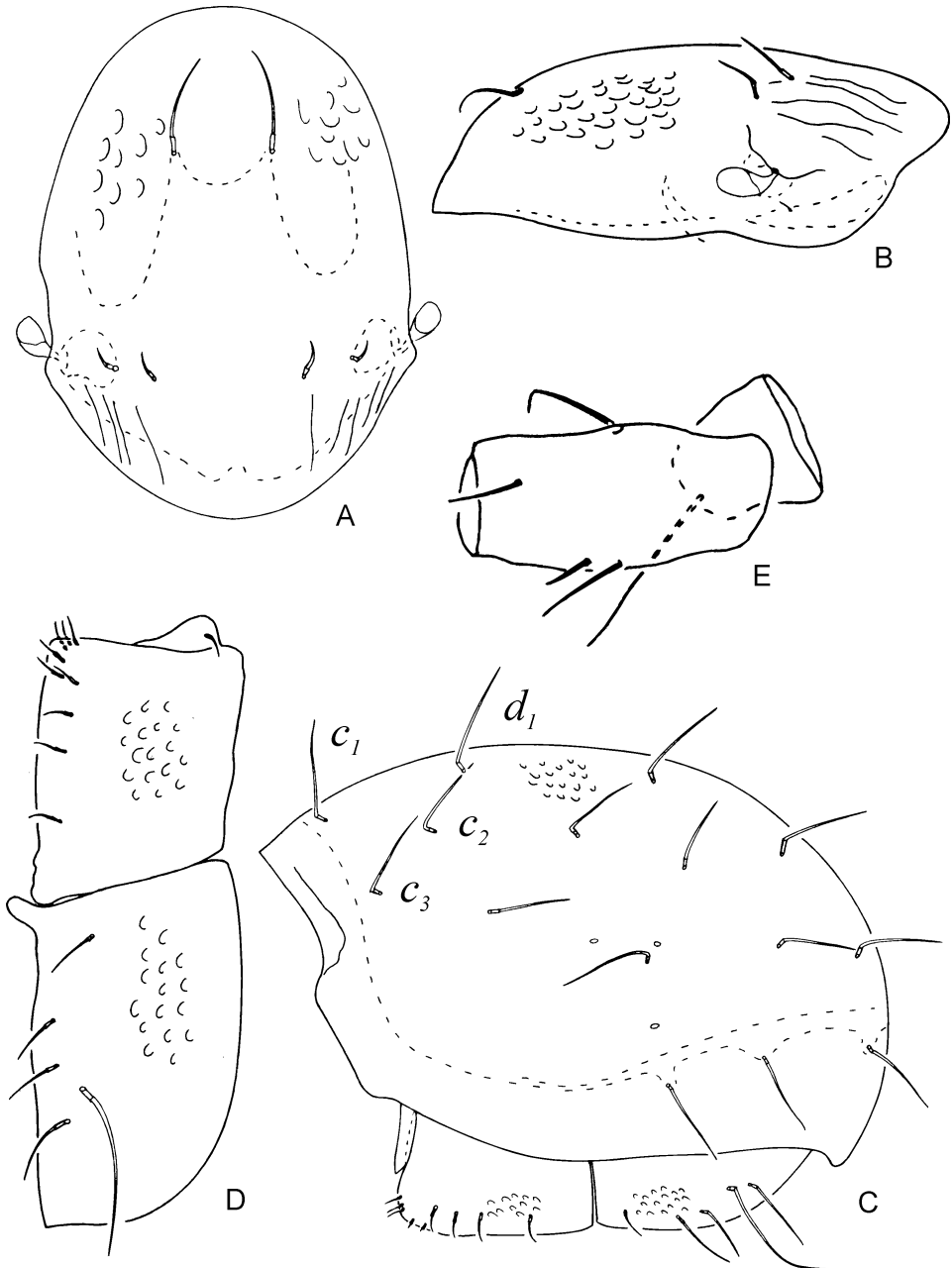
Measurements of holotype – Prodorsum: length 202, width 126, height 86, sensillus 68, length of prodorsal setae: interlamellar (*in*) 23, lamellar (*le*) 15, rostral (*ro*) 20, exobothridial (*ex*) 10; notogaster: length 348, width 227, height 207, length of notogastral setae: c_1 18, h_1 23, ps_1 18; genitoaggenital plate 81 × 58, anoadanal plate 81 × 40.

Description – Colour light grey. Cuticle well sculptured with distinct concavities.

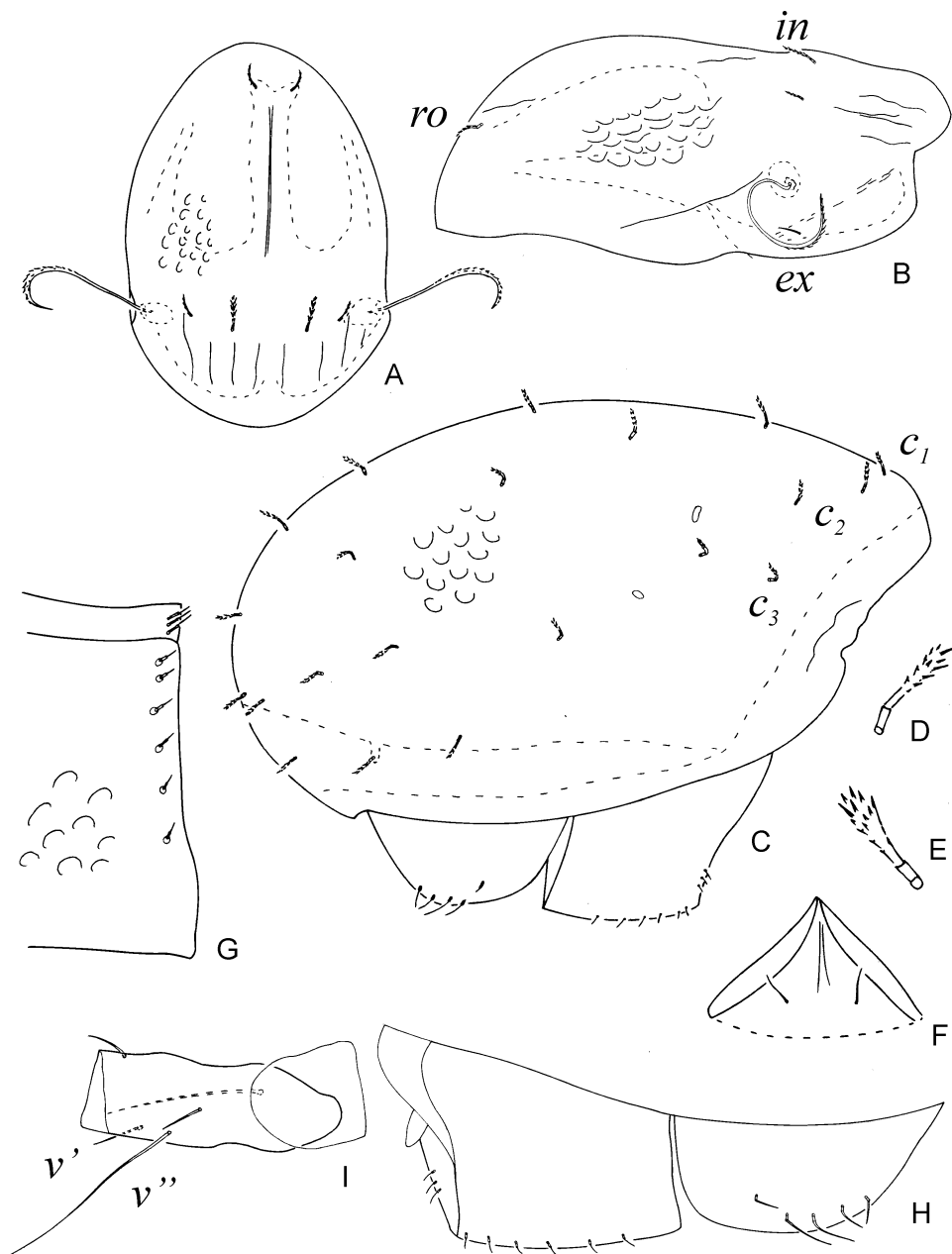
Prodorsum with long and narrow sigillar fields. Lateral carinae distinct. Sensilli sickle-shaped, covered with small spines at distal half. Prodorsal setae short, covered with minute and dense spines, their relative lengths $in > ro > le > ex$.

Notogaster with 21 pairs of notogastral setae, additional setae in rows *c*, *h* and *ps*, very short ($c_1 < 1/4c_1-d_1$), densely covered with spines, tuft-like. Setae c_{1-3} far from the anterior notogastral margin, with c_2 furthest away. Vestigial setae invisible because of strong sculpture. Two pairs of lyrifissures (*ia* and *im*) present.

Ventral region. Setae *h* of mentum shorter than distance between them. Anoadanal plates with minute setae, $an/not = 0.02$. Setation of legs complete; $v''/v' = 4$.



Figs 1A–E. *Arphthycarus paratinctus* sp. n.: A = prodorsum, dorsal view, B = prodorsum, lateral view, C = opisthosoma, lateral view, D = genital and anal plates, E = trochanter and femur of leg I.



Figs 2A–I. *Atropacarus (Atropacarus) paraclavigerus* sp. n.: A = prodorsum, dorsal view, B = prodorsum, lateral view, C = opisthosoma, lateral view, D = seta c_1 , E = seta h_1 , F = mentum of subcapitulum, G = fragment of genitoaggenital plate, H = genitoaggenital and anoadanal plates, lateral view, I = trochanter and femur of leg I.

Comparison – The new species is very similar to the Western Palaearctic species *Atropacarus (Atropacarus) clavigerus* (Berlese, 1904). The morphological differences are very small: the number (21) of notogastral setae (in *A. (A.) clavigerus* 20 pairs), setae *h* of mentum shorter than the distance between them (longer in *A. (A.) clavigerus*) and setae *l''* of femora I inserted more posteriorly than in *A. (A.) clavigerus* (see NIEDBAŁA 2011).

ADDITIONAL DESCRIPTIONS AND TAXONOMICAL NOTES WITH SOME MORPHOLOGICAL REMARKS

Mesoplophora (Mesoplophora) parabacilla Niedbała, 2006 (Figs 3A–D)

Material examined – Two specimens deposited at DATE from the locality: COL-009, Colombia, Meta, Carimagua, 15.IV.1983, native pasture, savannas, hand sampling, leg J. M. Guerrero.

Measurements of one specimen – Length of prodorsum 364, length of notogaster 520. Exobothridial setae (*ex*) longer than diameter of bothridia.

Remarks – New for the fauna of Colombia. Specimens from Colombia are slightly larger than specimens from Panama (NIEDBAŁA 2006).

Plonaphacarus semiaciculatus (Mahunka, 2008) (Figs 4A–G)

Rhacaplacarus (Rhacaplacarus) semiaciculatus Mahunka, 2008

Material examined – One specimen deposited at DATE: MAY-044, West Malaysia, Batu Caves, 30.XII.2010, 03°14'5''N, 101°41'17''E, rain forest on lime-stone bedrock, wet site with rich brushwood, sample of leaf litter, leg J. Farská.

Diagnosis – Surface of body ornamented by large alveoli. Prodorsum with median crista and long, lateral carinae; sensilli long, with club-like head; lamellar setae very short, rough; rostral setae straight, rough; exobothridial setae vestigial; all adanal setae longer than anal setae, setae *ad*₂ bent distally.

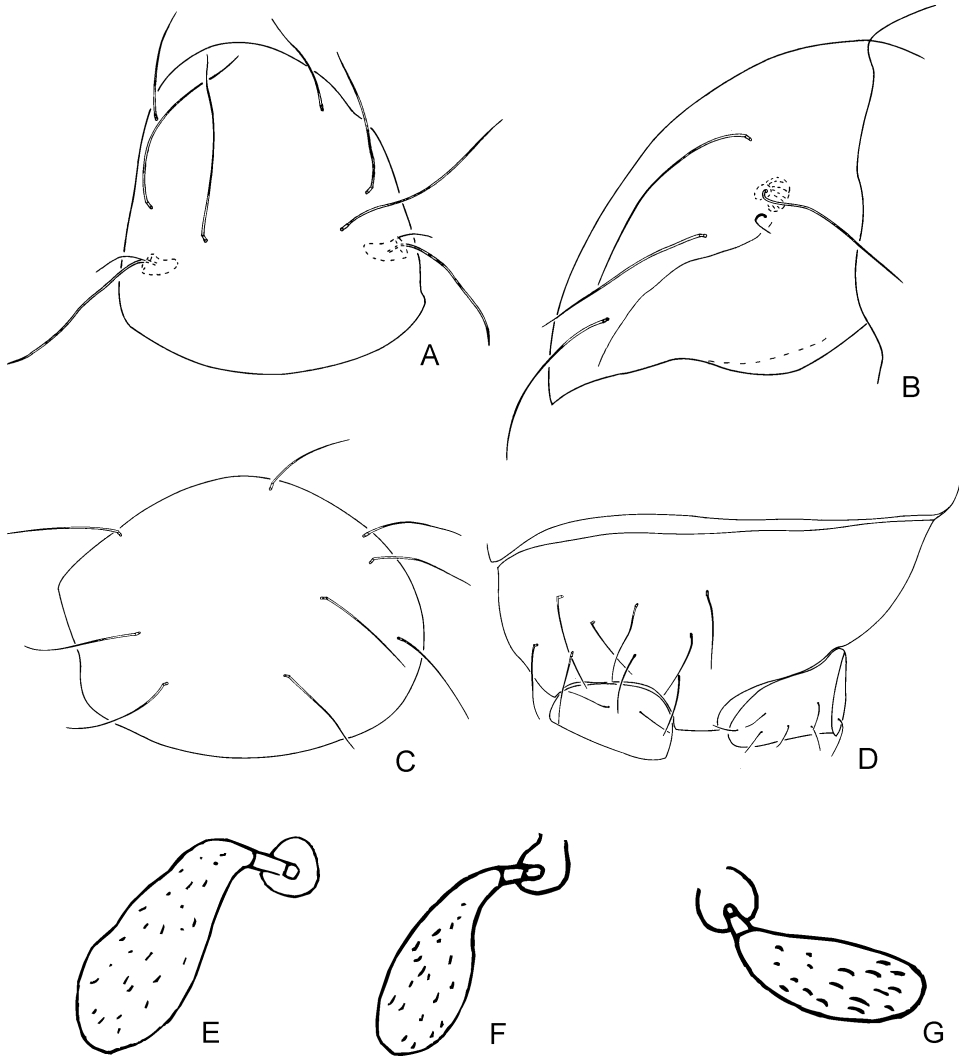
Measurements of specimen from sample MAY-044 – Prodorsum: length 263, width 197, height 126, sensillus 66, length of prodorsal setae: interlamellar (*in*) 139, lamellar (*le*) 28, rostral (*ro*) 121; notogaster: length 525, width 374, height 348, length of notogastral setae: *c*₁ 164, *c*₁/*c*₁-*d*₁ = 1.1, *h*₁ and *ps*₁ 185; genitoaggenital plate 164 × 96; anoadanal plate 164 × 101.

Redescription – Colour dark brown. Integument with deep and large alveoli.

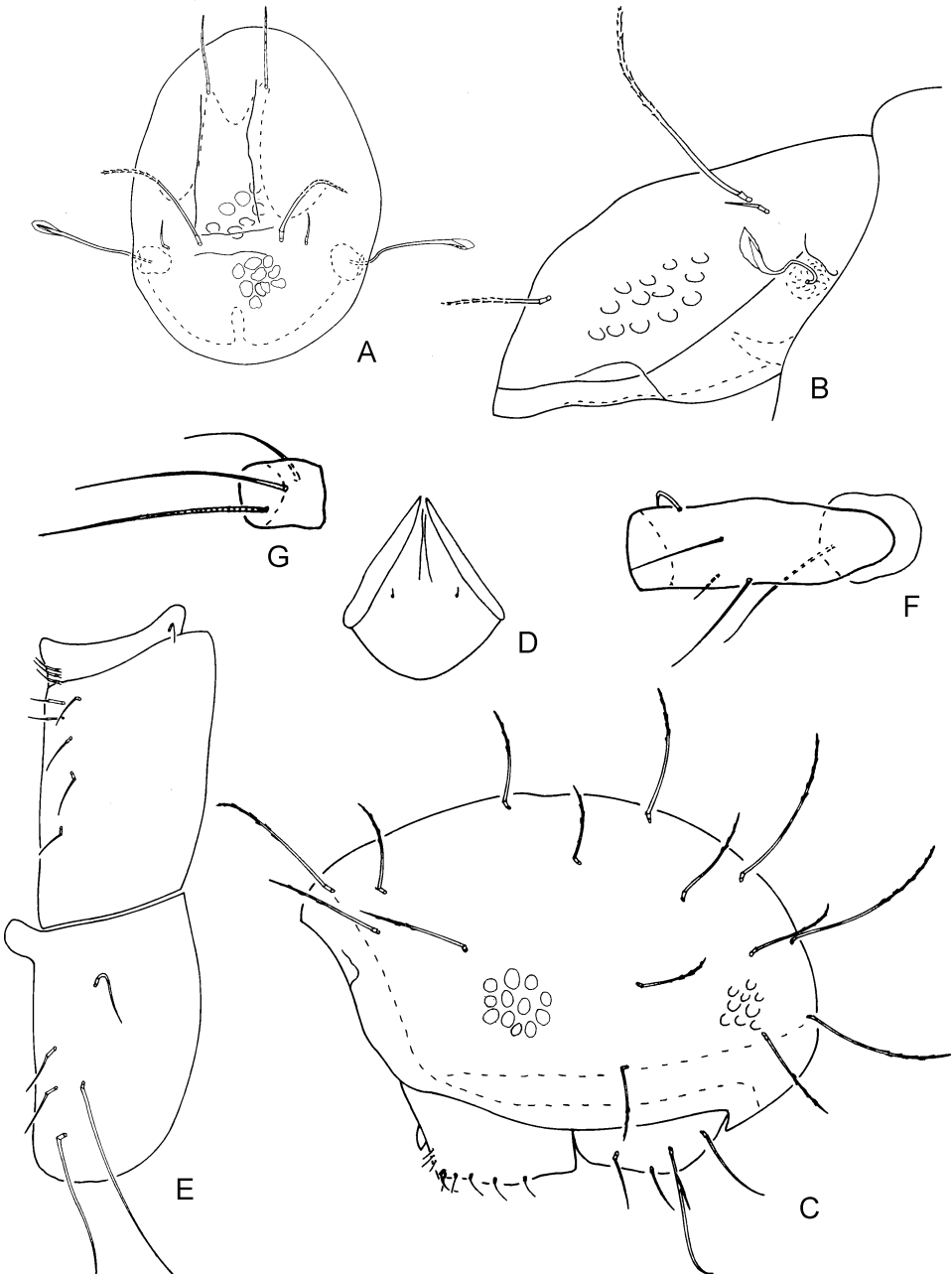
Prodorsum with weak sigillar fields, median field with anterior incision. Median crista present. Lateral carinae long, reaching anterior part of prodorsum. Sensilli long, with

club-like head. Interlamellar setae (*in*) long, erect, spinose in distal half, lamellar setae (*le*) short, rough, rostral setae (*ro*) straight, rough, exobothridial (*ex*) setae vestigial.

Notogaster with 15 pairs of rigid notogastral setae, relatively long, their mutual length $c_1 > c_1 - d_1$, covered with small spines in distal half; dorsal setae slightly longer than lateral; setae c_1 and c_3 near anterior margin, setae c_1 more than setae c_3 , setae c_2 far from margin. Vestigial setae and lyrifissures not observed because of strong sculpture.



Figs 3A–G. A–D. *Mesoplophora* (*Mesoplophora*) *parabacilla* Niedbała, 2006, specimen from COL-009: A = prodorsum, dorsal view, B = prodorsum, lateral view, C = notogaster, late-rodorsal view, D = ventral plate, lateral view. E–G. *Notophthiracarus stenotus* Niedbała et Corpuz-Raros, 1998, specimen from NG-1803: E = seta c_2 , F = seta d_2 , G = seta ps_1 .



Figs 4A–G. *Plonaphacarus semiaciculatus* (Mahunka, 2008), specimen from MAY-044: A = prodorsum, dorsal view, B = prodorsum, lateral view, C = opisthosoma, lateral view, D = mentum of subcapitulum, E = genitoaggenital and ano-adanal plates, F = trochanter and femur of leg I, G = tibia of leg IV.

Ventral region. Setae h of mentum minuscule. Formula of genital setae: 6(4+2): 3, setae g_{6-9} longer than setae g_{1-5} . Anoadanal plates with all adanal setae longer than anal setae, setae ad_2 thick, bent distally, other setae spiniform.

Legs setation complete. Seta d of femora I slightly remote from distal end of article.

Remarks – This species described from Thailand belongs to *Plonaphacarus*. MAHUNKA (2008) mistakenly placed it in the subgenus *Rhacaplacarus*.

Steganacarus (Rhacaplacarus) brasiliensis (Pérez-Iñigo et Baggio, 1980)
(Figs 5A–F)

Protophthiracarus brasiliensis Pérez-Iñigo et Baggio, 1980

Hoplophthiracarus brasiliensis: NIEDBAŁA 2004

Material examined – One specimen deposited at DATE: BR-046, Brazil, São Paulo State, São Paulo, Instituto Butantan, 50 m from the Museum of Microbiology, 7.XI.2002, secondary Atlantic forest, sample of wet leaf litter, leg J. Starý.

Measurements of one specimen – Prodorsum: length 278, width 177, height 96, sensillus 68, length of prodorsal setae: interlamellar (*in*) 63, lamellar (*le*) 30, rostral (*ro*) 20, exobothridial (*ex*) 15; notogaster: length 419, width 283, height 247, length of notogastral setae: c_1 , h_1 and ps_1 68; genitoaggenital plate 91 × 81, anoadanal plate 185 × 88.

Remarks – Specimens from São Paulo are slightly bigger than holotype. One specimen has spiniform c_1 seta on right side, rough, but not distally obtuse and ciliate as in holotype. Moreover vestigial setae f_1 are situated posteriorly of setae h_1 . This species was erroneously classified to the genus *Hoplophthiracarus* (NIEDBAŁA 2004).

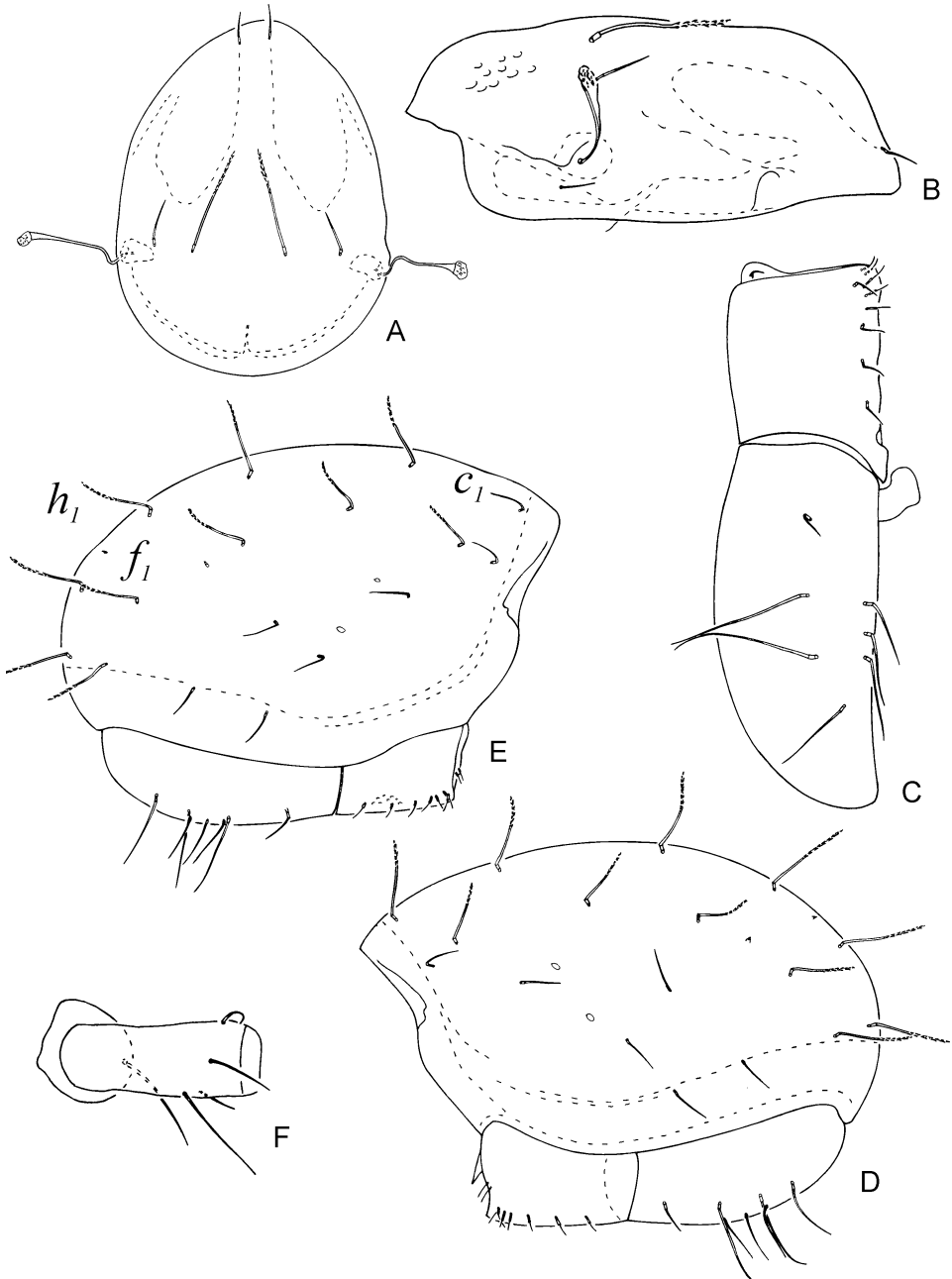
Distribution – Species up to the present still is known only from Brazil (NIEDBAŁA 2004).

Austrophthiracarus diazae (Ojeda, 1985)
(Figs 6A–I)

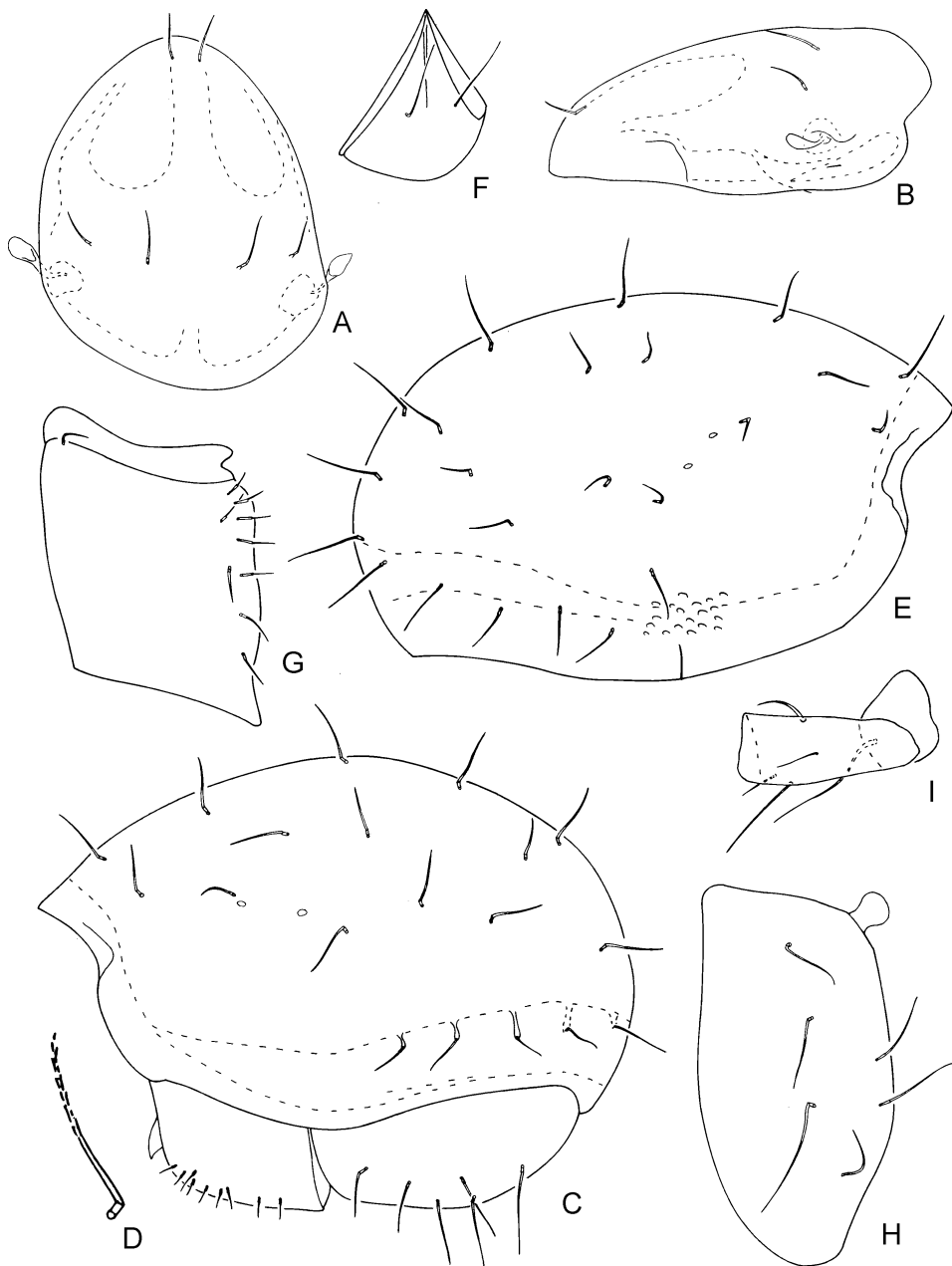
Calyptrophthiracarus cucundus Niedbała, 1988: NIEDBAŁA 2004

Material examined – Specimen no 1 is deposited in DATE, specimen no 2 at ISB and specimen no 3 at NHMG, all from the locality COL-009, Colombia, Meta, Carimagua, 15.IV.1983, native pasture, savannas, hand sampling, leg J. M. Guerrero.

Measurements of specimen no 1 – Prodorsum: length 263, width 192, height 91, sensillus 28, length of prodorsal setae: interlamellar (*in*) 41, lamellar (*le*) 23, rostral (*ro*) 35, exobothridial (*ex*) 13; notogaster: length 500, width 323, height 318, length of notogastral setae: c_1 58, h_1 51, ps_1 48; genitoaggenital plate 139 × 114, anoadanal plate 202 × 109.



Figs 5A–F. *Steganacarus (Rhacaplacarus) brasiliensis* (Pérez-Iñigo et Baggio, 1980): A = prodorsum, dorsal view, B = prodorsum, lateral view, C = genitoaggenital and ano-adanal plates, D = opisthosoma, lateral view, left side, E = opisthosoma, lateral view, right side, F = trochanter and femur of leg I.



Figs 6A–I. *Austrophthiracarus diazae* (Ojeda, 1985): A = prodorsum, dorsal view, B = prodorsum, lateral view, C = opisthosoma, lateral view, D = seta c_1 , E = notogaster, lateral view, another specimen, F = mentum of subcapitulum, G = genitoaggenital plate, H = anoadanal plate, I = trochanter and femur of leg I.

Remarks – The specimens from Colombia have a different number of notogastral setae: Specimen no 1 has 19 pairs of notogastral setae, specimen no 2 has 23 pairs of setae and specimen no 3 has 23 setae on the left side and 24 setae on the right side. Specimens recorded from Venezuela (OJEDA 1985) have 20 pairs of notogastral setae, while, on the other hand, specimens from Ecuador have 19 pairs of setae (sub *Calypthothiracarus cucundus*) (OJEDA 1985, NIEDBAŁA 1988b, NIEDBAŁA 2004).

Distribution – Neotropical species (NIEDBAŁA 2004).

Arphthycarus sculptilis (Niedbała, 1988)

Material examined – One specimen deposited in DATE: TAN-016, Tanzania, Uluguru Mts, Bunduki village, 26.XI.2010, 07°01'17"S, 37°39'10"E, 1592 m, mid-afromountain deciduous forest, litter sifting sample, leg V. Grebennikov.

Measurements of specimen from sample TAN-016 – Prodorsum: length 465, width 328, height 151, sensillus 96, setae: interlamellar (*in*) 271, lamellar (*le*) 25, rostral (*ro*) 298, exobothridial (*ex*) 6; notogaster: length 1000, width 707, height 687, length of notogastral setae: c_1 238, $c_1/c_1-d_1=1.0$, h_1 409, ps_1 368; genitoaggenital plate 273 × 182, anoadanal plate 333 × 192.

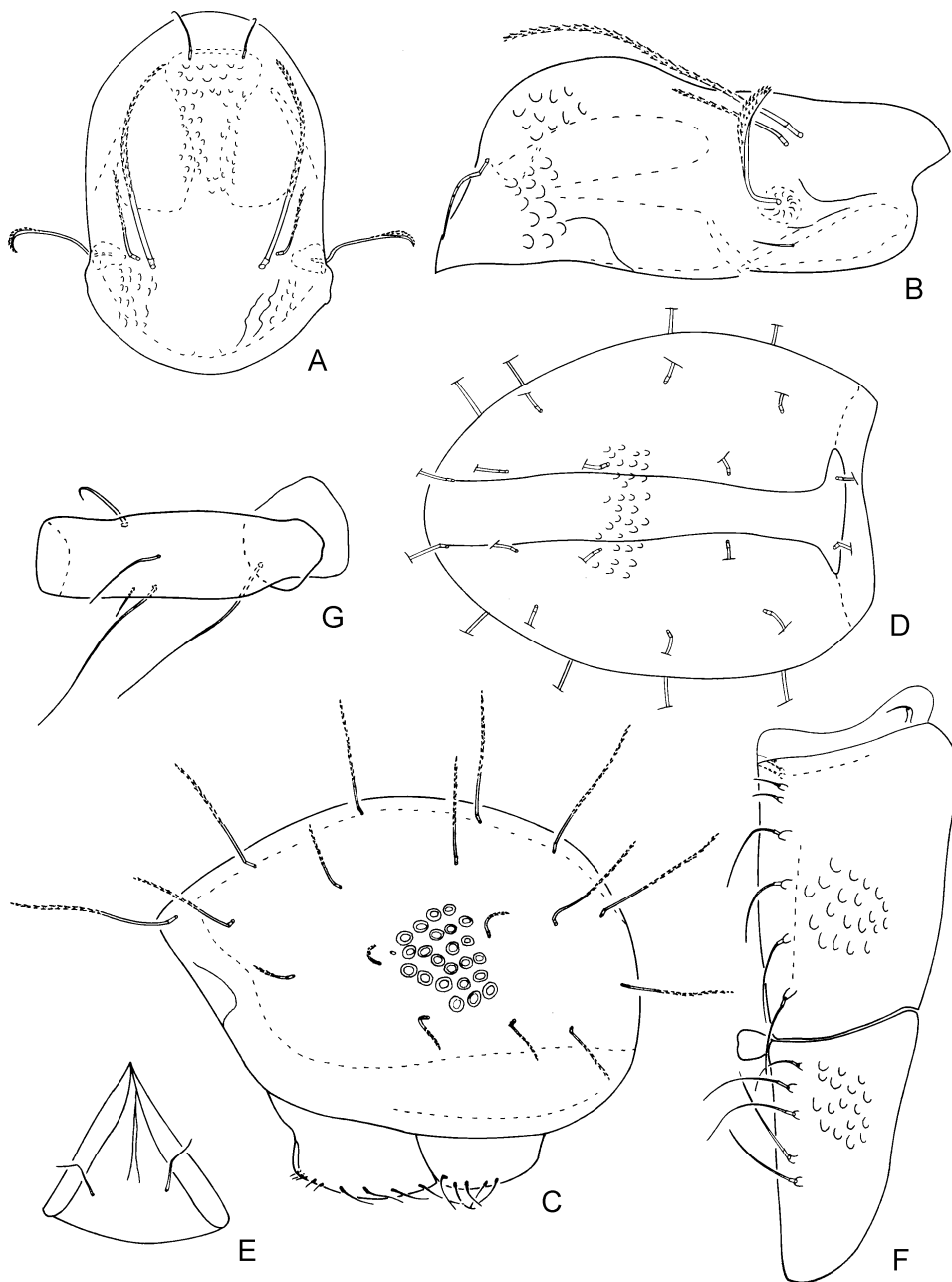
Remarks – Notogastral setae covered with small cilia, distally obtuse, setae h_1 and ps_1 longer than other setae. Distance between setae ps_3 and ps_4 considerably longer than between ps_2-ps_3 ; vestigial setae f_1 slightly anterior of setae h_1 . Shape of adanal setae ad_1 as notogastral setae, covered with small cilia, obtuse, remaining setae of anoadanal plates spiniform and rough.

Distribution – Species up to the present known from eastern islands of Afro-tropical Region: Comoro Islands, Reunion, Madagascar (NIEDBAŁA 1988a, 2001).

Notophthiracarus lienhardi Mahunka, 1996 (Figs 7A–G)

Material examined – One specimen deposited at DATE from the locality: MAY-002, Malaysia, Pahang, Cameron Highlands, Orange Asli village environs, Gunung Perdah Mt., 2.V.–14.V.2009, 04°29'0"N, 101°22'06"E, 1575 m, sifting of leaf litter in shallow ravine, leg P. Baňář, two specimens deposited at DATE from the locality: MAY-003, Malaysia, Pahang, Cameron Highlands, Tanan Rata village environs, Gunung Jasar Mt., 4.V.2009, 04°28'28"N, 101°21'36"–22'06"E, 1620 m, sifting of leaf litter, leg P. Baňář, one specimen deposited at DATE from the locality: MAY-004, Malaysia, Pahang, Cameron Highlands, Tanan Rata village environs, near Parit Fall, 25.IV.–15.V.2009, 04°28'24"–28'42"N, 101°21'36"–22'06"E, 1470–1550 m, sifting of leaf litter and rotten wood, leg P. Baňář, three specimens from the same locality deposited at ISB.

Measurements of specimen from sample MAY-003 – Prodorsum: length 444, width 308, height 252, sensillus 101, length of prodorsal setae: interlamellar (*in*) 38, lamellar (*le*)



Figs 7A–G. *Notophthiracarus lienhardi* Mahunka, 1996: A = prodorsum, dorsal view, B = prodorsum, lateral view, C = opisthosoma, lateral view, D = notogaster, dorsal view, E = mentum of subcapitulum, F = genitoaggenital and ano-adanal plates, G = trochanter and femur of leg I.

28, rostral (*ro*) 33, exobothridial (*ex*) 23; notogaster: length 949, width and height 596, length of notogastral setae: c_1 78, h_1 106, ps_1 86; genitoaggenital plate 190×126 , anoadanal plate 164×96 . The specimens now collected from Pahang are slightly larger than holotype.

Redescription – Colour dark brown. Cuticle very well sculptured, covered with foveolae, deep and well framed on notogaster.

Prodorsum with very strong median crista. Posterior furrows distinct. Sigillar fields distinct, long, median field widely dilated distally around rostral setae. Lateral carinae absent. Sensilli long, slightly sickle-like, dilated in distal half and covered with small cilia. Interlamellar (*in*) and lamellar (*le*) setae straight, erect, blunt at distal end and densely setose. Rostral setae (*ro*) setiform, rough and bent downwards.

Notogaster with longitudinal median band; 17 pairs of notogastral setae straight, erect, densely setose; dorsal setae longer ($c_1 > c_1-d_1$) than laterals. Setae c_1 situated on anterior border of notogaster, setae c_2 and c_3 slightly remote from notogastral border. Only lyrifissures *ia* visible. Vestigial setae invisible because of strong sculpture.

Ventral region. Setae *h* of mentum almost as long as distance between them. Genitoaggenital plates with nine pairs of genital setae with arrangement: 6: 3, setae g_{6-9} very long. Anoadanal plates each with five pairs of adanal setae also close to paraxial border but clearly separated from anal setae.

Legs. Formula of setae and solenidia of complete type. Setae *d* of femora I considerably remote from distal end of segment, setae v'' more than five times longer than setae v' .

Comparison – *N. lienhardi* is easy distinguishable from other *Notophthiracarus* species by the number of 17 pairs of notogastral setae, presence of longitudinal median band, deep and framed alveoli of notogastral surface, very long genital setae g_{6-9} , position of anal and adanal setae close to paraxial border of plates.

Distribution – Species up to the present known only from Malaysia (MAHUNKA 1996, NIEDBAŁA 2000).

Notophthiracarus stenotus Niedbała et Corpuz-Raros, 1998
(Figs 3E–G)

Material examined – Two specimens from NG-1803, Indonesia – Irian, New Guinea, Cape Pie, near entrance of the Jountela bay, 9.I.1954, forest on coral limestone, litter sample, leg. L. van der Hammen.

Remarks – Specimens from NG-1803 have similar dimensions as the holotype but they differ in the shape of notogastral setae, which are broader and rounded. All other morphological characters are the same as holotype (NIEDBAŁA & CORPUZ-RAROS 1998).

Distribution – So far the species is known only from the Philippines (NIEDBAŁA 2000).

NEW RECORDS AND NEW DATA
ABOUT DISTRIBUTION OF SOME SPECIES

Ptyctimous mites the first time noted from Gough Island

Notophthiracarus fecundus Niedbala, 2000 – Material examined: GHI-03, Gough Island, southern part of the island, 16.V.1968, dense tussock, sample of grass rhizosphere, leg A. Macfadyen, (2 sp.). Distribution: Species up to the present known from New Zealand only (NIEDBALA 2000).

Notophthiracarus minusculus Niedbala, 2004 – Material examined: GHI-03, Gough Island, southern part of the island, 16.V.1968, dense tussock, sample of grass rhizosphere, leg A. Macfadyen, (2 sp.). Distribution: Species up to the present known from Chile only (NIEDBALA 2004).

Ptyctimous mites the first time noted from Bangladesh

Acrotitia curticephala (Jacot, 1938) – Material examined: BGL-029, Bangladesh, Khulna, Sundarbans National Park, Balirgang, 2.III.1997, 21°45'13"N, 89°21'66"E, mangroves, litter sample under gewa tree, leg M. A. Habib, (2 sp.), BGL-037, Bangladesh, Khulna, Sundarbans National Park, Supati forest station, 25.II.1997, 21°02'62"N, 89°49'38"E, mangroves, litter sample near pond, leg M. A. Habib, (1 sp.). Distribution: Semicosmopolitan species; not reported from Afrotropical Region (NIEDBALA 2004).

Phthiracarus compressus Jacot, 1930 – Material examined: BGL-003, Bangladesh, Khulna, Sundarbans National Park, Balirgang, 2.III.1997, 21°45'13"N, 89°21'66"E, mangroves, sample of lichens on goran tree, leg M. A. Habib, (1 sp.). Distribution: Holarctic species (NIEDBALA 2011).

Atropacarus (Hoplophorella) vitrinus (Berlese, 1913) – Material examined: BGL-037, Bangladesh, Khulna, Sundarbans National Park, Supati forest station, 25.II.1997, 21°02'62"N, 89°49'38"E, mangroves, litter sample near pond, leg M. A. Habib, (2 sp.). Distribution: Semicosmopolitan species (NIEDBALA 2011).

Ptyctimous mites the first time noted from Colombia

Mesoplophora (Mesoplophora) parabacilla Niedbala, 2006 – Material examined: COL-009, Colombia, Meta, Carimagua, 15.IV.1983, native pasture, savannas, hand sampling, leg J. M. Guerrero, (2 sp.). Distribution: Species up to the present known from Panama only (NIEDBALA 2006).

Austrophthiracarus diazae (Ojeda, 1985) – Material examined: COL-009, Colombia, Meta, Carimagua, 15.IV.1983, native pasture, savannas, hand sampling, leg J. M. Guerrero, (3 sp.). Distribution: Neotropical species up to the present known from Costa Rica, Panama, Venezuela, Ecuador and Chile (NIEDBALA 2004).

Notophthiracarus aculetaus Niedbala, 1988 – Material examined: COL-009, Colombia, Meta, Carimagua, 15.IV.1983, native pasture, savannas, hand sampling, leg J. M. Guerrero, (4 sp.). Distribution: Species up to the present known from Panama and Ecuador (NIEDBALA 1988b, 2004).

Ptyctimous mites the first time noted from Tanzania

Indotritia paraconsimilis Niedbała, 2012 – Material examined: TAN-014, Tanzania, Uluguru Mts., Bunduki village, 26.XI.2010, 07°01'06"S, 37°39'45"E, 1569 m, mid-afromontane deciduous forest, litter sifting sample, leg. V. Grebennikov (4 sp.), TAN-016, Tanzania, Uluguru Mts., Bunduki village, 26.XI.2010, 07°01'17"S, 37°39'10"E, 1592 m, mid-afromontane deciduous forest, litter sifting sample, leg. V. Grebennikov (17 sp.). Distribution: Species up to the present was known from Ethiopia only (NIEDBAŁA & ERMILOV 2012).

Hoplophthiracarus ambiguus Niedbała, 1982 – Material examined: TAN-014, Tanzania, Uluguru Mts., Bunduki village, 26.XI.2010, 07°01'06"S, 37°39'45"E, 1569 m, mid-afromontane deciduous forest, litter sifting sample, leg. V. Grebennikov (13 sp.). Distribution: Species known from central part of Afrotropical Region (NIEDBAŁA 1982, 2001).

Ptyctimous mites the first time noted from Brazil

Acrotritia parallelos (Niedbała, 2003) – Material examined: BR-046, Brazil, São Paulo State, São Paulo, Instituto Butantan, 50 m from Museum of Microbiology, 7.XI.2002, secondary Atlantic forest, sample of wet leaf litter, leg. J. Starý, (1 sp.). Distribution: Neotropical endemic species up to the present known Costa Rica and Panama (NIEDBAŁA 2003, 2004).

Ptyctimous mites the first time noted from New Guinea (Indonesia, Irian)

Notophthiracarus stenotus Niedbała et Corpuz-Raros, 1998 – Material examined: NG-1803, Indonesia – Irian, New Guinea, Cape Pie, near entrance of the Jountela Bay, 9.I.1954, forest on coral limestone, litter sample, leg. L. van der Hammen (2 sp.). Distribution: Species up to the present known from the Philippines only (NIEDBAŁA & CORPUZ-RAROS 1998, NIEDBAŁA 2000).

Acrotritia refracta (Niedbała, 1998) – Material examined: NG-1806, Indonesia – Irian, New Guinea, Korido, Loepiori, 9.IV.1954, forest on chlorite schist, litter sample, leg. L. van der Hammen, (1 sp.). Distribution: Pantropical species (NIEDBAŁA 2004).

Atropacarus (Hoplophorella) singularis Sellnick, 1959 – Material examined: NG-1815, Indonesia – Irian, New Guinea, Woendi Padaido Islands, 1.III.1954, beach forest, litter sample, leg. L. van der Hammen, (1 sp.). Distribution: Pantropical species (NIEDBAŁA 2004).

Ptyctimous mites the first time noted from Malaysia

Oribotritia lepteces Niedbała, Corpuz-Raros et Gruezo, 2006 – Material examined: MAY-001, Malaysia, Pahang, Cameron Highlands, Tanan Rata village environs, near Parit Fall, 1.V.2009, 04°28'31"N, 101°23'01"E, 1500 m, sifting of leaf litter, leg. P. Baňář, (2 sp.), MAY-003, Malaysia, Pahang, Cameron Highlands, Gunung Jasar Mt., Tanan Rata village environs, 4.V.2009, 04°28.47'N, 101°21'36"–22'06"E, 1620 m, sifting of leaf litter, leg. P. Baňář, (1 sp.). Distribution: Species up to the present known from the Philippines and New South Wales, Australia, (NIEDBAŁA *et al.* 2006).

Oribotritia nepalensis Niedbała, 2000 – Material examined: MAY-003, Malaysia, Pahang, Cameron Highlands, Gunung Jasar Mt., Tanan Rata village environs, 4.V.2009, 04°28'28"N, 101°21'36"–22'06"E, 1620 m, sifting of leaf litter, leg. P. Baňář, (1 sp.). Distribution: Species up to the present known from Nepal and Tibet (NIEDBAŁA 2000).

Austrotrititia robusta Niedbala et Corpuz-Raros, 1998 – Material examined: MAY-003, Malaysia, Pahang, Cameron Highlands, Gunung Jasar Mt., Tanan Rata village environs, 4.V.2009, 04°28'28"N, 101°21'36"–22°06"E, 1620 m, sifting of leaf litter, leg. P. Baňář, (3 sp.). Distribution: Pantropical species (NIEDBAŁA 2000).

Plonaphacarus semiaciculatus (Mahunka, 2008) – Material examined: MAY-044, West Malaysia, Batu Caves, 30.XII.2010, 03°14'50"N, 101°41'17"E, rain forest on limestone bedrock, wet site with rich brushwood, sample of leaf litter, leg. J. Farská, (3 sp.). Distribution: Species up to the present known from Thailand only (MAHUNKA 2008).

Ptyctimous mites the first time noted from Reunion

Phthiracarus nitens (Nicolet, 1855) – Material examined: REU-007, Reunion, volcano Cirque de Cillaos, 16.XI.2007, old coniferous forest, sample of mosses and soil, leg. M. Veselovský, (1 sp.). Distribution: Western Palaearctic species introduced to Reunion (NIEDBAŁA 2011).

Ptyctimous mites the first time noted from Jamaica

Acrotrititia refracta (Niedbala, 1998) – Material examined: JAM-46, Jamaica, Blue Mountains, near waterfall on the Shentamee river, about 15 km, north of Kingston, 18.VI.1992, dense montane foggy forest, moss sample, leg. R. Hogervorst, (1 sp.). Distribution: Pantropical species (NIEDBAŁA 2004).

Phthiracarus anonymus Grandjean, 1933 – Material examined: JAM-44, Jamaica, Blue Mountains, near waterfall on Shentamee river, about 15 km, north of Kingston, 16.VI.1993, dense montane foggy forest, sample of leaf litter, leg. R. Hogervorst, (2 sp.). Distribution: Semicosmopolitan species (NIEDBAŁA 2011).

Arphthiacarus latebrosus (Niedbala, 1982) – Material examined: JAM-45, Jamaica, Blue Mountains, near waterfall on Shentamee river, about 15 km, north of Kingston, 17.VI.1993, montane deciduous forest, rotten wood sample, leg. R. Hogervorst, (1 sp.). Distribution: Pan-neotropical species (NIEDBAŁA 2004).

Ptyctimous mites the first time noted from Cuba

Indotrititia bellingeri Niedbala et Schatz, 1996 – Material examined: K-153, Cuba, Province Guantanamo, Guantanamo, garden of the Instituto del Suelos, 17.XI.1979, soil sample, leg. J. Rusek, (1 sp.), K-322, Cuba, Province Habana, Arroyo Bermejo, 25.X.1981, semideciduous forest, leaf litter sample, leg. J. Rusek, (1 sp.). Distribution: Pan-neotropical species (NIEDBAŁA 2004).

Indotrititia krakatauensis (Sellnick, 1923) – Material examined: K-141, Cuba, Province Pinar del Rio, Guanahacabites, sea shore forest, sandy soil sample, leg. J. Rusek, (3 sp.), K-148, Cuba, Province Pinar del Rio, Guanahacabites, 10.XI.1979, sea shore forest, sandy soil sample, leg. J. Rusek, (1 sp.), K-152, Cuba, Province Guantanamo, garden of the Instituto del Suelos, 17.XI.1979, soil sample, leg. J. Rusek, (2 sp.). Distribution: Pantropical species (NIEDBAŁA 2004).

Microtrititia tropica Märkel, 1964 – Material examined: K-148, Cuba, Province Pinar del Rio, Guanahacabites, 10.XI.1979, sea shore forest, sandy soil sample, leg. J. Rusek, (1 sp.). Distribution: Pantropical species (NIEDBAŁA 2004).

Ptyctimous mites the first time noted from the USA

Oribotritia paracarinata Niedbala, 2007 – Material examined: USA-305, Washington, Pierce County, south of Forest Lake, 20.I.1991, 47°02'42"N, 122°11'31"W, 170 m, sample of *Alnus rubra*, *Salix* sp. litter, leg. R. Crawford, (1 sp.), USA-308, Washington, Pierce County, Maplewood Spring, 20.IV.1992, 47°10'30"N, 122°18'58"W, 15 m, deciduous forest, *Acer macrophyllum* litter sample, leg. R. Crawford (3 sp.). Distribution: Species up to the present known from Canada only (NIEDBAŁA 2007).

Ptyctimous mites the first time noted from Canada

Euphthiracarus tanythrix Walker, 1965 – Material examined: CAN-107, Canada, Ontario, Moosonee, 3.X.1983, spruce forest, litter and soil sample, leg. J. Tomlin, (1 sp.). Distribution: Species up to the present known from the USA (WALKER 1965, NIEDBAŁA 2002).

NEW LOCALITIES OF SOME KNOWN SPECIES

Records from Indonesia

Austrotritia lebronneci (Jacot, 1934) – Material examined: NG-1806, Indonesia – Irian, New Guinea, Korido, Loepiori, 9.IV.1954, forest on chlorite schist, leaf litter sample, leg. L. van der Hammen, (1 sp.). Distribution: Pantropical species (NIEDBAŁA 2000).

Records from Malaysia

Apoplophora ornata Niedbala, 2000 – Material examined: MAY-044, West Malaysia, Batu Caves, 30.XII.2010, 03°14'50"N, 101°41'17"E, rain forest on limestone bedrock, wet site with rich brushwood, sample of leaf litter, leg. J. Farská, (30 sp.). Distribution: Species up to the present known from Borneo only (NIEDBAŁA 2000).

Apoplophora pantotrema (Berlese, 1913) – Material examined: MAY-002, Malaysia, Pahang, Cameron Highlands, Gunung Perdah Mt., Orange Asli village environs, 2–14.V.2009, 04°29'01"N, 101°22'06"E, 1575 m, sifting of leaf litter in shallow ravine, leg. P. Baňář, (1 sp.); MAY-003, Malaysia, Pahang, Cameron Highlands, Gunung Jasar Mt., Tanan Rata village environs, 4.V.2009, 04°28'28"N, 101°21'36"–22'06"E, 1620 m, sifting of leaf litter, leg. P. Baňář, (1 sp.); MAY-004, Malaysia, Pahang, Cameron Highlands, Tanan Rata village environs, near Parit Fall, 25.IV–15.V.2009, 04°28'24"–28'42"N, 101°21'36"–22'06"E, 1470–1550 m, sifting of leaf litter and rotten wood, leg. P. Baňář, (1 sp.); MAY-044, West Malaysia, Batu Caves, 30.XII.2010, 03°14'50"N, 101°41'17"E, rain forest on limestone bedrock, wet site with rich brushwood, sample of leaf litter, leg. J. Farská (3 sp.). Distribution: Oriental species introduced to Palaearctic (Japan), Australian (Papua New Guinea and Queensland) and the West Pacific islands (Solomon and Fiji) Regions (NIEDBAŁA 2000).

Mesoplophora (Parplophora) paraleviseta Mahunka, 1991 – Material examined: MAY-044, West Malaysia, Batu Caves, 30.XII.2010, 03°14'50"N, 101°41'17"E, rain forest on limestone bedrock, wet site with rich brushwood, sample of leaf litter, leg. J. Farská, (1 sp.). Distribution: Species up to the present known from Malaysia only, perhaps endemic (NIEDBAŁA 2000).

Acrotritia ardua (C. L. Koch, 1941) – Material examined: MAY-044, West Malaysia, Batu Caves, 30.XII.2010, 03°14'50"N, 101°41'17"E, rain forest on limestone bedrock, wet site with rich brushwood, sample of leaf litter, leg. J. Farská, (1 sp.). Distribution: Semicosmopolitan species (NIEDBALA 2011).

Acrotritia curticephala (Jacot, 1938) – Material examined: MAY-044, West Malaysia, Batu Caves, 30.XII.2010, 03°14'50"N, 101°41'17"E, rain forest on limestone bedrock, wet site with rich brushwood, sample of leaf litter, leg. J. Farská, (1 sp.). Distribution: Semicosmopolitan species not reported from Afrotropical Region (NIEDBALA 2004).

Oribotritia aokii Mahunka, 1987 – Material examined: MAY-003, Malaysia, Pahang, Cameron Highlands, Gunung Jasar Mt., Tanan Rata village environs, 4.V.2009, 04°28'28"N, 101°21'36"–22°06"E, 1620 m, sifting of leaf litter, leg. P. Baňář, (1 sp.). Distribution: Oriental species (NIEDBALA, W. & CORPUZ-RAROS 1998, NIEDBALA 2000).

Oribotritia bulbifer (Mahunka, 1987) – Material examined: MAY-044, West Malaysia, Batu Caves, 30.XII.2010, 03°14'50"N, 101°41'17"E, rain forest on limestone bedrock, wet site with rich brushwood, sample of leaf litter, leg. J. Farská, (1 sp.). Distribution: Oriental species (NIEDBALA 2000).

Indotritia javensis (Sellnick, 1923) – Material examined: MAY-002, Malaysia, Pahang, Cameron Highlands, Gunung Perdah Mt., Orange Asli village environs, 2–14.V.2009, 04°29'01"N, 101°22'06"E, 1575 m, sifting of leaf litter in shallow ravine, leg. P. Baňář, (5 sp.); MAY-003, Malaysia, Pahang, Cameron Highlands, Gunung Jasar Mt., Tanan Rata village environs, 4.V.2009, 04°28'28"N, 101°21'36"–22°06"E, 1620 m, sifting of leaf litter, leg. P. Baňář, (5 sp.); MAY-004, Malaysia, Pahang, Cameron Highlands, near Parit Fall, Tanan Rata village environs, 25.IV.–15.V.2009, 04°28'24"–28°42"N, 101°21'36"–22°06"E, ca 1470–1550 m, sifting of leaf litter and rotten wood, leg. P. Baňář. (16 sp.). Distribution: Oriental species introduced in the border zone of the Palearctic Region (NIEDBALA 2000).

Plonaphacarus kugohi (Aoki, 1959) – Material examined: MAY-043, West Malaysia, Batu Caves, 30.XII.2010, 03°14'50"N, 101°41'17"E, rain forest on limestone bedrock, wet site with rich brushwood, sample of litter and soil, leg. J. Farská, (4 sp.); MAY-044, West Malaysia, Batu Caves, 30.XII.2010, 03°14'50"N, 101°41'17"E, rain forest on limestone bedrock, wet site with rich brushwood, sample of leaf litter, leg. J. Farská, (3 sp.). Distribution: Pantropical species (NIEDBALA 2000).

Notophthiracarus lienhardi Mahunka, 1996 – Material examined: MAY-002, Malaysia, Pahang, Cameron Highlands, Gunung Perdah Mt., Orange Asli village environs, 2.V.–14.V.2009, 04°29'12"N, 101°22'06"E, 1575 m, sifting of leaf litter in shallow ravine, leg. P. Baňář, (1 sp.); MAY-003, Malaysia, Pahang, Cameron Highlands, Gunung Jasar Mt., Tanan Rata village environs, 4.V.2009, 04°28'28"N, 101°21'36"–22°06"E, 1620 m, sifting sample of leaf litter, leg. P. Baňář, (2 sp.); MAY-004, Malaysia, Pahang, Cameron Highlands, Tanan Rata village environs, near Parit Fall, 25.IV.–15.V.2009, 04°28'24"–28°42"N, 101°21'36"–22°06"E, 1470–1550 m, sifting of leaf litter and rotten wood, leg. P. Baňář, (4 sp.). Distribution: Species up to the present known from Malaysia, perhaps endemic (NIEDBALA 2000).

Atropacarus (Hoplophorella) cucullatus (Ewing, 1909) – Material examined: MAY-044, West Malaysia, Batu Caves, 30.XII.2010, 03°14'50"N, 101°41'17"E, rain forest on limestone bedrock, wet site with rich brushwood, sample of leaf litter, leg. J. Farská, (1 sp.). Distribution: Semicosmopolitan species (NIEDBALA 2000).

Atropacarus (Hoplophorella) vitrinus (Berlese, 1913) – Material examined: MAY-043, West Malaysia, Batu Caves, 30.XII.2010, 03°14'50"N, 101°41'17"E, rain forest on limestone bedrock, wet site with rich brushwood, sample of litter and soil, leg. J. Farská, (1 sp.). Distribution: Pantropical species (NIEDBALA 2000).

Records from Reunion

Indotritia krakatauensis (Sellnick, 1923) – Material examined: REU-001, Reunion, volcano Piton de la Fournaise, near tourist trail, 19.XI.2007, ca 2000 m, dense bush growth, sample of grass rhizosphere, leg. M. Veselovský, (1 sp.). Distribution: Pantropical species (NIEDBAŁA 2004).

Notophthiracarus parareductus Mahunka, 1992 – Material examined: REU-007, Reunion, volcano Cirque de Cillaos, 16.XI.2007, old coniferous forest, sample of mosses and soil, leg. M. Veselovský, (1 sp.). Distribution: Species up to the present known from Reunion, perhaps endemic (NIEDBAŁA 2001).

Records from the Seychelles

Mesoplophora (Parplophora) leviseta Hammer, 1979 – Material examined: SEY-001, Seychelles, Praslin, Valle de Mai, 12.XII.1975, forest with *Lodricea* sp., sample of dry soil and litter, leg. A. Fjellberg, (8 sp.); SEY-004, Seychelles, Mahé, Morne, 3.XII.1975, 850 m, deciduous forest, leaf litter sample, leg. A. Fjellberg, (9 sp.). Distribution: Oriental species introduced to Seychelles (NIEDBAŁA 2010)

Indotritia krakatauensis (Sellnick, 1923) – Material examined: SEY-003, Seychelles, Mahé, Tahamaku, 6.XII.1975, swamps in coconut plantation, litter sample, leg. A. Fjellberg, (2 sp.). Distribution: Pantropical species (NIEDBAŁA 2004, 2010).

Microtritia tropica Märkel, 1964 – Material examined: SEY-002, Seychelles, Mahé, Casqdore, 10.XII.1975, palm and bamboo forest, leaf litter sample, leg. A. Fjellberg, SEY-005, Seychelles, Mahé, Morne, 3.XII.1975, 750 m, deciduous forest, leaf litter sample, leg. A. Fjellberg, (13 sp.). Distribution: Pantropical species (NIEDBAŁA 2010).

Phthiracarus schauenbergi (Mahunka, 1988) – Material examined: SEY-005, Seychelles, Mahé, Morne, 3.XII.1975, 750 m, deciduous forest, leaf litter sample, leg. A. Fjellberg, (3 sp.). Distribution: Afrotropical species (NIEDBAŁA 2010).

Records from Kenya

Acrotritia ardua (C. L. Koch, 1841) – Material examined: KN-007, Kenya, Malindi, 100 km south of Mombasa, 500 m from Indian Ocean coast, 12.III.1974, sample of baobab leaf litter, leg. J. Michejda, (2 sp.). Distribution: Semicosmopolitan species (NIEDBAŁA 2011).

Records from Canada

Mesotritia flagelliformis (Ewing, 1909) – Material examined: CAN-101, Canada, Moonsonnee, 3.X.1983, spruce forest, spruce litter and soil sample, leg. J. Tomlin, (1 sp.). Distribution: Holarctic species (NIEDBAŁA 2002).

Protoribotritia canadaris Jacot, 1938 – Material examined: CAN-114, Canada, Ontario, Moosonee, 3.X.1983, spruce forest, spruce litter and soil sample, leg. J. Tomlin, (1 sp.). Distribution: Nearctic species restricted to northern and eastern parts of the Nearctic Region with southern disjunction to the New Mexico (NIEDBAŁA 2002).

Euphthiracarus cernuus Walker, 1965 – Material examined: C-72, Canada, Vancouver Island, Mac Millan Park, west of Parksville, 12.X.1974, Douglas fir old forest, sample of

decaying wood, leg. J. Rusek, (2 sp.). Distribution: Nearctic species restricted to the west of the Nearctic Region (NIEDBAŁA 2002).

Euphthiracarus flavus (Ewing, 1909) – Material examined: CAN-114, Canada, Ontario, Moosonee, 3.X.1983, spruce forest, spruce litter and soil sample, leg. J. Tomlin, (2 sp.). Distribution: Nearctic species widely distributed but absent from southwest of the Nearctic Region (NIEDBAŁA 2002).

Euphthiracarus pulchrus Jacot, 1930 – Material examined: C-72, Canada, Vancouver Island, Mac Millan Park, west of Parksville, 12.X.1974, Douglas fir old forest, sample of decaying wood, leg. J. Rusek, (4 sp.); C-91, Canada, Coast Mountains, Garibaldi Provincial Park, Paul Ridge, 16.X.1974, *Tsuga mertensiana* forest, hygic site, sample of rotten wood, leg. J. Rusek, (1 sp.), C-185, Canada, British Columbia, Vancouver Island, China Beech Park, 8.IV.1975, *Tsuga heterophylla* and *Picea sitchensis* growth, sample of decaying wood, leg. J. Rusek, (1 sp.). Distribution: Nearctic species so far restricted to east of the Nearctic Region (NIEDBAŁA 2002).

Acrotritia ardua (C. L. Koch, 1841) – Material examined: CAN-113, Canada, Ontario, Moosonee, 3.X.1983, spruce forest, litter and soil sample, leg. J. Tomlin, (2 sp.); CAN-119 Canada, Ontario, Moosonee, Tamarack, 12.V.1990, spruce forest, lichen sample on the ground, leg. J. Tomlin, (20 sp.); CAN-121, Canada, Ontario, Moosonee, 27.VI.1990, black spruce forest, spruce litter sample, leg. J. Tomlin, (2 sp.); CAN-122 Canada, Ontario, Moosonee, Tamarack, 12.V.1990, wet *Sphagnum* sp. sample, leg. J. Tomlin, (4 sp.); CAN-124, Canada, Ontario, Moosonee, Kinosheoe Tower, 25.VI.1990, spruce forest, lichen sample on the ground, leg. J. Tomlin, (4 sp.). Distribution: Semicosmopolitan species (NIEDBAŁA 2011).

Microtritia simplex (Jacot, 1930) – Material examined: CAN-114, Canada, Ontario, Moosonee, 3.X.1983, spruce forest, spruce litter and soil sample, leg. J. Tomlin, (2 sp.); C-183, Canada, Vancouver Island, China Beach Park, on west coast, 8.IV.1975, *Tsuga heterophylla* forest, sample of decaying wood, leg. J. Rusek, (1 sp.). Distribution: Nearctic species (NIEDBAŁA 2002).

Phthiracarus boresetosus Jacot, 1930 – Material examined: CAN-121, Canada, Ontario, Moosonee, 27.VI.1990, black spruce forest, spruce litter sample, leg. J. Tomlin, (2 sp.). Distribution: Semicosmopolitan species (NIEDBAŁA 2002, 2011).

Phthiracarus brevisetae Jacot, 1930 – Material examined: CAN-119, Canada, Ontario, Moosonee, Tamarack, 12.V.1990, spruce forest, lichen sample on the ground, leg. J. Tomlin, (3 sp.). Distribution: Nearctic species (NIEDBAŁA 2002).

Phthiracarus longulus (C. L. Koch, 1841) – Material examined: CAN-103, Canada, Moosonee, 3.X.1983, spruce forest, spruce litter and soil sample, leg. J. Tomlin, (1 sp.); CAN-113, Canada, Ontario, Moosonee, 3.X.1983, spruce forest, litter and soil sample, leg. J. Tomlin; CAN-114, Canada, Ontario, Moosonee, 3.X.1983, spruce forest, spruce litter and soil sample, leg. J. Tomlin, (1 sp.); CAN-121, Canada, Ontario, Moosonee, 27.VI.1990, black spruce forest, spruce litter sample, leg. J. Tomlin, (3 sp.). Distribution: Holarctic species (NIEDBAŁA 2002, 2011).

Phthiracarus modestus Niedbała, 1988 – Material examined: CAN-122, Canada, Ontario, Moosonee, Tamarack, 12.V.1990, wet *Sphagnum* sp. sample, leg. J. Tomlin, (1 sp.). Distribution: Nearctic species restricted so far to west of the Nearctic Region (NIEDBAŁA 2002).

Phthiracarus nitidus Niedbała, 1986 – Material examined: CAN-120, Canada, Ontario, Moosonee County, 24.VI.1990, river shore, coastal fern rhizosphere, mosses, sedge rhizosphere sample, leg. J. Tomlin, (2 sp.). Distribution: Nearctic species (NIEDBAŁA 2002).

Phthiracarus validus Niedbała, 1986 – Material examined: CAN-112, Canada, Moonsonnee, 3.X.1983, spruce forest, spruce litter and soil sample, leg. J. Tomlin, (2 sp.). Distribution: Nearctic species (NIEDBAŁA 2002).

Hoplophthiracarus illinoisensis (Ewing, 1909) – Material examined: CAN-120, Canada, Ontario, Moonsonnee County, 24.VI.1990, river shore, coastal fern rhizosphere, mosses, and sedge rhizosphere sample, leg. J. Tomlin, (7 sp.); CAN-122 Canada, Ontario, Moonsonnee, Tamarack, 12.V.1990, wet *Sphagnum* sp. sample, leg. J. Tomlin, (2 sp.). Distribution: Holarctic species (NIEDBAŁA 2002, 2011).

Steganacarus (Rhacaplacarus) thoreauui (Jacot, 1930) – Material examined: CAN-111, Canada, Moonsonnee, 3.X.1983, spruce forest, spruce litter and soil sample, leg. J. Tomlin, (1 sp.); CAN-121, Canada, Ontario, Moonsonnee, 27.VI.1990, black spruce forest, spruce litter sample, leg. J. Tomlin; CAN-124, Canada, Ontario, Moonsonnee, Kinosheo Tower, 25.VI.1990, spruce forest, lichen sample on the ground, leg. J. Tomlin, (1 sp.). Distribution: Nearctic species absent so far from the west of the Nearctic Region (NIEDBAŁA 2002).

Atropacarus (Atropacarus) striculus (C. L. Koch, 1835) – Material examined: CAN-113, Canada, Ontario, Moonsonnee, 3.X.1983, spruce forest, litter and soil sample, leg. J. Tomlin, (4 sp.); CAN-118 Canada, Ontario, Moonsonnee, North Point, 27.VI.1990, coastal marsh, pitfall trap, leg. J. Tomlin, (8 sp.); CAN-119, Canada, Ontario, Moonsonnee, Tamarack, 12.V.1990, spruce forest, lichen sample on the ground, leg. J. Tomlin, (2 sp.); CAN-123, Canada, Ontario, Moonsonnee, 24.VI.1990, spruce forest, fen litter and moss sample, leg. J. Tomlin, (9 sp.); CAN-125, Canada, Ontario, Moonsonnee 7.VII.1984, spruce forest, spruce litter and soil sample, leg. J. Tomlin, (1 sp.). Distribution: Holarctic species (NIEDBAŁA 2002, 2011).

Records from the USA

Archoplophora rostralis (Willmann, 1930) – Material examined: USA-73, Pennsylvania, northeast of Jamison, Horseshoe Bend, Neshaming Creek, 5.V.1954, 75°03'N, 40°16'W, litter and soil sample, leg. W. Ivie, (8 sp.); USA-310, Minnesota, Chippewa National Forest, Leech Lake, Ottertail, 26.IX.2010, 47°15'59"N, 94°23'37"W, 449 m, deciduous forest with dominant sugar maple, leaf litter sample, leg. J. Schlaghamerský, (5 sp.). Distribution: Semicosmopolitan species (NIEDBAŁA 2002).

Oribotritia banksi (Oudemans, 1916) – Material examined: USA-77, Pennsylvania, northeast of Jamison, Horseshoe Bend, Neshaming Creek, 75°03'N, 40°16'W, 5.V.1954, litter and soil sample, leg. W. Ivie, (3 sp.); USA-158, New York, Westchester County, Briantcliff, 16.IV.1979, maple forest, leaf litter sample, leg. A. Young, (5 sp.); USA-306, Washington, Kittitas County, Joe Watt Canyon, 26.III.1991, 47°04'16"N, 120°44'02"W, 640 m, deciduous forest, *Salix* sp. litter sample, leg. R. Crawford, (1 sp.). Distribution: Nearctic species (NIEDBAŁA 2002).

Oribotritia megalae (Walker, 1965) – Material examined: USA-195, California, Humboldt County, Patrick's Point State Park, 21.VI.1991, 41°08'N, 124°10'W, coniferous forest, under *Picea sitchensis*, sample of litter and soil, leg. K. Horner, (1 sp.); USA-206, California, Del Norte County, Jedediah Smith State Park, 1.IV.1992, 41°50'N, 124°W, coniferous forest, under *Tsuga heterophylla*, sample of litter and soil, leg. K. Horner, (2 sp.); USA-207, California, Del Norte County, Jedediah Smith State Park, 1.IV.1992, 41°50'N, 124°W, coniferous forest, under *Sequoia sempervirens*, sample of litter and soil, leg. K. Horner, (3 sp.). Distribution: Nearctic species endemic to California (NIEDBAŁA 2002).

Oribotritia opipara Niedbala, 2002 – Material examined: USA-236, Tennessee, Blount County, Great Smoky Mountains National Park, Karst Quest, White Oak, Blowhole Cave Area, 26.VII.2006, sample of leaf litter outside of cave, leg. K. L. Felderhoff, (1 sp.); USA-238, Utah, Sevier County, Clingman's Dome, 24.VI.2006, deciduous bush, pitfall trap on right side of parking lot, leg. S. H. Allen, (1 sp.). Distribution: Nearctic species (NIEDBALA 2002).

Maerkelotritia cryptopa (Banks, 1904) – Material examined: USA-212, Washington State, Little Kachess Lake, 5.X.1990, 47°17'26"N, 121°12'12"W, 958 m, coniferous forest, sample of litter and mosses, leg. M. Ranier, (1 sp.); USA-303, Washington, Kitsap County, Anderson Cove, 3.V.1992, 47°33'58"N, 122°58'05"W, 9 m, deciduous forest, *Acer macrophyllum* litter sample, leg. R. Crawford, (1 sp.), USA-308, Washington, Pierce County, Maplewood Spring, 20.IV.1992, 47°10'30"N, 122°18'58"W, 15 m, deciduous forest, *Acer macrophyllum* litter sample, leg. R. Crawford, (2 sp.). Distribution: Nearctic species restricted to west of the Nearctic Region (NIEDBALA 2002).

Maerkelotritia kishidai (Aoki, 1958) – Material examined: USA-186, California, Del Norte County, Jedediah Smith State Park, 1.IV.1992, 41°50'N, 124°W, coniferous forest, under *Sequoia sempervirens*, sample of litter and soil, leg. K. Horner, (7 sp.); USA-192, California, Del Norte County, Jedediah Smith State Park, 1.IV.1992, 41°50'N, 124°W, coniferous forest, under *Tsuga heterophylla*, sample of litter and soil, leg. K. Horner, (8 sp.). Distribution: Holarctic species (NIEDBALA 2002, 2011).

Mesotritia flagelliformis (Ewing, 1909) – Material examined: USA-238, Utah, Sevier County, Clingman's Dome, 24.VI.2006, deciduous bush, pitfall trap on right side of parking lot, leg. S. H. Allen, (1 sp.). Distribution: Holarctic species (NIEDBALA 2002).

Mesotritia nuda (Berlese, 1887) – Material examined: USA-154, Wisconsin, Milwaukee County, Kletzsch Peak, 6.VI.1978, mixed forest, sample of leaf litter, leg. J. P. Jass, (2 sp.). Distribution: Holarctic species (NIEDBALA 2002, 2011).

Euphthiracarus alazon Walker, 1965 – Material examined: USA-192, California, Del Norte County, Jedediah Smith State Park, 1.IV.1992, 41°50'N, 124°W, coniferous forest, under *Tsuga heterophylla*, sample of litter and soil, leg. K. Horner, (3 sp.). Distribution: Nearctic species, endemic to California (NIEDBALA 2002).

Euphthiracarus cernuus Walker, 1965 – Material examined: USA-301, Washington, King County, 3.V.1992, Covington Bog, 47°21'14"N, 122°04'23"W, 129 m, drier bog, sample of *Sphagnum* sp., leg. R. Crawford, (3 sp.). Distribution: Nearctic species restricted to the west of the Nearctic Region (NIEDBALA 2002).

Euphthiracarus crassisetae Jacot, 1938 – Material examined: USA-192, California, Del Norte County, Jedediah Smith State Park, 1.IV.1992, 41°50'N, 124°W, coniferous forest, under *Tsuga heterophylla*, sample of litter and soil, leg. K. Horner, (3 sp.). Distribution: Nearctic species, absent so far from central and southern parts of the Nearctic Region (NIEDBALA 2002).

Euphthiracarus cribrarius (Berlese, 1904) – Material examined: USA-445, North Carolina, Haywood County, Blue Ridge Parkway, across from Devils Courthouse, 17.VIII.2005, 32°42'40"N, 39°05'00"W, 1802 m, mixed forest, sample of feathery moss and attached litter, leg. R. Bernard, (1 sp.). Distribution: Holarctic species (NIEDBALA 2002, 2011).

Euphthiracarus flavus (Ewing, 1908) – Material examined: USA-80, Pennsylvania, northeast of Jamison, Horseshoe Bend, Neshaming Creek, 5.V.1954, 75°03'N, 40°16'W, litter and soil sample, leg. W. Ivie, (3 sp.); USA-152, North Carolina, Macon County, Rich Mt., South of Highlands, 6.VI.1985, sample of leaf litter, leg. D. M. Hildebrandt, (1 sp.); USA-236, Tennessee, Blount County, Great Smoky Mountains National Park, Karst Quest,

White Oak, Blowhole Cave Area, 26.VII.2006, sample of leaf litter outside of the cave, leg. K. L. Felderhoff, (1 sp.); USA-240, North Carolina, Graham County, Cherohala Skyway, 27.V.2007, 35°20'41"N, 84°02'06"W, 1403 m, sample of soil under large hardwood lump, leg. A. Fjellberg, (4 sp.); USA-241, North Carolina, Graham County, Cherohala Skyway, 27.V.2007, 35°20'12"N, 84°02'06"W, 1433 m, hardwood forest, sample of soil and litter, leg. A. Fjellberg, (9 sp.); USA-242, North Carolina, Monroe County, Cherohala, 27.V.2007, 35°20'59"N, 84°04'03"W, mixed hardwood and hemlock forest, sample of dry litter, leg. A. Fjellberg, (25 sp.). Distribution: Nearctic species nearly broad, absent from the southwest of the Nearctic Region (NIEDBAŁA 2002).

Euphthiracarus fulvus (Ewing, 1909) – Material examined: USA-318, Minnesota, Chippewa National Forest, Leech Lake, Ottertail, 26.IX.2010, 47°16'00"N, 94°23'49"W, 446 m, deciduous forest with dominant sugar maple, leaf litter and soil sample, leg. J. Schlaghamerský, (1 sp.). Distribution: Nearctic species, absent so far in southwest of the Nearctic Region (NIEDBAŁA 2002).

Euphthiracarus longirostralis Walker, 1965 – Material examined: USA-192, California, Del Norte County, Jedediah Smith State Park, 1.IV.1992, 41°50'N, 124°W, coniferous forest, under *Tsuga heterophylla*, sample of litter and soil, leg. K. Horner, (8 sp.). Distribution: Nearctic species restricted to the west of the Nearctic Region (NIEDBAŁA 2002).

Euphthiracarus parafusulus Niedbała, 2002 – Material examined: USA-445, North Carolina, Haywood County, Blue Ridge Parkway, across from Devils Courthouse, 17.VIII.2005, 32°42'40"N, 39°05'00"W, 1802 m, mixed forest, sample of feathery moss and attached litter, leg. R. Bernard, (1 sp.). Distribution: Nearctic species with disjunctive pattern of distribution (NIEDBAŁA 2002).

Euphthiracarus polyretos Walker, 1965 – Material examined: USA-207, California, Del Norte County, Jedediah Smith State Park, 1.IV.1992, 41°50'N, 124°W, coniferous forest, under *Sequoia sempervirens*, sample of litter and soil, leg. K. Horner, (1 sp.). Distribution: Nearctic species, endemic to California (NIEDBAŁA 2002).

Euphthiracarus punctulatus Jacot, 1930 – Material examined: USA-80, Pennsylvania, northeast of Jamison, Horseshoe Bend, Neshaming Creek, 5.V.1954, 75°03'N, 40°16'W, litter and soil sample, leg. W. Ivie, (13 sp.). Distribution: Nearctic species restricted to eastern parts of the Nearctic Region (NIEDBAŁA 2002).

Euphthiracarus tanythrix Walker, 1965 – Material examined: USA-235, Tennessee, Blount County, White Oak Sink, 28.VII.2006, deciduous forest, sample of leaf litter, leg. K. Felderhoff, (7 sp.). Distribution: Nearctic species (NIEDBAŁA 2002).

Acrotitia ardua (C. L. Koch, 1841) – Material examined: USA-73, Pennsylvania, North-East of Jamison, Horseshoe Bend, Neshaming Creek, 5.V.1954, 75°003'W, 40°016'N, litter and soil sample, leg. W. Ivie, (30 sp.); USA-234, Tennessee, Blount County, Bull Cave Karst, 29.VII.2006, mixed forest, leaf litter sample, leg. P. J. Long, (2 sp.); USA-241, North Carolina, Graham County, Cherohala Skyway, 27.V.2007, 35°20'12"N, 84°02'04"W, 1433 m, hardwood forest, sample of soil and litter, leg. A. Fjellberg, (1 sp.); USA-326, Wisconsin, Tower Lake Wilderness, Chequamegon National Forest, 3.X.2010, 46°26'03"N, 91°19'36"W, 382 m, deciduous forest with dominant sugar maple, leaf litter sample, leg. J. Schlaghamerský, (1 sp.); USA-330, Wisconsin, Tower Lake Wilderness, Chequamegon National Forest, 3.X.2010, 46°25'46"N, 91°18'59"W, 370 m, deciduous forest with dominant sugar maple, sample of leaf litter, leg. J. Schlaghamerský, (1 sp.); USA-444, North Carolina, Haywood County, Blue Ridge Parkway, Wolf Mountain, 17.VIII.2005, 32°24'44"N, 39°04'49"W, 1815 m, sample of vegetation on side of seep, leg. R. Bernard, (31 sp.). Distribution: Semicosmopolitan species (NIEDBAŁA 2011).

Acrotritia curticephala (Jacot, 1938) – Material examined: USA-74, Pennsylvania, northeast of Jamison, Horseshoe Bend, Neshaming Creek, 5.V.1954, 75°03'N, 40°16'W, litter and soil sample, leg. W. Ivie, (41 sp.). Distribution: Semicosmopolitan species not reported from the Afrotropical Region (NIEDBAŁA 2004).

Acrotritia diaphoros (Niedbała, 2002) – Material examined: USA-157, Wisconsin, Milwaukee County, Jacobus Park, 8.IX.1978, mixed forest, leaf litter sample, leg. J. P. Jass, (1 sp.); USA-235, Tennessee, Blount County, White Oak Sink, 28.VII.2006, deciduous forest, sample of leaf litter, leg. K. Felderhoff, (5 sp.); USA-237, Pennsylvania, Cumberland County, Sequatchie River Valley, old route 28, 28.III.2006, base of rock wall, litter and soil sample, leg. J. K. Moulton, (1 sp.). Distribution: Nearctic species restricted to central and eastern parts of the Nearctic Region (NIEDBAŁA 2002).

Acrotritia ornata (Niedbała, 2002) – Material examined: USA-240, North Carolina, Graham County, Cherohala Skyway, 27.V.2007, 35°20'41"N, 84°02'06"W, 1403 m, sample of soil under large hardwood lump, leg. A. Fjellberg, (1 sp.). Distribution: Nearctic species (NIEDBAŁA 2002).

Acrotritia scotti (Walker, 1965) – Material examined: USA-210, California, Del Norte County, Jedediah Smith State Park, 1.IV.1992, 41°50'N, 124°W, coniferous forest, under *Sequoia sempervirens*, sample of litter and soil, leg. K. Horner, (12 sp.). Distribution: Nearctic species, endemic to California (NIEDBAŁA 2002).

Microtritia minima (Berlese, 1904) – Material examined: USA-242, North Carolina, Monroe County, Cherohala, 27.V.2007, 35°20'59"N, 84°04'03"W, mixed hardwood and hemlock forest, sample of dry litter, leg. A. Fjellberg, (55 sp.); USA-243, North Carolina, Graham County, Cherohala, 24.V.2007, 35°18'55"N, 84°01'45"W, hardwood, sample of deep moist hardwood litter and soil, leg. A. Fjellberg, (7 sp.). Distribution: Holarctic species (NIEDBAŁA 2002, 2011).

Microtritia simplex (Jacot, 1930) – Material examined: USA-192, California, Del Norte County, Jedediah Smith State Park, 1.IV.1992, 41°50'N, 124°W, coniferous forest, under *Tsuga heterophylla*, sample of litter and soil, leg. K. Horner, (3 sp.); USA-210, California, Del Norte County, Jedediah Smith State Park, 1.IV.1992, 41°50'N, 124° W, coniferous forest, under *Sequoia sempervirens*, sample of litter and soil, leg. K. Horner, (3 sp.); USA-330, Wisconsin, Tower Lake Wilderness, Chequamegon National Forest, 3.X.2010, 46°25'46"N, 91°18'59"W, 370 m, deciduous forest with dominant sugar maple, sample of leaf litter, leg. J. Schlaghamerský, (2 sp.). Distribution: Nearctic species (NIEDBAŁA 2002).

Synichotritia caroli Walker, 1965 – Material examined: USA-192, California, Del Norte County, Jedediah Smith State Park, 1.IV.1992, 41°50'N, 124°W, coniferous forest, under *Tsuga heterophylla*, sample of litter and soil, leg. K. Horner, (59 sp.); USA-207, California, Del Norte County, Jedediah Smith State Park, 1.IV.1992, 41°50'N, 124° W, coniferous forest, under *Sequoia sempervirens*, sample of litter and soil, leg. K. Horner, (1 sp.); USA-240, North Carolina, Graham County, Cherohala Skyway, 27.V.2007, 35°20'41"N, 84°02'06"W, 1403 m, sample of soil under large hardwood lump, leg. A. Fjellberg, (11 sp.). Distribution: Nearctic species (NIEDBAŁA 2002).

Synichotritia longipila Niedbała, 2002 – Material examined: USA-235, Tennessee, Blount County, White Oak Sink, 28.VII.2006, deciduous forest, sample of leaf litter, leg. K. Felderhoff, (2 sp.). Distribution: Nearctic species (NIEDBAŁA 2002).

Synichotritia reticulata Niedbała et Starý, 2010 – Material examined: USA-242, North Carolina, Monroe County, Cherohala 27.V.2007, 35°20'59"N, 84°04'03"W, mixed hardwood and hemlock forest, sample of dry litter, leg. A. Fjellberg, (2 sp.). Distribution: Nearctic species perhaps endemic to North Carolina (NIEDBAŁA & STARÝ 2010).

Synichotritia spinulosa Walker, 1965 – Material examined: USA-186, California, Del Norte County, Jedediah Smith State Park, 1.IV.1992, 41°50'N, 124°W, coniferous forest, under *Sequoia sempervirens*, sample of litter and soil, leg. K. Horner, (116 sp.); USA-206, California, Del Norte County, Jedediah Smith State Park, 1.IV.1992, 41°50'N, 124°W, coniferous forest, under *Tsuga heterophylla*, sample of litter and soil, leg. K. Horner, (13 sp.). Distribution: Nearctic species (NIEDBAŁA 2002).

Phthiracarus aliquantus Niedbala, 1988 – Material examined: USA-186, California, Del Norte County, Jedediah Smith State Park, 1.IV.1992, 41°50'N, 124°W, coniferous forest, under *Sequoia sempervirens*, sample of litter and soil, leg. K. Horner, (1 sp.); USA-235, Tennessee, Blount County, White Oak Sink, 28.VII.2006, deciduous forest, sample of leaf litter, leg. K. Felderhoff, (19 sp.); USA-237, Pennsylvania, Cumberland County, Sequatchie River Valley, old route 28, 28.III.2006, base of rock wall, leaf litter and soil sample, leg. J. K. Moulton, (1 sp.); USA-303, Washington, Kitsap County, Anderson Cove, 3.V.1992, 47°33'58"N, 122°58'05"W, 9 m, deciduous forest, *Acer macrophyllum* litter sample, leg. R. Crawford, (3 sp.); USA-308, Washington, Pierce County, Maplewood Spring, 20.IV.1992, 47°10'30"N, 122°18'58"W, 15 m, deciduous forest, *Acer macrophyllum* litter sample, leg. R. Crawford, (14 sp.). Distribution: Nearctic species (NIEDBAŁA 2002).

Phthiracarus anonymus Grandjean, 1933 – Material examined: USA-195, California, Humboldt County, Patrick's Point State Park, 21.VI.1991, 41°08'N, 124°10'W, coniferous forest, under *Picea sitchensis*, sample of litter and soil, leg. K. Horner, (1 sp.); USA-240, North Carolina, Graham County, Cherohala Skyway, 27.V.2007, 35°20'41"N, 84°02'06"W, 1403 m, sample of soil under large hardwood lump, leg. A. Fjellberg, (2 sp.); USA-243, North Carolina, Graham County, Cherohala, 24.V.2007, 35°18'55"N, 84°01'45"W, hardwood, sample of deep moist hardwood litter and soil, leg. A. Fjellberg, (1 sp.). Distribution: Semicosmopolitan species (NIEDBAŁA 2002).

Phthiracarus boresetosus Jacot, 1930 – Material examined: USA-212, Washington State, Little Kachess Lake, 5.X.1990, 47°17'26"N, 121°12'12"W, 958 m, coniferous forest, sample of litter and mosses, leg. M. Ranier, (2 sp.); USA-306, Washington, Kittitas County, Joe Watt Canyon, 26.III.1991, 47°04'16"N, 120°44'02"W, 640 m, deciduous forest, *Salix* sp. litter sample, leg. R. Crawford, (19 sp.); USA-326, Wisconsin, Tower Lake Wilderness, Chequamegon National Forest, 3.X.2010, 46°26'03"N, 91°19'36"W, 382 m, deciduous forest with dominant sugar maple, leaf litter sample, leg. J. Schlaghamerský, (2 sp.); USA-444, North Carolina, Haywood County, Blue Ridge Parkway, Wolf Mountain, 17.VIII.2005, 32°24'44"N, 39°04'49"W, 1815 m, sample of vegetation on side of seep, leg. R. Bernard, (6 sp.). Distribution: Semicosmopolitan (NIEDBAŁA 2002, 2011).

Phthiracarus brevisetae Jacot, 1930 – Material examined: USA-206, California, Del Norte County, Jedediah Smith State Park, 1.IV.1992, 41°50'N, 124°W, coniferous forest, under *Tsuga heterophylla*, sample of litter and soil, leg. K. Horner, (1 sp.); USA-207, California, Del Norte County, Jedediah Smith State Park, 1.IV.1992, 41°50'N, 124°W, coniferous forest, under *Sequoia sempervirens*, sample of litter and soil, leg. K. Horner, (1 sp.); USA-240, North Carolina, Graham County, Cherohala Skyway, 27.V.2007, 35°20'41"N, 84°02'06"W, 1403 m, sample of soil under large hardwood lump, leg. A. Fjellberg, (2 sp.); USA-445, North Carolina, Haywood County, Blue Ridge Parkway, across from Devils Courthouse, 17.VIII.2005, 32°42'40"N, 39°05'00"W, 1802 m, mixed forest, sample of feathery moss and attached litter, leg. R. Bernard, (2 sp.). Distribution: Nearctic species (NIEDBAŁA 2002).

Phthiracarus bryobius Jacot, 1930 – Material examined: USA-238, Utah, Sevier County, Clingman's Dome, 24.VI.2006, deciduous bush, pitfall trap on right side of parking lot, leg. S. H. Allen, (4 sp.); USA-244, North Carolina, Haywood County, 24.V.2007, 35°35'06"N,

83°04'11"W, 762 m, maple forest, sample of material under bark of fallen maple stem, leg. A. Fjellberg, (5 sp.). Distribution: Holarctic species (NIEDBAŁA 2002, 2010).

Phthiracarus cognatus Niedbała, 1988 – Material examined: USA-192, California, Del Norte County, Jedediah Smith State Park, 1.IV.1992, 41°50'N, 124°W, coniferous forest, under *Tsuga heterophylla*, sample of litter and soil, leg. K. Horner, (10 sp.); USA-235, Tennessee, Blount County, White Oak Sink, 28.VII.2006, deciduous forest, sample of leaf litter, leg. K. Felderhoff, (22 sp.); USA-236, Tennessee, Blount County, Great Smoky Mountains National Park, Karst Quest, White Oak, Blowhole Cave Area, 26.VII.2006, sample of leaf litter outside of cave, leg. K. L. Felderhoff, (3 sp.); USA-301, Washington, King County, Covington Bog, 3.V.1992, 47°21'14"N, 122°04'23"W, 129 m, drier bog, sample of *Sphagnum* sp., leg. R. Crawford, (1 sp.); USA-304, Washington, San Juan County, Spencer Spit State Park, 2.XI.1991, 48°32'06"N, 122°51'25"W, 18 m, coniferous forest, sample of leaf litter, leg. R. Crawford, (8 sp.). Distribution: Nearctic species, restricted to northern and western parts of the Nearctic Region (NIEDBAŁA 2002).

Phthiracarus compressus Jacot, 1930 – Material examined: USA-242, North Carolina, Monroe County, Cherohala 27.V.2007, 35°20'59"N, 84°04'03"W, mixed hardwood and hemlock forest, sample of dry litter, leg. A. Fjellberg, (9 sp.). Distribution: Holarctic species (NIEDBAŁA 2002, 2010).

Phthiracarus globosus (C. L. Koch, 1841) – Material examined: USA-73, Pennsylvania, northeast of Jamison, Horseshoe Bend, Neshaming Creek, 5.V.1954, 75°03'N, 40°16'W, litter and soil sample, leg. W. Ivie, (26 sp.); USA-154, Wisconsin, Milwaukee County, Kletzsch Peak, 6.VI.1978, mixed forest, sample of leaf litter, leg. J. P. Jass, (1 sp.); USA-156, Wisconsin, Milwaukee County, Kletzsch Peak, 10.VII.1978, mixed forest, leaf litter sample, leg. J. P. Jass, (1 sp.); USA-234, Tennessee, Blount County, Bull Cave Karst, 29.VII.2006, mixed forest, leaf litter sample, leg. P. J. Long, (19 sp.); USA-235, Tennessee, Blount County, White Oak Sink, 28.VII.2006, deciduous forest, sample of leaf litter, leg. K. Felderhoff, (37 sp.); USA-236, Tennessee, Blount County, Great Smoky Mountains National Park, Karst Quest, White Oak, Blowhole Cave Area, 26.VII.2006, sample of leaf litter outside of the cave, leg. K. Felderhoff, (1 sp.); USA-240, North Carolina, Graham County, Cherohala Skyway, 27.V.2007, 35°20'41"N, 84°02'06"W, 1403 m, sample of soil under large hardwood lump, leg. A. Fjellberg, (1 sp.); USA-241, North Carolina, Graham County, Cherohala Skyway, 27.V.2007, 35°20'12"N, 84°02'04"W, 1433 m, hardwood forest, sample of soil and litter, leg. A. Fjellberg, (23 sp.); USA-314, Minnesota, Chippewa National Forest, Leech Lake, Ottertail, 26.IX.2010, 47°16'01"N, 94°23'55"W, 443 m, deciduous forest with dominant sugar maple, leaf litter sample, leg. J. Schlaghamerský, (2 sp.); USA-445, North Carolina, Haywood County, Blue Ridge Parkway, across from Devils Courthouse, 17.VIII.2005, 32°42'40"N, 39°05'00"W, 1802 m, mixed forest, sample of feathery moss and attached litter, leg. R. Bernard, (15 sp.). Distribution: Holarctic species (NIEDBAŁA 2002, 2010).

Phthiracarus irreprehensus Niedbała, 1988 – Material examined: USA-300, Washington, San Juan County, Orcas Island, Turtleback Mountain, 14.III.1992, 48°38'38"N, 122°58'30"W, 85 m, oak forest, *Quercus garryana* leaf litter sample, leg. R. Crawford, (1 sp.). Distribution: Nearctic species restricted to the west of the Nearctic Region (NIEDBAŁA 2002).

Phthiracarus japonicus Aoki, 1958 – Material examined: USA-207, California, Del Norte County, Jedediah Smith State Park, 1.IV.1992, 41°50'N, 124° W, coniferous forest, under *Sequoia sempervirens*, sample of litter and soil, leg. K. Horner, (1 sp.), USA-300, Washington, San Juan County, Orcas Island, Turtleback Mountain, 14.III.1992, 48°38'38"N, 122°58'30"W, 85 m, oak forest, *Quercus garryana* litter sample, leg. R. Crawford, (17 sp.), USA-304, Washington, San Juan County, Spencer Spit State Park, 2. XI. 1991, 48°32'06"N,

122°51'25"W, 18 m, coniferous forest, sample of coniferous litter, leg. R. Crawford, (14 sp.), USA-308, Washington, Pierce County, Maplewood Spring, 20.IV.1992, 47°10'30"N, 122°18'58"W, 15 m, deciduous forest, *Acer macrophyllum* litter sample, leg. R. Crawford, (20 sp.). Distribution: Holarctic species (NIEDBAŁA 2002, 2010).

Phthiracarus longulus (C. L. Koch, 1841) – Material examined: USA-80, Pennsylvania, northeast of Jamison, Horseshoe Bend, Neshaming Creek, 5.V.1954, 75°03'N, 40° 16'W, litter and soil sample, leg. W. Ivie, (5 sp.); USA-195, California, Humboldt County, Patrick's Point State Park, 21.VI.1991, 41°08'N, 124°10'W, coniferous forest, under *Picea sitchensis*, sample of litter and soil, leg. K. Horner, (17 sp.); USA-210, California, Del Norte County, Jedediah Smith State Park, 1.IV.1992, 41°50'N, 124°W, coniferous forest, under *Sequoia sempervirens*, sample of litter and soil, leg. K. Horner, (1 sp.); USA-236, Tennessee, Blount County, Great Smoky Mountains National Park, Karst Quest, White Oak, Blowhole Cave Area, 26.VII.2006, sample of leaf litter outside of the cave, leg. K. Felderhoff, (1 sp.); USA-238, Utah, Sevier County, Clingman's Dome, 24.VI.2006, deciduous bush, pitfall trap on right side of parking lot, leg. S. H. Allen, (1 sp.). Distribution: Holarctic species (NIEDBAŁA 2002).

Phthiracarus modestus Niedbała, 1988 – Material examined: USA-192, California, Del Norte County, Jedediah Smith State Park, 1.IV.1992, 41°50'N, 124°W, coniferous forest, under *Tsuga heterophylla*, sample of litter and soil, leg. K. Horner, (33 sp.); USA-207, California, Del Norte County, Jedediah Smith State Park, 1.IV.1992, 41°50'N, 124°W, coniferous forest, under *Sequoia sempervirens*, sample of litter and soil, leg. K. Horner, (4 sp.). Distribution: Nearctic species restricted so far to the West of the Nearctic Region (NIEDBAŁA 2002).

Phthiracarus pusillus Niedbała, 2001 – Material examined: USA-234, Tennessee, Blount County, Bull Cave Karst, 29.VII.2006, mixed forest, leaf litter sample, leg. P. J. Long, (3 sp.). Distribution: Nearctic species (NIEDBAŁA 2002).

Phthiracarus sarahae Jacot, 1930 – Material examined: USA-300, Washington, San Juan County, Orcas Island, 14.III.1992, 48°38'38"N, 122°58'30"W, 85 m, Turtleback Mountain, oak forest, *Quercus garryana* litter sample, leg. R. Crawford, (1 sp.); USA-445, North Carolina, Haywood County, Blue Ridge Parkway, across from Devils Courthouse, 17.VIII.2005, 32°42'40"N, 39°05'00"W, 1802 m, mixed forest, sample of feathery moss and attached litter, leg. R. Bernard, (2 sp.). Distribution: Nearctic species restricted to eastern part of the Nearctic Region (NIEDBAŁA 2002).

Phthiracarus setosus (Banks, 1895) – Material examined: USA-154, USA, Wisconsin, Milwaukee County, Kletzsch Peak, 6.VI.1978, mixed forest, sample of leaf litter, leg. J. P. Jass, (1 sp.); USA-156, Wisconsin, Milwaukee County, Kletzsch Peak, 10.VII.1978, mixed forest, leaf litter sample, leg. J. P. Jass, (1 sp.); USA-234, Tennessee, Blount County, Bull Cave Karst, 29.VII.2006, mixed forest, leaf litter sample, leg. P. J. Long, (5 sp.). Distribution: Holarctic species (NIEDBAŁA 2002, 2010).

Steganacarus (Rhacaplacarus) thoreauii (Jacot, 1930) – Material examined: USA-445, North Carolina, Haywood County, Blue Ridge Parkway, across from Devils Courthouse, 17.VIII.2005, 32°42'40"N, 39°05'00"W, 1802 m, mixed forest, sample of feathery moss and attached litter, leg. R. Bernard, (20 sp.). Distribution: Nearctic species absent so far from west of the Nearctic Region. (NIEDBAŁA 2002).

Austrophthiracarus olivaceus (Jacot, 1929) – Material examined: USA-240, North Carolina, Graham County, Cherohala Skyway, 27.V.2007, 35°20'41"N, 84°02'06"W, 1403 m, sample of soil under large hardwood lump, leg. A. Fjellberg, (1 sp.). Distribution: Nearctic species absent in south-east of the Nearctic Region (NIEDBAŁA 2002).

Atropacarus (Atropacarus) absimilis (Niedbala, 1982) – Material examined: USA-235, Tennessee, Blount County, White Oak Sink, 28.VII.2006, deciduous forest, sample of leaf litter, leg. K. Felderhoff, (41 sp.); USA-237, Pennsylvania, Cumberland County, Sequatchie River Valley, old route 28, 28.III.2006, base of rock wall, litter and soil sample, leg. J. K. Moulton, (1 sp.); USA-244, North Carolina, Haywood County, 24.V.2007, 35°35'06"N, 83°04'11"W, 762 m, maple forest, sample of material under bark of fallen maple stem, leg. A. Fjellberg, (1 sp.). Distribution: Nearctic species restricted to southeast of the Nearctic Region (NIEDBAŁA 2002).

Atropacarus (Atropacarus) striculus (C. L. Koch, 1835) – Material examined: USA-157, Wisconsin, Milwaukee County, Jacobus Park, 8.IX.1978, mixed forest, leaf litter sample, leg. J. P. Jass, (1 sp.); USA-234, Tennessee, Blount County, Bull Cave Karst, 29.VII.2006, mixed forest, leaf litter sample, leg. P. J. Long, (22 sp.); USA-235, Tennessee, Blount County, White Oak Sink, 28.VII.2006, deciduous forest, sample of leaf litter, leg. K. Felderhoff, (1 sp.); USA-240, North Carolina, Graham County, Cherohala Skyway, 27.V.2007, 35°20'41"N, 84°02'06"W, 1403 m, sample of soil under large hardwood lump, leg. A. Fjellberg, (7 sp.); USA-241, North Carolina, Graham County, Cherohala Skyway, 27.V.2007, 35°20'12"N, 84°02'04"W, 1433 m, hardwood forest, sample of soil and litter, leg. A. Fjellberg, (305 sp.); USA-242, North Carolina, Monroe County, Cherohala 27.V.2007, 35°20'59"N, 84°04'03"W, mixed hardwood and hemlock forest, sample of dry litter, leg. A. Fjellberg, (4 sp.); USA-243, North Carolina, Graham County, Cherohala, 24.V.2007, 35°18'55"N, 84°01'45"W, hardwood, sample of deep moist hardwood litter and soil, leg. A. Fjellberg, (18 sp.); USA-301, Washington, King County, Covington Bog, 3.V.1992, 47°21'14"N, 122°04'23"W, 129 m, drier bog, sample of *Sphagnum* sp., leg. R. Crawford, (1 sp.); USA-306, Washington, Kittitas County, Joe Watt Canyon, 26.III.1991, 47°04'16"N, 120°44'02"W, 640 m, deciduous forest, *Salix* sp. litter sample, leg. R. Crawford, (31 sp.); USA-309, Washington, Mason County, Belfair Bog, 20.III.1992, 116 m, sample of *Sphagnum* sp. from wet bog, leg. R. Crawford, (6 sp.); USA-310, Minnesota, Chippewa National Forest, Leech Lake, Ottertail, 26.IX.2010, 47°15'59"N, 94°23'37"W, 449 m, deciduous forest with dominant sugar maple, leaf litter sample, leg. J. Schlaghamerský, (13 sp.); USA-445, North Carolina, Haywood County, Blue Ridge Parkway, across from Devils Courthouse, 17.VIII.2005, 32°42'40"N, 39°05'00"W, 1802 m, mixed forest, sample of feathery moss and attached litter, leg. R. Bernard, (52 sp.). Distribution: Holarctic species (NIEDBAŁA 2002, 2011).

Atropacarus (Atropacarus) terrapene (Jacot, 1937) – Material examined: USA-234, Tennessee, Blount County, Bull Cave Karst, 29.VII.2006, mixed forest, leaf litter sample, leg. P. J. Long, (3 sp.). Distribution: Nearctic species restricted to central and eastern parts of the Nearctic Region (NIEDBAŁA 2002).

Records from Cuba

Mesotritia elegantula Starý, 1992 – Material examined: K-322, Cuba, Province Habana, Arroyo Bermejo, 25.X.1981, semideciduous forest, North slope, leaf litter sample, leg. J. Rusek, (1 sp.). Distribution: Neotropical species, endemic to Cuba (NIEDBAŁA 2004).

Acrotritia dikra Niedbala et Schatz, 1996 – Material examined: K-271, Cuba, Province Cienfuegos, Yaguramas, 2.X.1981, deciduous forest, decaying wood sample, leg. J. Rusek, (2 sp.). Distribution: Neotropical species probably introduced to Illinois, USA (NIEDBAŁA 2004).

Records from Jamaica

Phthiracarus pandus Niedbała, 2004 – Material examined: JAM-44, Jamaica, Blue Mountains, 15.IV.1992, montane deciduous forest, leaf litter sample, leg. R. Hogervorst, (1 sp.). Distribution: Neotropical species endemic to Jamaica (NIEDBAŁA 2004).

Records from Brazil

Acrotritia dikra Niedbała et Schatz, 1996 – Material examined: Brazil, Rio de Janeiro State, Teresopolis, Parc dos Orgaos, 28.VIII.2010, 22°27'23"S, 42°59'47"W, 1140 m, bushes and perennial plants, leaf litter sample, leg. W. Witaliński, (1 sp.); Brazil, Igarassu near Recife, 25.VIII.2010, 57°48'56" S, 34°57'16" W, 1 m, restoration site for sloughs, litter along the road in Atlantic rain forest, leg. W. Witaliński, (2 sp.). Distribution: Neotropical species probably introduced to Illinois, USA (NIEDBAŁA 2004).

Phthiracarus anonymus Grandjean, 1933 – Material examined: Brazil, Rio de Janeiro State, Teresopolis, Parc dos Orgaos, 28.VIII.2010, 22°27'23"S, 42°59'47"W, 1140 m, bushes and perennial plants, leaf litter sample, leg. W. Witaliński, (1 sp.). Distribution: Semicosmopolitan species (NIEDBAŁA 2011).

Phthiracarus phoxos Niedbała, 2004 – Material examined: BR-046, Brazil, São Paulo State, São Paulo, Instituto Butantan, 50 m from the Museum of Microbiology, 7.XI.2002, secondary Atlantic forest, sample of wet leaf litter, leg. J. Starý, (2 sp.). Distribution: Neotropical species (NIEDBAŁA 2004).

Steganacarus (Rhacaplacarus) brasiliensis (Niedbała, 1988) – Material examined: BR-046, Brazil, São Paulo State, São Paulo, Instituto Butantan, 50 m from the Museum of Microbiology, 7.XI.2002, secondary Atlantic forest, sample of wet leaf litter, leg. J. Starý, (3 sp.). Distribution: Neotropical species, restricted to Central America and Brazil (NIEDBAŁA 2004).

Steganacarus (Rhacaplacarus) sedecimus Niedbała, 2004 – Material examined: Brazil, Rio de Janeiro State, Teresopolis, Parc dos Orgaos, 28.VIII.2010, 22°27'23"S, 42°59'47"W, 1140 m, bushes and perennial plants, leaf litter sample, leg. W. Witaliński, (4 sp.). Distribution: Neotropical species restricted to Brazil and Peru (NIEDBAŁA 2004).

Steganacarus (Steganacarus) rafalskii (Niedbała, 1981) – Material examined: Brazil, Rio de Janeiro State, Teresopolis, Parc dos Orgaos, 28.VIII.2010, 22°27'23"S, 42°59'47"W, 1140 m, bushes and perennial plants, leaf litter sample, leg. W. Witaliński, (1 sp.). Distribution: Neotropical species, perhaps endemic to southeast of Brazil (NIEDBAŁA 2004).

Austrophthiracarus elizabethae (Niedbała, 1988) – Material examined: Brazil, Igarassu near Recife, 25.VIII.2010, 57°48'56"S, 34°57'16"W, 1 m, restoration site for sloughs, litter along the road in Atlantic rain forest, leg. W. Witaliński, (6 sp.). Distribution: Neotropical species, perhaps endemic to Brazil (NIEDBAŁA 2004).

Atropacarus (Hoplophorella) hamatus (Ewing, 1909) – Material examined: Brazil, Igarassu near Recife, 25.VIII.2010, 57°48'56"S, 34°57'16"W, 1 m, restoration site for sloughs, litter along the road in Atlantic rain forest, leg. W. Witaliński, (2 sp.); BR-046, Brazil, São Paulo State, São Paulo, Instituto Butantan, 50 m from the Museum of Microbiology, 7.XI.2002, secondary Atlantic forest, sample of wet leaf litter, leg. J. Starý, (1 sp.). Distribution: Neotropical species (NIEDBAŁA 2004).

Records from Galapagos Islands

Oribotritia didyma Niedbała et Schatz, 1996 – Material examined: GLG-08, Galapagos Islands, Floreana Island, Asilo del la Paz, 17.V.1975, spring in the forest, sample of decaying wood and fern litter and rhizosphere, leg. H. Franz, (3 sp.). Distribution: Meso-america and Galapagos Islands (NIEDBAŁA 2004).

Indotritia bellingeri Niedbała et Schatz, 1996 – Material examined: GLG-11, Galapagos Islands, Isabela Island, Bosque de Jaboncillo near Recinto San Antonio, under Santo Tomas, 29.V.1974, forest litter sample, leg. H. Franz, (2 sp.). Distribution: Pan-neotropical species (NIEDBAŁA 2004).

Indotritia retusa Niedbała et Schatz, 1996 – Material examined: GLG-03, Galapagos Islands, San Cristobal Island, Cerro San Joaquin, 4.V.1975, bush, sample of leaf litter, leg. H. Franz, (1 sp.); GLG-04, Galapagos Islands, San Cristobal Island, 5.V.1975, ravine with arborescent fern, sample of fern litter, leg. H. Franz, (94 sp.); GLG-08, Galapagos Islands, Floreana Island, Asilo del la Paz, 17.V.1975, spring in the forest, sample of decaying wood and fern litter and rhizosphere, leg. H. Franz, (39 sp.); GLG-11, Galapagos Islands, Isabela Island, Bosque de Jaboncillo near Recinto San Antonio, under Santo Tomas, 29.V.1974, forest litter sample, leg. H. Franz, (1 sp.); GLG-12, Galapagos Islands, Isabela Island, Volcan Cerro Negro, 30.V.1975, growth in lava depression in volcano margin, sample of moss and fern rhizosphere, leg. H. Franz, (14 sp.). Distribution: Neotropical species, Galapagos Islands and the Antilles only (NIEDBAŁA 2004).

Acrotritia vestita (Berlese, 1913)– Material examined: GLG-04, Galapagos Islands, San Cristobal Island, 5.V.1975, ravine with arborescent fern, sample of fern litter, leg. H. Franz, (1 sp.). Distribution: Pantropical species (NIEDBAŁA 2011).

HOMONYM TAXON

Austrophthiracarus longisetosus Niedbała et Starý, 2015 from Bolivia is a junior homonym of *Austrophthiracarus longisetosus* Lieu et Chen, 2014 from China. Therefore we replace it with *Austrophthiracarus longisetus* nom. n.

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