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## Four new species of the genus *Megalomya* UCHIDA (Hymenoptera, Ichneumonidae, Alomyinae) from Laos

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**A b s t r a c t :** Four new species of the genus *Megalomya* UCHIDA are described from Laos: *Megalomya albomaculatus* nov.sp., *M. melanogaster* nov.sp., *M. nigrolineatus* nov.sp. and *M. rufator* nov.sp. The new taxa are known from one sex only, the opposite sexes are undescribed yet.

All new taxa are described in detail and illustrated and a differential diagnosis to other known *Megalomya* species is given.

**K e y w o r d s :** *Megalomya*, new species, Alomyinae, Laos, Oriental region.

### Introduction

The genus *Megalomya* UCHIDA, 1940 is a small and apparently rare genus of Ichneumonidae belonging to the subfamily Alomyinae (BROAD et al. 2018). Only four species have been described so far (UCHIDA 1940, HE 1991), all of them were found in the Southeastern parts of China. A detailed description of the general morphology of the genus *Megalomya* was recently published in HE (1991) and is not repeated here.

The biology of *Megalomya* is still poorly known, but one species, *M. hepialivora* HE, 1991, has been reared from a swift moth (Lepidoptera, Hepialidae), a lepidopteran family that is also been known as hosts for the other genus of Alomyinae, *Alomya* PANZER, 1806 (BROAD et al. 2018).

In this publication, four species of *Megalomya* UCHIDA from Laos are described as new. Although the opposite sexes are still unknown for these new taxa, the descriptions might be useful contributions to our knowledge of these rare Oriental Ichneumonids.

### Material and Methods

All specimens were collected in Laos by C. Holzschuh and native collectors and are deposited in the Hymenoptera collection of the Biologiezentrum Linz (Austria). The nomenclature of the body structures is adopted from BROAD et al. (2018).

For the measurements, an Olympus SZX 7 stereo microscope with dividing eyepiece was used. The figures were taken with an Olympus SC 30 CCD-camera using the AnalySIS getIT and Helicon Pro softwares and proceeded with the Microsoft Office picture manager.

## Descriptions of species

### *Megalomya albomaculatus* nov.sp. (figs 1, 4, 5, 9)

Type material: **Holotype:** ♂ "Lao, Hua Phan Prov., Phon-Pan, Umg. Ort Ban Saleui, 20°13'30''N 103°59'26''E, 1350-1900 m MSL. 10.05.2011, leg. C. Holzschuh & natives" (Linz).

**Description:** ♂. Body length 21 mm. Flagellum with 34 flagellomeres, almost filiform; all flagellomeres longer than wide. Temples strongly and linearly narrowed behind eyes, seen from dorsal about 0.6x as long as eyes, smooth and with very scattered fine punctures. Occipital carina complete and slightly lamelliform. Frons strongly impressed centrally, with a large tooth-shaped median extension (fig. 4). Face and clypeus coarsely and densely punctate. Inner eye margins slightly divergent ventrally. Apical margin of clypeus slightly concave. Labrum exposed, with concave apical margin (fig. 5).

Pronotum smooth, with scattered fine setiferous punctures; short epomia present. Notauli strongly impressed in frontal 0.6 of mesoscutum. Mesoscutum smooth and shining, with scattered punctures and some irregular rugae. Subtegular ridges slightly widened frontally, mainly sharp. Mesopleura smooth, with scattered fine punctures. Metapleura with scattered punctures dorsally and some coarse rugae ventrally. Scuto-scutellar groove narrow, arc-shaped. Scutellum flat, longer than wide, punctate, without lateral carina. Area basalis with strong median tubercle. Area externa smooth. Areae superomedia and dentipara with transversal rugae. Area petiolaris with some irregular rugae. Hind femur 4.0x longer than wide.

Areolet pentagonal, 2<sup>nd</sup> recurrent vein reaching areolet at its distal 0.7. Nervulus postfurcal by 0.7x its length. Nervellus in hind wing intercepted at apical 0.6.

1<sup>st</sup> tergite c.1.4x longer than wide, with median longitudinal impression and coarse rugae. 2<sup>nd</sup> tergite about as long as wide, with coarse rugae in basal half and dense punctures in apical half. 3<sup>rd</sup> tergite 0.95x as long as wide, densely punctate, with fine rugae in basal fourth.

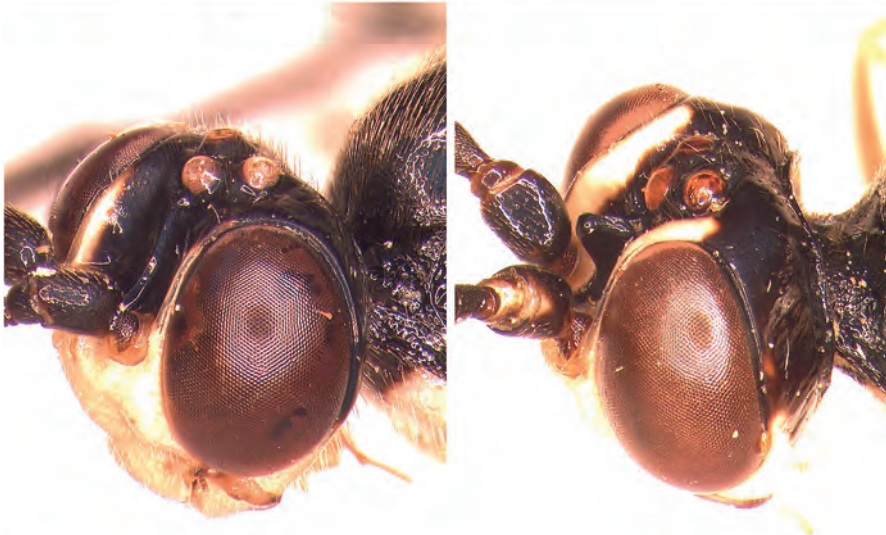
Color: Black. Ivory are flagellomeres 13-25, palps, mandibles except teeth, labrum, clypeus, face, genae and malar spaces, frontal orbits, propleura, two paramedian longitudinal stripes on mesoscutum (interrupted in the center), tegulae, subtegular ridges, stripe on mesopleura, scutellum and postscutellum. Metasoma black, 1<sup>st</sup> tergite apically and 2<sup>nd</sup> tergite basally with some reddish-brown suffusion. Fore coxae completely and mid and hind coxae apically, all trochanters and trochantelli ivory. Femora brown, fore and mid femora with ivory frontal stripes. Tibiae and tarsi ivory. Wings moderately infuscate, with stronger infuscation on frontal margin of fore wing; pterostigma black.

♀ unknown.

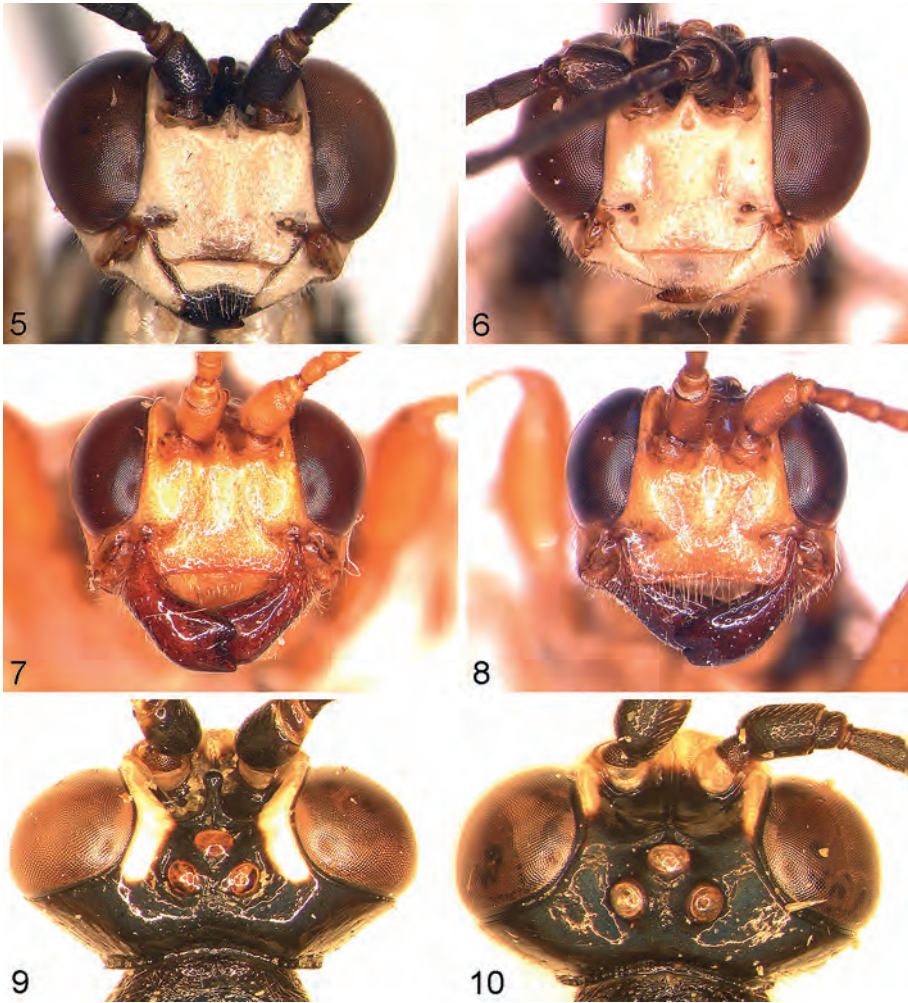
**Remark:** This new species is characterized by the concave apical margins of clypeus and labrum, the extended ivory coloration, strong tooth-shaped extension of frons and strongly postfurcal nervulus. In the key of the known *Megalomya* males (HE 1991), this new taxon runs to *M. longiabdominalis* UCHIDA, 1940, but differs by the form of clypeus and labrum, darker metasoma, ivory flagellar ring, ivory stripes on mesoscutum and a different surface structure of the 2<sup>nd</sup> tergite.

***Megalomya melanogaster* nov.sp. (figs 3, 6, 10)**

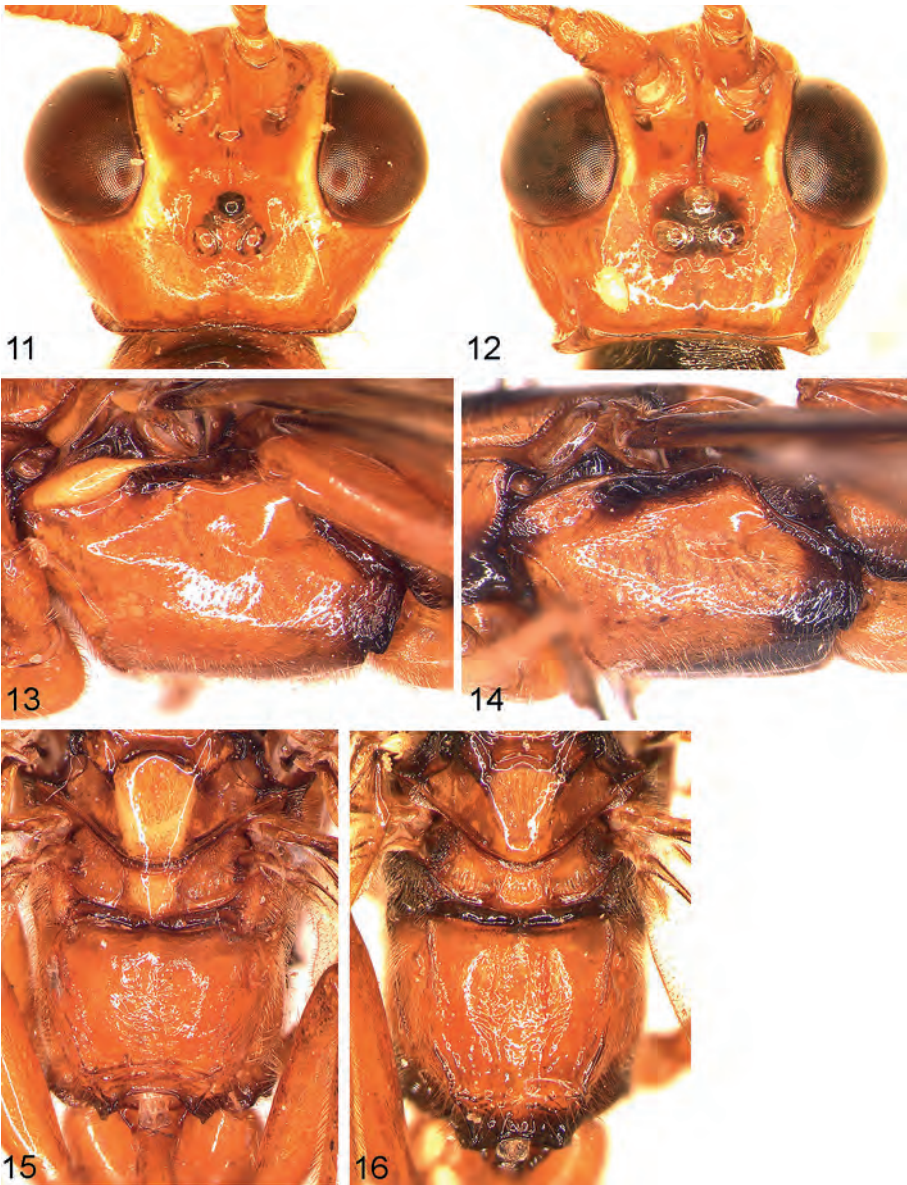
Type material: **Holotype:** ♂ "Laos, Hua Phan Prov., Ban Saleui, Phon-Pan-Mt., 20°13'30''N 103°59'26''E, 1350-1900 m, 04.05.2011, leg. C. Holzschuh & natives" (Linz).



**3** **4**  
**Figs 1-2:** Habitus dorsally: (1) *Megalomya albomaculatus* nov.sp. ♂; (2) *Megalomya rufator* nov.sp. ♀. **Figs 3-4:** Head dorsolaterally: (3) *Megalomya melanogaster* nov.sp. ♂; (4) *Megalomya albomaculatus* nov.sp. ♂.



**Figs 5-8:** Face frontally: (5) *Megalomyia albopunctatus* nov.sp. ♂; (6) *Megalomyia melanogaster* nov.sp. ♂; (7) *Megalomyia rufator* nov.sp. ♀; (8) *Megalomyia nigrolineatus* nov.sp. ♀. **Figs 9-10:** Head dorsally: (9) *Megalomyia albopunctatus* nov.sp. ♂; (10) *Megalomyia melanogaster* nov.sp. ♂.



**Figs 11-12:** Head dorsally: (11) *Megalomyia rufator* nov.sp. ♀; (12) *Megalomyia nigrolineatus* nov.sp. ♀. **Figs 13-14:** Mesopleuron: (13) *Megalomyia rufator* nov.sp. ♀; (14) *Megalomyia nigrolineatus* nov.sp. ♀. **Figs 15-16:** Propodeum dorsally: (15) *Megalomyia rufator* nov.sp. ♀; (16) *Megalomyia nigrolineatus* nov.sp. ♀.



**Figs 17-18:** Head dorsolaterally: (17) *Megalomya rufator* nov.sp. ♀; (18) *Megalomya nigrolineatus* nov.sp. ♀.

**Description:** ♂. Body length 18 mm. Flagellum with 35 flagellomeres, almost filiform; all flagellomeres distinctly longer than wide. Temples strongly and linearly narrowed behind eyes, smooth with very scattered fine punctures. Occipital carina complete and slightly lamelliform. Frons strongly impressed centrally, with fine longitudinal median ridge (fig. 3). Face and clypeus with coarse punctures. Inner eye margins slightly divergent ventrally. Apical margin of clypeus straight. Labrum exposed, with rounded apical margin (fig. 6).

Sides of pronotum smooth, with scattered fine setiferous punctures in dorsal fourth, epomia present. Notauli strongly impressed in frontal 0.5 of mesoscutum. Mesoscutum smooth and shining, with scattered punctures. Subtegular ridges swollen and bulging frontally, sharp in caudal half. Mesopleura with rather dense fine punctures, specula smooth. Metapleura completely rugose. Scuto-scutellar groove narrow, arc-shaped. Scutellum flat, longer than wide, punctate, without lateral carina. Area basalis with strong median tubercle. Area externa smooth. Areae superomedia, dentipara and petiolaris with some coarse longitudinal rugae. Hind femur 5.1x longer than wide.

Areolet pentagonal, 2<sup>nd</sup> recurrent vein reaching areolet at its distal 0.6. Nervulus slightly postfurcal (by 0.5x its width). Nervellus in hind wing intercepted at apical 0.6.

Metasoma slender, strongly shining. 1<sup>st</sup> tergite 2.5x longer than wide, rugose-punctate. 2<sup>nd</sup> tergite 1.5x longer than wide, rugose-punctate in basal third, almost smooth centrally, with scattered punctures in apical fourth. 3<sup>rd</sup> tergite 1.25x longer than wide, densely punctate.

Color: Black. Ivory are palps, mandibles except teeth, labrum, clypeus, face, genae and malar spaces, frontal orbits, propleura, spot on tegulae, subtegular ridges and stripe on mesopleura. Tergites completely black. Fore and mid coxae and trochanters ivory. Fore and mid legs otherwise reddish. Hind legs including hind coxae black; hind trochanters ivory ventrally. Wings slightly infuscate; pterostigma black.

♀ unknown.

Remark: This new species is characterized by the fine median ridge of the frons (without a median tooth-shaped or lamelliform extension as present in all other known *Megalomya* species), the completely black metasoma, slender 2<sup>nd</sup> and 3<sup>rd</sup> tergites and the characteristic color pattern.

***Megalomya nigrolineatus* nov.sp. (figs 8, 12, 14, 16, 18)**

Type material: Holotype: ♀ "Lao, Hua Phan Prov., Phon-Pan, Umg. Ort Ban Saleui, 20°13'30"N 103°59'26"E, 1350-1900 m MSL, 27.06.201 KJa, leg. C. Holzschuh & natives" (Linz).

Description: ♀. Body length 23 mm. Flagellum with 36 flagellomeres, stout; 1<sup>st</sup> flagellomere 1.6x longer than wide, widest ones about 1.2x wider than long. Temples moderately and linearly narrowed behind eyes, not punctate, about 0.75x as long as eyes (fig. 12). Occipital carina narrow medially, ± lamelliform laterally and ventrally. Frons strongly impressed centrally, smooth, with a strong triangular median lamella (fig. 17). Face and clypeus densely punctate. Clypeus 3.3x wider than long, apical margin moderately concave. Labrum exposed, with rounded apical margin. Mandibles strongly swollen, lower teeth larger than upper ones.

Sides of pronotum largely smooth, with few fine punctures at upper margin, pronotal groove with some coarse transversal ridges in dorsal half; epomia present as a short blunt ridge between collare and pronotal groove. Mesoscutum smooth and shining, with fine scattered punctures; notauli impressed in frontal 0.45 of mesoscutum. Subtegal ridges sharp and narrow (fig. 14). Mesopleura with rather dense coarse punctures, specula smooth (fig. 14). Metapleura with dense punctures, partly rugose in ventral 1/4. Scutellum flat, longer than wide, with very scattered fine punctures and without lateral carinae. Propodeum largely smooth, with basomedian tubercle and partly distinct paramedian longitudinal rugae. Lateral longitudinal carinae present; apical transversal carina ± developed. Femora stout; fore femora 2.8x, mid femora 3.2x, and hind femora 3.9x longer than wide.

Areolet pentagonal; 2<sup>nd</sup> recurrent vein in its distal 0.65. Nervulus strongly postfurcal (by 0.4x its length). Nervellus of hind wing intercepted at apical 0.6.

Metasoma rather slender, smooth and shining. 1<sup>st</sup> tergite 2.2x longer than wide, with few scattered punctures. 2<sup>nd</sup> tergite 1.35x longer than wide, 3<sup>rd</sup> tergite 1.15x longer than wide; tergites smooth, with few fine punctures.

Color: Mainly reddish. Flagellum reddish, flagellomeres 11-17 yellowish, following distal flagellomeres infuscate. Mandibles brown. Frontal orbits yellowish. Blackish are stemmaticum, collare, two longitudinal sublateral stripes on mesoscutum, mesosternum, dorsal and apical margins of mesopleura, margins of pronotum, ventral margin of metapleura. Wings slightly infuscate, darker at frontal margin of fore wing; pterostigma black, brownish centrally.

♂ unknown.

Remark: This new taxon runs to *Megalomya townesi* HE, 1991 in the key of known females (HE 1991) but differs by the completely red metasoma, densely punctate clypeus, and fine and scattered punctuation on mesoscutum.

It can be differentiated from *Megalomya rufator* nov.sp. by slenderer and tricolored flagella, a denser punctuation of mesopleura, sharp subtegal ridges, distinct lateral

longitudinal carinae of propodeum, black coloration of stemmaticum and mesosoma and lack of yellow spots on subtegular ridges and scutellum.

The differences between *Megalomya townesi* HE, *M. rufator* nov.sp. and *M. nigrolineatus* nov.sp. seem to be small. It is not impossible that they represent conspecific variants of a variable species. Due to the limited material, a definite taxonomical separation will be only possible with more material and a description of all males.

***Megalomya rufator* nov.sp. (figs 2, 7, 11, 13, 15, 17)**

Type material: Holotype: ♀ "Lao, Hua Phan Prov., Phon-Pan, Umg. Ort Ban Saleui, 20°13'30''N 103°59'26''E, 1350-1900 m MSL, 28.04.2012 KJa, leg. C. Holzschuh & natives" (Linz).

Description: ♀. Body length 26 mm. Flagellum with 34 flagellomeres, stout; 1<sup>st</sup> flagellomere about square; following flagellomeres (except the apical ones) wider than long, widest ones about 1.3x wider than long. Temples moderately and linearly narrowed behind eyes, not punctate, about 0.7x as long as eye (fig. 11). Occipital carina narrow medially, ± lamelliform laterally and ventrally. Frons strongly impressed centrally, smooth, with a strong triangular median lamella. Face and clypeus densely punctate. Clypeus c.3.1x wider than long, apical margin moderately concave. Labrum exposed, with rounded apical margin. Mandibles strongly swollen, lower teeth larger than upper ones.

Sides of pronotum largely smooth, with few fine punctures at upper margin, pronotal groove with some coarse transversal ridges in dorsal half, epomia absent. Mesoscutum smooth and shining, with fine scattered punctures; notauli impressed in frontal 0.35 of mesoscutum. Subtegular ridges swollen in anterior half (fig. 13). Mesopleura with scattered and partly superficial punctures, specula smooth (fig. 13). Metapleura with scattered punctures, partly rugose in ventral 1/4. Scutellum flat, longer than wide, with very scattered fine punctures and without lateral carinae. Propodeum largely smooth, with basomedian tubercle and moderate median impression and some paramedian transversal rugae. Apical transversal carina ± developed. Femora stout; fore femora 2.8x, mid femora 3.0x and hind femora 3.6x longer than wide.

Areolet pentagonal, 2<sup>nd</sup> recurrent vein in its distal 0.7. Nervulus strongly postfurcal (by 0.5x its length). Nervellus of hind wing intercepted at apical 0.6.

Metasoma rather slender, smooth and shining. 1<sup>st</sup> tergite 2.1x longer than wide, with few scattered punctures. 2<sup>nd</sup> tergite 1.33x longer than wide, 3<sup>rd</sup> tergite 1.2x longer than wide; tergites smooth, with few fine punctures.

Color: Reddish. Flagellum yellowish, narrowly darkened at apex. Mandibles brown. Yellowish are clypeus, face, frontal orbits, paramedian stripes on frontal mesoscutum, spot on tegulae, subtegular ridges, scutellum and postscutellum. Collare, hind margin of mesopleura and basal and apical margins of propodeum blackish. Wings slightly infusate, darker at frontal margin of fore wing; pterostigma black, brownish centrally.

♂ unknown.

Remark: This new species also runs to *M. townesi* HE and *M. rufator* nov.sp. in the key of known females (HE 1991). It differs from *M. townesi* by the completely red metasoma, densely punctate clypeus, fine and scattered punctation on mesoscutum, yellow spots on mesoscutum medially to notauli, yellow subtegular ridges, scutellum and postscutel-



lum, and the dark pterostigma. It can be differentiated from *M. nigrolineatus* nov.sp. by stouter flagella, scattered and superficial punctuation of mesopleura, swollen subtegular ridges, and yellow spots on subtegular ridges and scutellum.

### Acknowledgement

I thank Martin Schwarz and Fritz Gusenleitner (Biologiezentrum Linz, Austria) for their kind help and generous loan of the Oriental *Megalomya* material.

### Zusammenfassung

In der vorliegenden Arbeit werden vier neue Arten der Gattung *Megalomya* UCHIDA aus Laos beschrieben: *Megalomya albomaculatus* nov.sp., *M. melanogaster* nov.sp., *M. nigrolineatus* nov.sp. und *M. rufator* nov.sp. Alle neuen Taxa sind bisher nur in einem Geschlecht bekannt.

Die neuen Arten werden ausführlich beschrieben und illustriert. Außerdem werden Unterschiede zu den bisher bekannten Arten der Gattung genannt.

### References

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