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NEW AND LITTLE-KNOWN SPECIES OF ORIBATID MITES (ACARI: ORIBATIDA) IN THE MOUNTAIN AREAS OF SIBERIA

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Summary. *Lepidozetes baikalensis* Ryabinin, **sp. n.** from the Republic of Buryatia (Eastern Sayan Mountains, Tunkinsky Golts Range) is described. New species differs from congeners by smooth surface of body, by rounded rostrum, by concave medially interior margin of fused lamellae, by sensilli on short stalk with an expanding thick head, by 10 pairs of notogastral setae, and by tarsus with three claws. *Lamellovertex caelatus* (Berlese 1895) is recorded for the first time from East Palaearctic.

Key words: Oribatida, *Lepidozetes*, *Lamellovertex*, new species, distribution, new record, East Palaearctic.

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Резюме. Из Республики Бурятия (Восточные Саяны, хребет Тункинские гольцы) описан *Lepidozetes baikalensis* Ryabinin, **sp. n.** Новый вид отличается от других видов рода следующими признаками: поверхность тела гладкая, рострум закруглен, передняя часть сросшихся ламелл с медиальной неглубокой вырезкой, сенсиллы на короткой ножке с расширяющейся толстой головкой, нотогастральных щетинок 10 пар, лапки с тремя коготками. Впервые для восточного сектора Палеарктики указывается *Lamellovertex caelatus* (Berlese 1895).

INTRODUCTION

Oribatid mites are one of the most numerous and species-rich groups of soil mesofauna. They are small arthropods, their size varies from 0.15 mm to 2 mm (most species being 0.3–0.6 mm). They inhabit almost all types of soils on Earth, from tropical forests and deserts to icy expanse of Antarctica. In the forests their density reaches hundreds of thousands on 1 square meter. They live in forest litter and soil, on bark and under bark of trees, in nests and in the plumage of birds; some adapted to live on aquatic plants. Most of these mites are evident hygrophile, but there are species that live in sharply xerophile environments such as rocks, lichens, steppes and deserts. Others live in wetland substrates like marshes, sphagnum moss, and even in water and on water plants. The majority of them are concentrated in the upper soil layer of 5 to 10 cm. It was found out that the main factors affecting the number of

these mites are moisture, the amount of plant residues, which comes into the soil and the rate of litter decomposition. Among Oribatida have not parasites and predators. Interest in them called as Oribatida are intermediate hosts of helminthes of cattle and wild animals that cause considerable damage to livestock. Together with other soil invertebrates they help aerate the soil, mix the mineral particles with plant remains that improves water regime and structure of soil.

Currently, more than 12000 species of oribatid mites are known in the world, including over 1300 species in Russia (Subias, 2017). In the Russian Far East, there are more than 600 species of Oribatida and this is not the limit (Ryabinin, 2015). Twelve new oribatid genera and 115 new species were described from the Russian Far East during 1957–2018. Oribatid fauna in the northern territories studied so far poorly, virtually unstudied mountain countries in the Russian Far East.

Mountains occupy a large part of the territory of Eastern Siberia and the Far East of Russia. The investigation of the mites fauna of mountain territories brings always new findings. Thus, during the processing of materials collected in the highlands of the Tunkinsky Golts Range (Republic of Buryatia), a new for science of oribatid mite of the genus *Lepidozetes* was discovered, the description of which is given below. Body measurements are presented in micrometers.

DESCRIPTION OF NEW SPECIES

Lepidozetes baikalensis **Ryabinin, sp. n.**
Figs 1–3

MATERIAL. Holotype – ♂, **Republic of Buryatia**: Tunkinsky District, Eastern Sayan Mountains, Tunkinsky Golts Range, lichen tundra, h~2500 m, 1.VII 1987, collector M.N. Pyshnenko. Paratype: 1 ♂, same data as holotype. Holotype is deposited in the collection of Institute of Ecology and Evolution, Russian Academy of Sciences (Russia, Moscow), paratype is stored in the collection of Nikolay Ryabinin (Russia, Khabarovsk).

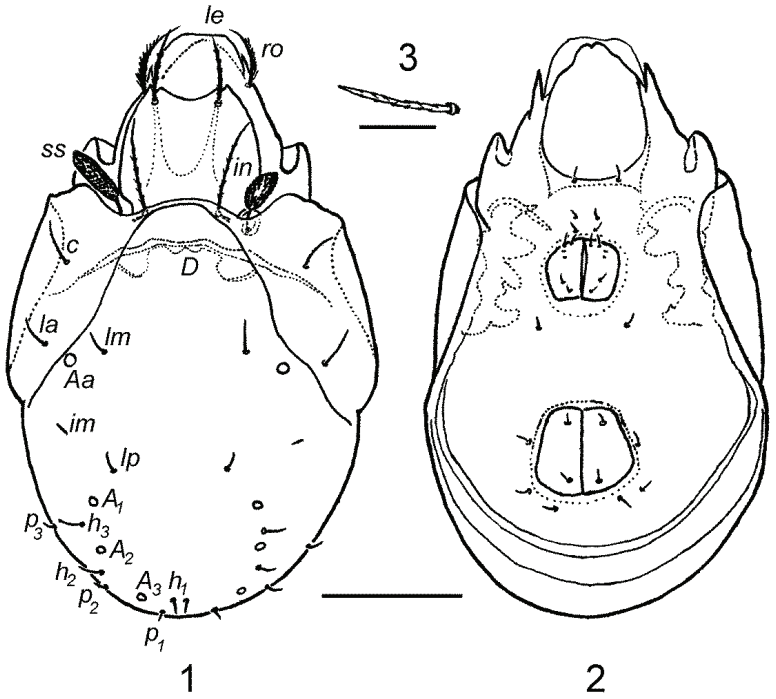
DIAGNOSIS. Body size 420 x 250. Body surface smooth. Rostrum rounded. Anterior margin of lamellae concave medially. Interlamellar setae (*in*) longer than rostral (*ro*) and lamellar (*le*) setae. Sensilli (*ss*) with enlarged, thick head. Tutoria with one tooth. Notogastral setae short, thin, slightly barbed. Tarsus with three claws.

DESCRIPTION. Male. *Integument*. Light brown mites with smooth covers. Body size 420 x 250.

Prodorsum. Rostrum is broadly rounded with flattened apex. Lamellae are fused, long and broad, cover almost the entire surface of the prodorsum, and do not reach the anterior margin of the rostrum. Anterior margin of lamellae concave medially. Dorsal sides of lamellae rounded. A dark loop is visible on the protruding part of the rostrum. The rostral setae (44) are slightly protrude beyond the apex of the rostrum, stout, begin under the anterior part of the tutoria, and on the outside are covered with numerous bristles. Lamellar setae (53) are slightly thinner than rostral setae, they begin under the anterior part of the lamellae; reach the end of the rostrum. They are almost parallel, covered with rare bristles. Interlamellar setae (76) are one and a half times as long as lamellar setae, start on well-marked sclerotized ridges under the hysterosome edge, which is curved forward. They are strong, covered with rare bristles, directed forward and reach the bases of lamellar setae. Sensilli are on a short, dense stalk with an enlarged, thick head. They are covered with dense hairs (especially on the outside and in the front). In the middle of the head can see a bright space.

Notogaster. Pteromorphs are connected by a bridge. Anterior margins of pteromorphs are without tooth. They protrude a little for the front arcuate edge of the notogaster. Dorsophragmata (*D*) are small, located close to each other. Lenticulus absent. Notogaster is broader in the middle, carries 10 pairs of setae (22-26) covered with small spinules, posterior setae p_1, p_2, p_3 shorter than other setae. There are four pairs of porose areas, *Aa* (7) are larger than the others.

The ventral side. Genital (44) and anal (66) openings are small, trapezoidal; the distance between them is about twice the length of the genital. Genital setae 6 pairs, anal 2 pairs, aggenital 1 pair, adanal 3 pairs. The epimeral formula 3-1-3-3. All ventral setae thin, smooth. Tarsus with 3 claws.



Figs. 1–3. *Lepidozetes baikalensis* sp. n., adult male, holotype. 1 – dorsal view; 2 – ventral view; 3 – setae *c*. Scale bar 1, 2 = 100 μm; 3 = 10μm.

DIFFERENTIAL DIAGNOSIS. There are currently seven species in the genus *Lepidozetes* Berlese, 1910: *L. acutirostrum* Ermilov, Martens et Tolstikov, 2013, *L. bavaricus* Weigmann, 2013, *L. dashidorzsi* Balogh et Mahunka, 1965, *L. latipilosus* Hammer, 1952, *L. singularis* Berlese, 1910, *L. trifolius* (Fujikawa, 1972), and *L. umbellatus* (Bugrov, 1991) (Subias, 2017). Of these, three species (*L. bavaricus*, *L. latipilosus* and *L. singularis*) do not have a medial notch on lamellae. *L. baikalensis* sp. n. differs from *L. acutirostrum* by the absence of a small prong on the apex of the rostrum, clavate sensilli on a short stalk (in *L. acutirostrum* they with lanceolate head), convex sejugal furrow, protruding beyond the sejugal furrow with the upper edges of the pteromorph. From *L. dashidorzsi* the new species differs in smaller size (*L. dashidorzsi* size 0.5–0.56 mm), clavate sensilli on a short stalk (in *L. dashidorzsi* they are spindle-shaped), by pteromorphs outstanding for the sejugal furrow.

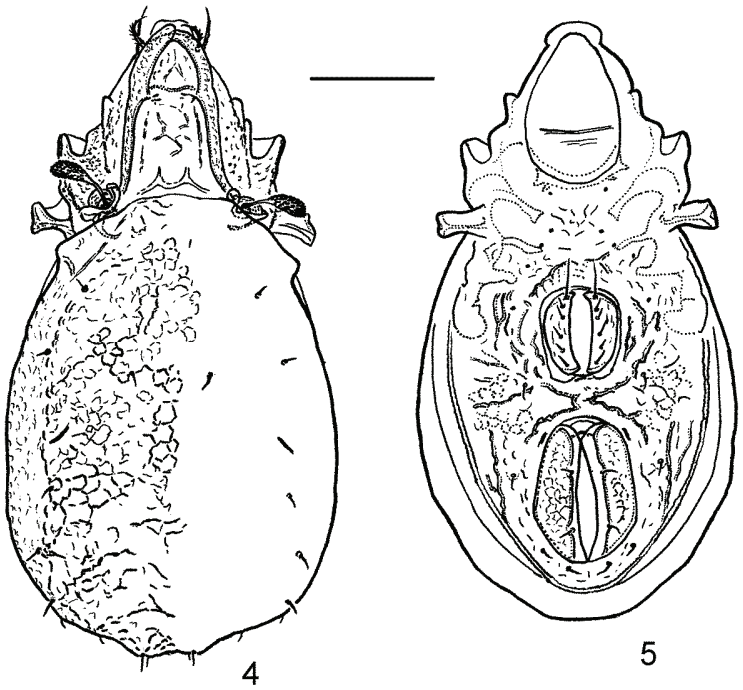
L. baikalensis sp. n. has significant differences from *L. trifolius*, described from Japan (Fujikawa, 1972). *L. trifolius* has a smaller size (0.3 mm), bacillus smooth sensilli, very short lamellar and interlamellar setae, the anterior margin of the pteromorph does not protrude beyond the sejugal furrow, and also 1 claw on the legs. *L. umbellatus* has spindle-shaped sensilli with a pointed apex, in addition, it has 5 genital setae and somewhat larger (0.56 mm) than *L. baikalensis* sp. n.

NOTES. The systematic position of species of the genus *Lepidozetes* needs to be clarified. Presence or absence of medial notch, 1–3 claws on legs, 5–6 pairs of genital setae – all this requires more detailed consideration.

NEW RECORD

The second interesting species of oribatid mites is also found in Buryatia. Data on finding of *Lamellovertex* sp. in the eastern part of the Palaearctic was mentioned earlier (Ryabinin, 2007). Here this species is identified as *Lamellovertex caelatus* (Berlese 1895). The specimens from Buratia have some differences from the European specimens. I consider it necessary to give a brief description and a drawing of this species.

Lamellovertex caelatus **(Berlese 1895)**
Figs 4, 5



Figs. 4, 5. *Lamellovertex caelatus* (Berlese 1895), adult male. 4 – dorsal view; 5 – ventral view. Scale bar = 100 μm.

MATERIAL. **Republic of Buryatia**: Tunkinsky District, Eastern Sayan Mountains, Tunkinsky Golts Range, lichen tundra (about 2,500 m above sea level), 1.VIII 1987, 2 ♂, collector M.N. Pyshnenko.

DESCRIPTION. Light brown mites, length is 520, width is 270. The boundary between the proterosoma and the hysterosoma is sometimes not clear. Rostrum is rounded with a small visor. Lamellae are narrow, cover an insignificant part of the proterosoma, the cusps are large, their distal ends sometimes overlap, the translamella is only indicated. Lamellar setae are attached under lamellas, crescent-shaped, covered with small setae. Rostral setae are 1.5 times longer, slightly curved, rough. Interlamellar and exobothridial setae, as well as other representatives of the genus, are absent. Sensilli are short, clavate, the heads are covered with coarse bristles.

The dorsal side is ovoid with humeral protuberances, with several depressions on the dorsal side. The surface of body is covered with interrupted network-like ornamentation from tubercles and ridges of a variety of configuration. Setae (10 pairs) small (8–11), poorly visible. The ventral side has characteristic of the *Lamellovertex* structure, covered with tubercles and valleys of various shapes. Pedotectes I and II are very large. The genital opening (71) is 1.5 times smaller than the anal (115), genital setae of 6 pairs (g_1 is twice as long as the others), aggenital 1 pair, anal 2 pairs, adanal 3 pairs. The legs are short, massive, with various sprouting and spines. Legs with 1 large claw.

NOTES. This is the first finding of representatives of the genus *Lamellovertex* Bernini, 1976 within the Asian sector of the Palaearctic. Prior to this, the species was known in the Caucasus, in the vicinity of Novorossiysk, as well as in Italy, Switzerland and Turkey (Shtanchayeva & Netuzhilin, 2003; Ayyildiz *et al*., 2005). *L. caelatus* from Buryatia has a number of differences from European specimens, but they cannot be the basis for description the species new for science.

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